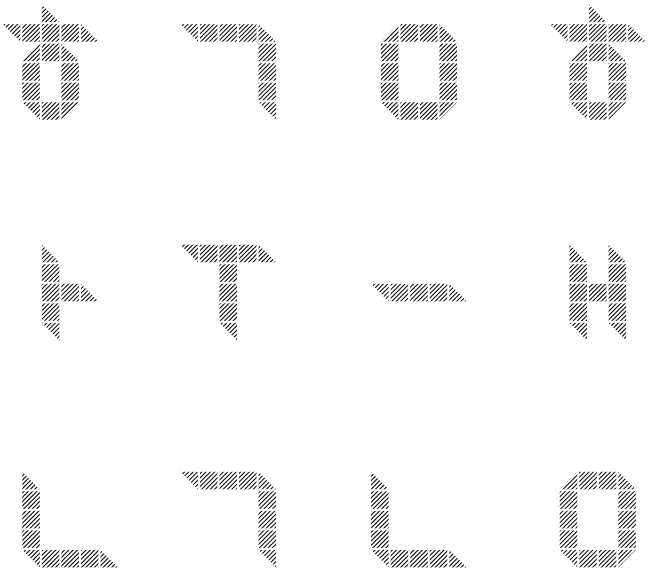
Financial Markets in Korea

2017

THE BANK OF KOREA



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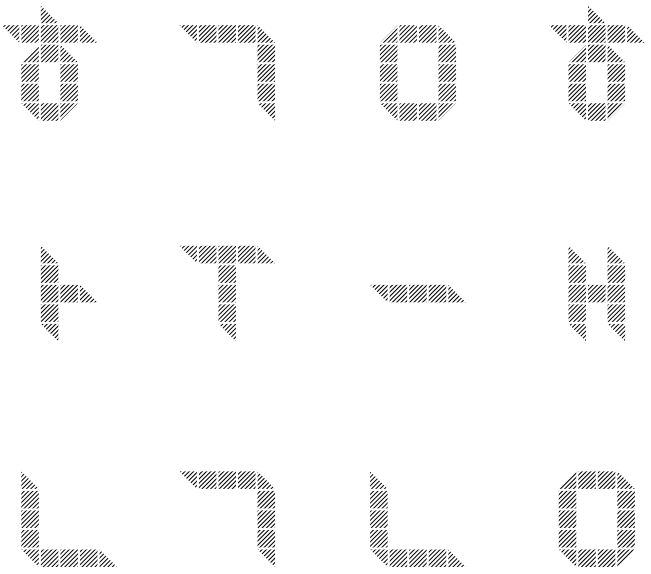

Preface

The Bank of Korea first published「Financial Markets in Korea」(Korean edition) in 1999, to serve readers as a solid introduction to Korea's financial markets, and the book has been revised every two to three years. As the Korean financial market as a whole has grown rapidly and the market infrastructure has been greatly enhanced, global interest in the market has also increased significantly. Reflecting this upgraded standing of the Korean financial market, the first English language edition of the book was published in 2013.

Since the first English edition was published, the domestic financial markets have gone through many changes. In the first place, the overall financial market size has grown from 2,806 trillion won at year-end 2012 to 3,393 trillion won at the end of June 2016.

There have also been many changes in the financial market-related systems in Korea. One such change has been a reorganization of the short-term financial markets to reduce overreliance on the call market and promote the repo market. Electronic short-term bonds have also been introduced, to make the processes of short-term securities issuance and circulation more convenient and to enhance investor protection. With regard to the capital markets, measures such as improvements in the book-building system have been adopted, in order to develop the corporate bond market infrastructure.

To reflect these changes, the Bank of Korea publishes this second English edition. This book provides an overview of Korea's financial market structure, and of recent developments related to its individual markets. Chapter 1 introduces the structure and size of the financial market as a whole, while Chapters 2 through 4 describe the money markets, the capital markets and the financial derivatives markets respectively, covering their trading terms and conditions, participants, transaction mechanisms and recent developments. Detailed explanations of major recent issues concerning the financial markets, including notable developments and institutional changes, are also available in the Boxes included throughout the text.

It is expected that this book will provide readers good guidance for better understanding of the financial markets in Korea.

June 2017

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Contents

List of Tables

List of Figures

List of Boxes


MARKET DATA
INTEREST RATE
MARKET RATES
CURRENCIES
POUND
Closing mid
Day's change
Mar 3
US$ Libor
Euro Libor
£ Libor
EURO
Day's change
+0.1878
+0.1783
+0.0250
+0.0249
+0.0257
+0.0080
-0.0314
+0.0180
+0.0104
90.1927
92.2109
5.5469
5.5447
5.5112
5.0765
48.9171
6.5682
6.5718
6.6357
+0.1010
+0.0903
+0.0155
+0.0154
+0.0159
+0.0040
-0.0563
+0.0103
+0.0105
+0.0122
+0.0125

Chapter 1

Overview

How the financial market is structured

A financial market is a venue in which financial transactions are systematically conducted between those who demand funds and those who supply them. The financial markets can be categorized into direct and indirect markets, depending on whether or not the transactions are performed through financial intermediaries. In the direct financial markets, those in need of funds raise money directly by issuing securities under their names. Some of the most common forms of such securities are stocks and bonds. In the indirect financial markets, financial transactions flow from the suppliers of funds to the demanders through financial intermediaries such as banks. In such markets, deposits and loans are the major forms of financial transactions. Financial innovation since the 1990s has created lots of new financial instruments, resulting in more rapid growth of the direct financial markets, where a wider variety of instruments can be traded, than the indirect markets.

The direct financial markets are subclassified into the money markets and the capital markets, in line with the maturities of the financial instruments involved.[1)] The money markets are where instruments with maturities of one year or less are traded so as to smooth out economic entities' short-term money surpluses and deficits. At present, Korea's money markets include the call market, the repurchase agreement (repo) market, the certificate of deposit (CD) market, the commercial paper (CP) market, and the electronic short-term bond market, among others.[2)]

The capital markets, consisting of the stock market and the bond market, are where financial instruments with maturities of longer than one year are traded. The stock market is composed of the KOSPI, the KOSDAQ, and the KONEX market, where

1) Additionally, the direct financial markets can be subdivided into primary markets and secondary markets, depending on the transaction phase, and into exchange markets and over-the-counter markets, depending on where the trading takes place.

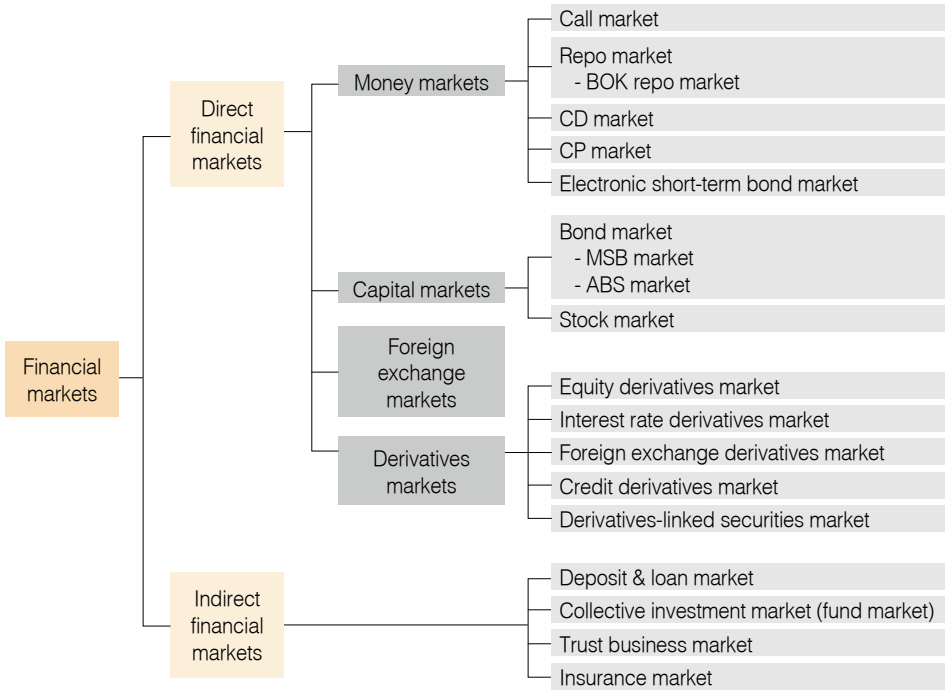
2) The markets for Monetary Stabilization Bonds, Treasury bills, and cover bills (bills issued by banks) that have maturities of one year or less are also included in the money markets.

listed stocks are traded, and the K-OTC market, where unlisted stocks are traded. The bond market is where long-term bonds with maturities of over one year are issued and traded. The most commonly traded securities in this market are government bonds, financial bonds, corporate bonds and special bonds. Other products traded in this market include Monetary Stabilization Bonds, which are issued by the Bank of Korea to control market liquidity, and asset-backed securities such as mortgage-backed securities. The secondary markets for bonds can be divided into the exchange market, where listed bonds are bought and sold, and the over-the-counter market, where all bonds including unlisted ones can be traded.

Aside from the aforementioned financial markets, the foreign exchange and financial derivatives markets fall into altogether different categories due to their unique characteristics. In the foreign exchange markets, foreign currency is traded on a regular or continuous basis. These markets comprise the customer market, where foreign currencies are traded between foreign exchange banks and general customers, and the interbank market, where large-scale trading occurs among financial institutions such as banks, foreign exchange intermediaries and the Bank of Korea. The term "foreign exchange market" usually refers to the interbank market.

The financial derivatives markets are where financial derivatives, financial contracts whose values are determined by the changes in values of underlying assets, are traded. Korea's financial derivatives markets have seen active trading mostly of equity derivatives, interest rate derivatives and foreign exchange derivatives, but in recent years, the trading of derivatives-linked securities has grown significantly, and credit derivatives are increasingly being traded as well.

Figure 1 Financial market structure



Financial market size

Korea's financial market has witnessed remarkable growth since the 1990s. As of end-June 2016, the volume of the capital and money markets in total was 3,393 trillion Korean won (KRW), over 21 times greater than it was in 1990 (158 trillion won). Consequently, the ratio of this figure to the liquidity aggregates of financial institutions (Lf) increased from 80% in 1990 to 105% as of end-June 2016, and the ratio of this figure compared to loans and to nominal GDP also increased in the same period from 87% to 129% and from 83% to 211%, respectively. On an individual market basis, the capital markets saw a remarkable 44-fold growth in the bond market and 19-fold growth in the stock market between 1990 and end-June 2016, while the money markets expanded by a factor of nine.

The huge growth in Korea's financial markets is attributable to multiple factors, particularly the growth in the nation's economy, the governmental policies to promote capital market development and to open them to overseas investors, the improvement in the financial market infrastructures since the currency crisis in 1997, and the refinement of financial techniques.

Table 1 Financial market size[1] Units: trillion won, times

	1990(A)	2000	2010	H1.2016(B)	B/A
Money markets[2]	44.3	138.8	264.8	395.9	8.9
Capital markets	114.0	638.8	2,352.7	2,997.3	26.3
Bonds[3]	35.0	423.6	1,112.9	1,539.0	44.0
Stocks[4]	79.0	215.2	1,239.9	1,458.3	18.5
Total (C)	158.3	777.6	2,617.5	3,393.2	21.4
C / Nominal GDP (%)	82.7	124.5	206.9	211.3	-
C / Lf[5] (%)	79.9	82.4	122.5	104.9	-
C / Loans[6] (%)	86.9	110.9	143.3	129.0	-

Notes: 1) Based on outstanding balances at period-ends
2) Call, repo, CD, CP, electronic short-term bond, cover bill, MSB (one-year maturity or less) and T-bill
3) Based on figures for bonds deposited in the Korea Securities Depository (excluding short-term MSBs with maturities of one year or less and T-bills)
4) Market capitalization of listed stocks on Korea Exchange's KOSPI and KOSDAQ markets
5) Liquidity aggregates of financial institutions (= M2 + savings products with maturities of two years or longer of depository institutions + deposits in Korea Securities Finance Corp., etc. + insurance reserves of life insurance companies, etc.)
6) Loans in Flow of Funds Tables (excluding the Bank of Korea loans)
Sources: Bank of Korea, Korea Securities Depository, KOSCOM, Korea Credit Information Service, Korea Financial Investment Association, Ministry of Strategy and Finance


Summary Branch 4
Summary Branch 3
Summary Branch 2

Chapter 2

Money markets

I

Overview

Money markets are where economic agents trade financial instruments with maturities of one year or less to resolve their short-term funds surpluses or deficits. Korea's money markets consist of the call market, the repurchase agreement (repo) market, the Bank of Korea repo market (BOK repo), the certificate of deposit (CD) market, the commercial paper (CP) market, the electronic short-term bond market, and the Monetary Stabilization Bond (MSB) market[1] (for bonds with maturities of one year or less). The institutional and legal groundworks for these markets were laid during the 1960s and 1970s[2], and they witnessed remarkable growth in the 1990s through a series of measures such as interest rate liberalization, changes in the monetary policy framework, overall reform of the financial industry, and so on. Since the late 2000s, the money markets have been further restructured to improve their efficiency and promote more balanced growth. More specifically, limits were imposed on securities companies' borrowings in the call market in order to reduce their reliance on the market for short-term funding, while repo transactions between financial institutions were promoted and a legal foundation was laid for the issuance of electronic short-term bonds.[3]

The money markets in Korea showed rapid and steady growth thanks to the rise in interest rate sensitivity of economic agents and the development of short-term fund management techniques, as well as the increase in financial assets from economic

1) The maturities of MSBs range from 14 days to a maximum of two years. Therefore, the MSB market is included in both the money markets and the capital markets. However, considering that MSBs with maturities over one year accounted for 70.4% of the outstanding balance as of end-June 2016, they will be discussed in detail in Chapter 3.

2) The institutional basis for the call market was established in July 1960, the MSB market in November 1961, the BOK repo market in February 1969, the CP market in August 1972, the CD market in May 1974, and the repo market in February 1977.

3) The electronic short-term bond was introduced in January 2013.

development and income growth. As of end-June 2016, the money market reached 396 trillion won in size, about 8.9 times its size at the end of 1990.

A closer look at the money markets, by their sub-categories, reveals that the market volume for repos and CPs continued to expand. As of end-June 2016, the repo market accounted for the biggest portion of the money market transaction volume at 33.8%, followed by the CP market at 33.6%. The expansion of the repo market was largely driven by deregulation, infrastructure improvement, and the call market reorganization. The CP market expanded as the issuance of asset-backed CPs (ABCPs) increased. And since its introduction in January 2013, the electronic short-term bond market has grown rapidly to account for nearly 10% of the total money market.

Meanwhile, the call market and the CD market have declined since 2010. The call market has shrunk due to the imposition of call-borrowing limits for securities companies since 2010 and the exclusion of non-bank financial institutions other than certain securities[4] and asset management companies from participating in the call market since March 2015. The CD market has shrunk significantly since the announcement to introduce the regulation on loan-to-deposit ratios in December 2009. Accordingly, the shares of the call market and the CD market dropped from 8.5% and 16.8% at the end of 2010 to 2.4% and 6.1% at end-June 2016 respectively.

4) KTB (Korea Treasury Bond) primary dealers or the Bank of Korea OMO (Open Market Operation) eligible counterparties are allowed to participate in the call market.

Table 2

Money market size[1]

Units: billion won, %

	1990		2000		2010		H1.2016	
	Volume	Share	Volume	Share	Volume	Share	Volume	Share
Call[2]	3,397	7.7	16,058	11.6	22,501	8.5	9,390	2.4
Repo[3]	3,377	7.6	26,115	18.8	78,766	29.7	133,829	33.8
CP[4]	12,740	28.7	44,677	32.2	76,366	28.8	132,997	33.6
Electronic short-term bond[5]	-	-	-	-	-	-	35,365	8.9
CD[6]	6,804	15.4	14,218	10.2	44,472	16.8	24,162	6.1
Cover bill[6]	277	0.6	11,201	8.1	1,604	0.6	524	0.1
MSB[7]	15,241	34.4	26,488	19.1	41,140	15.5	53,670	13.6
T-bill	2,500	5.6	0	0.0	0	0.0	6,000	1.5
Total	44,335	100.0	138,757	100.0	264,849	100.0	395,937	100.0

Notes: 1) Based on outstanding balances at period-ends
2) Brokered deals
3) Customer repos and OTC institutional repos
4) Based on Flow of Funds Tables for 1990 and 2000 and Korea Credit Information Services after 2010
5) Introduced in January 2013
6) Based on Flow of Funds Tables
7) With maturities of one year or less

Sources: Bank of Korea, Korea Securities Depository, Korea Credit Information Services, Korea Financial Investment Association, Ministry of Strategy and Finance

Ⅱ

Call market

1. Definition and significance

The call market refers to a marketplace in which financial institutions borrow money from or lend money to each other on a very short-term basis to resolve their temporary surpluses or shortages of funds. For banks who must hold reserve requirements, the call market has special significance as a reserve market that helps them to smooth out shortages or excesses of their reserve balances.

The call market is also significant in the implementation of monetary policy. This is because an adjustment of the Base Rate by the Bank of Korea Monetary Policy Board has a prompt impact on the overnight call rate, and this leads to changes in short-term and long-term market interest rates and deposit and loan rates, ultimately influencing activities in the real economy. Accordingly, the Bank of Korea adjusts liquidity in the market through open market operations (OMOs) in such a way that the uncollateralized overnight call rate does not deviate significantly from the Bank of Korea Base Rate.

2. Trade terms, participating agents and trade mechanisms

Call trades are classified into collateralized and uncollateralized calls depending on whether collateral is provided. Uncollateralized calls account for the majority of transactions, and there are few collateralized call transactions. This is because the delivery of collateral and the establishment of the rights of pledge are complicated.

The maturity for calls can be set for any number of days up to 90, but in most cases

is set at one business day.[5] The minimum transaction amount is 100 million won, and the transaction unit is also 100 million won. Interest rates may change in units of 0.01%.

As of end-June 2016, the institutions that are allowed to participate in the call market include commercial banks, the Korea Development Bank, the Industrial Bank of Korea, the Export-Import Bank of Korea, securities companies chosen as KTB primary dealers or eligible counterparties for the Bank of Korea OMOs, asset management companies and fund brokerage companies. Each agent participates in the call market for various purposes. The asset management companies operate the highly liquid assets, in preparation for fund redemption, as call loans. The domestic banks sometimes provide call loans to manage the surplus funds exceeding the required reserve, but more often have greater demand for call borrowings to meet their reserve requirements. Foreign bank branches usually borrow more money than they lend, as they see the call market as an important short-term funding source along with borrowings from their headquarters. Securities companies whose funding sources are limited to customer deposits and repos, participate in the call market for short-term borrowing.

Call trades are divided into brokered deals and direct deals. Most transactions are brokered.[6] A brokered trade is a transaction in which a brokerage company connects a supplier of funds with a demander in consideration of the terms of the transaction, such as interest rates, maturities, and amounts. There are three fund brokerage companies: Korea Money Brokerage Corporation, Seoul Money Brokerage Services, and KIDB Money Brokerage Corporation. These brokerage companies receive orders for a call loan or a call money through the phone or online messenger services, and conclude the deals after checking whether the amount is within the credit line set for the each call borrower.

5) Overnight calls accounted for 93.6% out of the total call transactions in the first half of 2016.

6) Direct deals account for less than 1% of total call trades.

3. Market trends

Throughout the reorganization of the call market, the daily average balance has fallen from around 30 trillion won in 2010 to 15.9 trillion won in the first half of 2016. Between 2008 and 2009, the call trading volume declined in the aftermath of the global financial crisis. In 2010, call trading recovered to its pre-crisis levels, but since 2011, it has declined primarily due to restrictions on the call borrowings of securities companies. Since 2015, the supply of call money has fallen sharply due to the restrictions on call loans that can be extended by asset management companies, which has reduced the call borrowings of domestic banks as well as securities companies.

Figure 2 Outstanding balances[1] of call money borrowings

Note : 1) Based on daily average outstanding balances of brokered trades during the periods
Source: Bank of Korea

Looking at call transactions by lender, in the first half of 2016, domestic banks accounted for the greatest portion at 49.4%, followed by asset management companies and foreign bank branches at 33.6% and 17.1%, respectively. While asset management companies accounted for the largest portion until 2014, after the introduction of call

loan limits on these companies in March 2015, their lending has fallen below that of domestic banks. In the case of call money borrowings in the first half of 2016, domestic banks accounted for the largest portion at 53.5%, followed by foreign bank branches (31.7%) and securities companies (14.8%). Securities companies increased their share of call money borrowings to 35.9% in 2010, but this figure has declined since then due to limitations on their call borrowings.

Table 3 Outstanding balances[1] of call trades by institution type[2] Units: billion won, %

		2008	2010	2012	2013	2014	2015	H1.2016
Lending	Domestic banks	6,246 (20.0)	13,146 (38.0)	9,280 (32.9)	8,194 (28.2)	6,950 (28.2)	7,765 (43.4)	7,841 (49.4)
	Foreign bank branches	2,941 (9.4)	2,421 (7.0)	2,396 (8.5)	2,173 (7.5)	2,702 (11.0)	3,466 (19.4)	2,714 (17.1)
	Asset management companies	17,972 (57.5)	17,284 (49.9)	15,590 (55.3)	16,996 (58.6)	13,594 (55.2)	6,423 (35.9)	5,330 (33.6)
	Others[3]	4,122 (13.1)	1,751 (5.1)	915 (3.3)	1,661 (5.7)	1,365 (5.5)	222 (1.2)	- -
Borrowing	Domestic banks	15,945 (51.0)	14,703 (42.5)	15,209 (54.0)	15,537 (53.5)	15,034 (61.1)	11,741 (65.7)	8,496 (53.5)
	Foreign bank branches	5,535 (17.7)	5,629 (16.3)	3,332 (11.8)	5,173 (17.8)	4,130 (16.8)	3,384 (18.9)	5,043 (31.7)
	Securities companies	7,223 (23.1)	12,405 (35.9)	8,113 (28.8)	6,905 (23.8)	4,187 (17.0)	2,704 (15.1)	2,346 (14.8)
	Others[3]	2,579 (8.3)	1,865 (5.4)	1,526 (5.5)	1,408 (4.9)	1,260 (5.1)	47 (0.3)	- -
Total		31,282	34,603	28,180	29,024	24,610	17,875	15,884

Notes: 1) Based on daily average outstanding balances of brokered trades during the periods
2) Figures in parentheses refer to the shares in the total.
3) Others include bank trusts, securities trusts, and merchant banks, and etc..
Source: Bank of Korea

In terms of trading type, since 2015, there have been no collateralized call transactions, and only uncollateralized call transactions have been made. While brokered trading accounted for most of the uncollateralized call trades, direct trading was minimal taking up only 0.02% of total call trading in the first half of 2016.

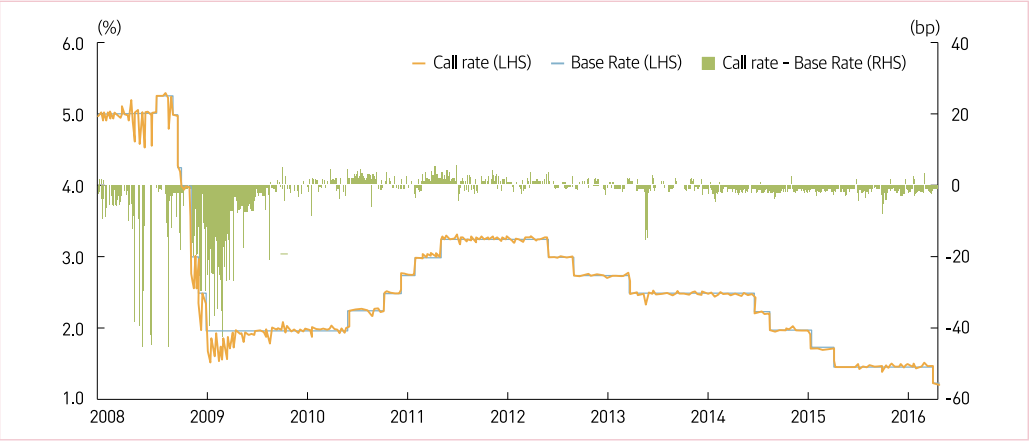
Table 4 Volumes[1] of uncollateralized call trades by trading type[2] Units: billion won, %

	2008	2010	2012	2014	2015	H1.2016
Brokered trades	25,578 (98.6)	29,373 (98.8)	26,208 (98.7)	22,427 (98.9)	15,372 (99.8)	12,972 (99.98)
Direct trades	351 (1.4)	366 (1.2)	347 (1.3)	252 (1.1)	30 (0.2)	3 (0.02)
Total	25,930	29,739	26,555	22,678	15,402	12,974

Notes: 1) Based on daily average trading volumes during the periods
2) Figures in parentheses refer to the shares in the total volumes.
Source: Bank of Korea

Meanwhile, in the period from 2008 to 2009, the spread between the call rate[7] and the Bank of Korea Base Rate expanded significantly due to the imbalance in demand and supply of short-term funds. However, between 2010 and 2013, the call rate fluctuated slightly around the Base Rate level, and after 2014, it fluctuated slightly below the Base Rate.

Figure 3 Call rate[1]



Note: 1) Overnight rate based on brokered deals (volume-weighted mean of rates)
Source: Bank of Korea

7) The Bank of Korea calculates and publishes uncollateralized overnight call rates.

Box 1

The impact of restricting the call market participation of non-bank financial institutions on the money market

(Background)

In the past, non-bank financial institutions were allowed to participate in the call market. After the global financial crisis, however, the excessive concentration of short-term funds transactions on uncollateralized call trading raised concerns that the market structure would be distorted and the credit risk would increase in the money market. Considering this, the financial authorities have implemented the reorganization of the short-term financial market since July 2010 by gradually limiting the participation of non-bank financial institutions in the call market.

The authorities introduced the regulation limiting call borrowings of securities companies and have strengthened it gradually. Since March 2015, only securities companies chosen as KTB primary dealers or the Bank of Korea OMO eligible counterparites have been allowed to borrow call money within 15% of their equity capital, and asset management companies have been permitted to provide call loans only within 2% of their total collective investment property. The participation of other non-bank financial institutions in the call market is not permitted at all.

(Impact of restrictions)

① Increase in proportion of interbank call trading

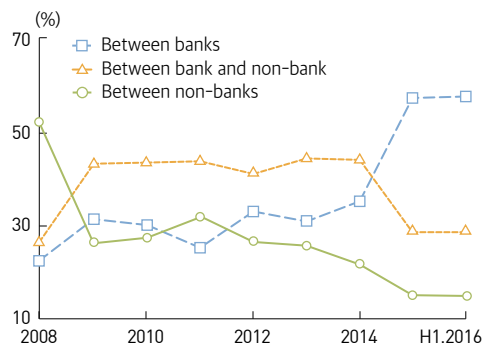
Since 2011, the proportion of trading between non-bank financial institutions continued to decline in the call market. In particular, since March 2015, when restrictions were placed on the call market participation of non-bank financial

institutions other than asset management companies as well as some of securities companies, the percentages of trading between non-banks and between a bank and a non-bank have dropped significantly. Accordingly, the proportion of interbank trades in total call trading rose from 34.9% in 2014 to 56.9% in 2015, and to 57.2% in the first half of 2016.

② Money market diversification

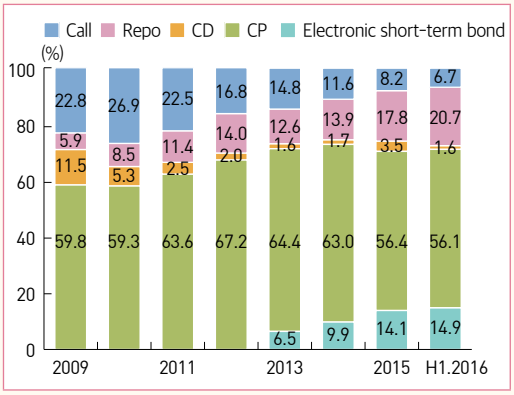
After the call market was reorganized, its share in the overall money market dropped sharply from 22.8% in 2009 to 6.7% in the first half of 2016. However, it is considered that the money market has improved qualitatively, as it has diversified into institutional repo, CP and electronic short-term bond markets. In particular, securities companies and asset management companies have partially replaced call trading with repos, which has resulted in a significant increase in repo trades.

Figure 4 Shares of call tradings[1] between institutions



Note: 1) Based on daily average trading volumes during the periods
Source: Bank of Korea

Figure 5 Shares in money market[1]



Note: 1) Calls and repos are based on daily average balances during the periods, and CDs, CPs and electronic short-term bonds are based on outstanding balances at period-ends.
Sources: Bank of Korea, Financial Supervisory Service, Korea Securities Depository, Korea Federation of Banks

③ Decline in the level of call rate

The call rate declined as a result of restrictions on the participation of securities companies, who have to pay a relatively higher borrowing rate than banks in the call market. Thus, call rates have been moving slightly below the Base Rate since 2014.

Table 5 Average call borrowing rates[1] by institution type[2]

Units: %, bp

	2011	2012	2013	2014	2015	H1.2016
Domestic banks	3.01 (-8.0)	3.00 (-7.6)	2.55 (-4.2)	2.30 (-4.7)	1.64 (-1.5)	1.43 (-3.6)
Foreign bank branches	3.11 (+1.8)	3.14 (+6.8)	2.61 (+1.8)	2.37 (+2.4)	1.61 (-4.4)	1.47 (-0.1)
Securities companies	3.18 (+8.5)	3.17 (+9.9)	2.66 (+7.2)	2.42 (+7.0)	1.71 (+6.0)	1.50 (+3.6)
All institutions	3.09	3.07	2.59	2.34	1.65	1.45

Notes: 1) Based on daily average overnight rates (brokered deals) during the periods
2) Figures in parentheses refer to the difference between the call rate and the Base Rate (bp).
Source: Bank of Korea

III

Repurchase agreement (repo) market

1. Definition and significance

A repurchase agreement (repo) is a contract in which one party agrees to sell securities to another party and then promises to repurchase them on a specified date at a pre-arranged price. Although they take the form of sales of securities, repos are used in effect as a means of raising or operating short-term funds. Repo market in Korea can be classified into two subcategories: 'institutional repo market', and 'customer repo market.' In the institutional repo market, financial institutions use repos to balance out any shortages or excesses they face of short-term funds. In the customer repo market, financial institutions raise short-term funds from households and corporations, while these households and corporations invest their money on a short-term basis.

2. Trade terms, participating agents and trade mechanism

The institutional repo market[8] (hereafter referring to the over-the-counter market) and the customer repo market are clearly distinct from each other, and thus have differences in terms of the securities traded, the agents participating, the ways of collateral securities management, and the settlement methods.

There are no legal restrictions on the types and credit ratings of securities traded in the institutional repo market, that is all types of securities as stipulated under

8) The institutional repo market also involves transactions in the exchange-traded market, where members of the Korea Exchange participate and the Korea Exchange serves as the central counterparty clearing house (CCP), but these are minimal in size.

the Financial Investment Services and Capital Markets Act are tradable. In the customer market, however, there are restrictions on the types and credit ratings[9] of securities that can be traded. Participants in the institutional repo market are banks, asset management companies, securities companies, insurance companies, merchant banks, and several public financial companies such as the Korea Securities Finance Corp., the Korea Housing Finance Corp., the communications agency pursuant to the Postal Savings and Treasury Act, and so on. In the customer repo market, securities companies, banks, Korea Securities Finance Corporation, merchant banks and the communications agency may conduct repo transactions, while individuals, corporations and trusts may do reverse repos.

In the institutional repo market both brokered and unbrokered transactions are carried out, but most go through brokerage companies,[10] with the help of the Korea Securities Depository who provides related services such as securities management, daily settlement, and margin management.

3. Market trends

The repo market in Korea has grown rapidly due to increased awareness of advantages in repo trading and the development of the related systems and infrastructure. Customer repo trades have steadily increased as investors have come to consider these products as an alternative investment instrument for deposits or money market funds (MMFs), and investor protection and other related systems have improved. As for institutional repos, trading had been sluggish for a

9) The securities eligible for the customer repo trade are restricted to government bonds, municipal bonds, special bonds, guaranteed bonds, corporate bonds issued publicly by listed companies, and ABSs or MBSs issued publicly with ratings of BBB or higher (and ratings of A or higher for CMAs with repo features).

10) Over-the-counter transactions are brokered by Korea Money Brokerage Corp., Seoul Money Brokerage Services, KIDB Money Brokerage Corp., Korea Securities Finance Corp., and securities companies. Exchange-based transactions are brokered by the Korea Exchange.

considerable period of time after their introduction in the domestic market. Since July 2010, however, trading in these repos has dramatically increased with the reorganization of the short-term financial markets, including the restriction of call market participation by non-bank financial institutions.

As of end-June 2016, amount outstanding of the domestic repo market (excluding exchange-traded repos) totaled 133.8 trillion won, with customer trades and institutional trades accounting for 79.4 trillion won (59.4%) and 54.4 trillion won (40.6%), respectively.

Figure 6 Outstanding balances[1)] of repo transactions

Note: 1) At period-ends, except exchange-traded repos
Sources: Korea Financial Investment Association, Bank of Korea, Korea Securities Depository

The main sellers of customer repos are securities companies, accounting for 92.4% (73.4 trillion won) of total customer repo trades as of end-June 2016. The buyers are mainly individuals and non-financial corporations[11)] who participate in repo trading to manage short-term surpluses in funds.

11) As of end-June 2016, the respective shares of individuals, non-financial corporations, and bank/securities trusts in total customer repo sales stood at 48%, 20%, and 32%.

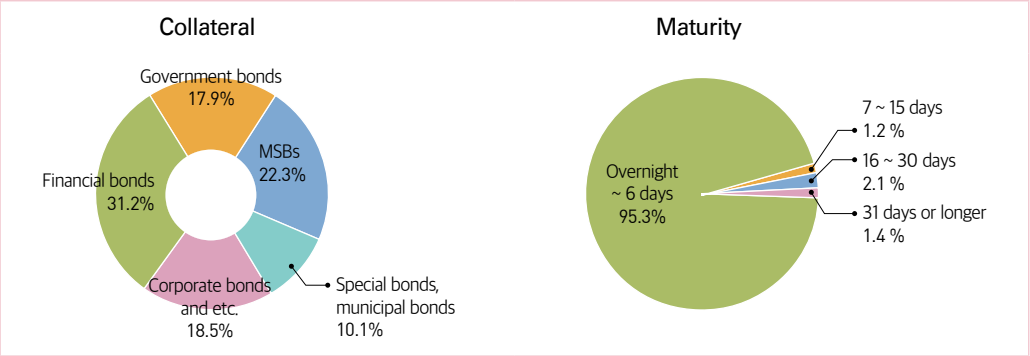
Table 6 Outstanding balances[1] of customer repos by institution type[2] Units: billion won, %

	2008	2010	2012	2014	2015	H1.2016
Securities companies	36,730 (58.3)	54,991 (81.9)	61,183 (90.0)	70,046 (91.2)	71,973 (90.6)	73,384 (92.4)
Communications agency	559 (0.9)	506 (0.8)	791 (1.2)	1,223 (1.6)	1,247 (1.6)	1,181 (1.5)
Others[3]	25,731 (40.8)	11,661 (17.4)	6,017 (8.8)	5,535 (7.2)	6,179 (7.8)	4,862 (6.1)
Total	63,019	67,159	67,991	76,804	79,400	79,428

Notes: 1) At period-ends
2) Figures in parentheses refer to the shares in the total.
3) Including banks, Korea Securities Finance Corporation, and merchant banks
Sources: Korea Financial Investment Association, Bank of Korea

The securities used as collateral in the customer repo trades include financial bonds, Monetary Stabilization Bonds (MSBs), corporate bonds, and government bonds. Most maturities tend to be within six days (95.3%).

Figure 7 Shares in customer repos[1] by collateral and maturity



Note: 1) Based on outstanding balance at end-June 2016, excluding communications agency's repos
Source: Korea Financial Investment Association

For institutional repos, the major sellers are securities companies, and the buyers are asset management companies, bank trusts and securities trusts. Since participation of non-bank financial institutions in the call market was limited, these institutions have greatly expanded their transactions in the institutional repo market. As of end-June 2016, securities companies accounted for 64.9% of all repo transactions. For reverse

repo transactions, asset management companies accounted for 37.7% of the market, while bank trusts and securities trusts accounted for 22.5% and 11.8%, respectively.

Table 7 Outstanding balances[1] of institutional repo transactions by market participant[2]

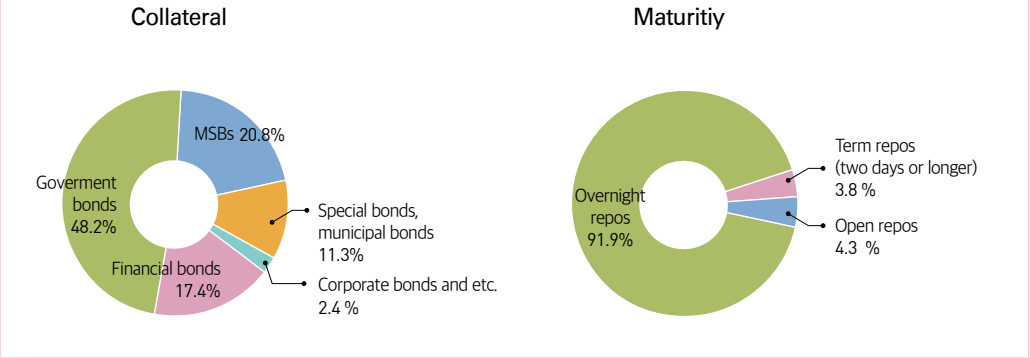
Units: billion won, %

		2008	2010	2012	2014	2015	H1.2016
Repo	Securities companies	1,050 (26.0)	2,820 (25.7)	8,159 (34.9)	15,160 (51.3)	22,693 (58.5)	32,418 (64.9)
	Domestic banks	882 (21.8)	1,267 (11.6)	3,264 (14.0)	2,201 (7.5)	4,199 (10.8)	4,266 (8.6)
	Asset management companies	1,043 (25.8)	3,826 (34.9)	1,237 (5.3)	3,192 (10.8)	4,063 (10.5)	6,718 (13.5)
	Securities trusts	-	423 (3.9)	5,861 (25.1)	5,050 (17.1)	3,177 (8.2)	1,624 (3.3)
	Securities finance company	854 (21.1)	1,140 (10.4)	2,513 (10.7)	2,666 (9.0)	2,801 (7.2)	3,136 (6.3)
	Others[3]	210 (5.2)	1,490 (13.6)	2,361 (10.1)	1,254 (4.2)	1,836 (4.7)	1,757 (3.4)
Total		4,039	10,966	23,394	29,523	38,769	49,919
Reverse Repo	Asset management companies	2,033 (50.3)	3,771 (34.4)	5,851 (25.0)	8,722 (29.5)	14,690 (37.9)	18,820 (37.7)
	Bank trusts	4 (0.1)	54 (0.5)	879 (3.8)	3,395 (11.5)	7,452 (19.2)	11,209 (22.5)
	Securities trusts	0 (0.0)	57 (0.5)	5,151 (22.0)	6,284 (21.3)	6,171 (15.9)	5,885 (11.8)
	Domestic banks	399 (9.9)	2,818 (25.7)	3,050 (13.0)	3,384 (11.5)	3,134 (8.1)	4,695 (9.4)
	Securities finance company	1,009 (25.0)	1,465 (13.4)	2,394 (10.2)	2,218 (7.5)	1,744 (4.5)	3,484 (7.0)
	Others[4]	594 (14.7)	2,801 (25.5)	6,070 (25.9)	5,519 (18.7)	5,579 (14.4)	5,825 (11.7)

Notes: 1) Based on daily average outstanding balances during the periods
2) Figures in parentheses refer to the shares in the total.
3) Foreign bank branches, insurance companies, merchant banks, non-residents, etc.
4) Foreign bank branches, securities companies, non-residents, etc.
Source: Korea Securities Depository

The collaterals used in repo transactions in the institutional repo market are mostly safe assets such as Korea Treasury Bonds (KTBs) and Monetary Stabilization Bonds (MSBs). In terms of maturity, more than 90% of repo contracts are overnight repos.

Figure 8 Shares in institutional repos by collateral[1] and maturity[2]



Notes: 1) Based on daily average outstanding balance in the first half of 2016
2) Based on trading volume in the first half of 2016
Source: Korea Securities Depository

Box 2

Measures to promote term repo trading

The reorganization of the short-term financial market since July 2010 has provided a significant opportunity to promote the development of the institutional repo market. As the participation of non-bank financial institutions in the call market was restricted, the demand for repo transactions increased as alternatives to call transactions. In addition, various measures[12] were taken to promote the repo market.

As a result, the short-term financial market has been reorganized from being centered on uncollateralized call trading to repo trading, which is a secured form of trading, and thus the possibility of system risk has decreased. A foundation has also been laid for the balanced development of the short-term financial market. However, as concentration on overnight trades in the repo market has deepened, financial institutions' funding structure has weakened. Additionally, excessive dependence on overnight repo trades hinders the initially expected positive effects of the repo market development such as the formation of a term structure of repo interest rate.

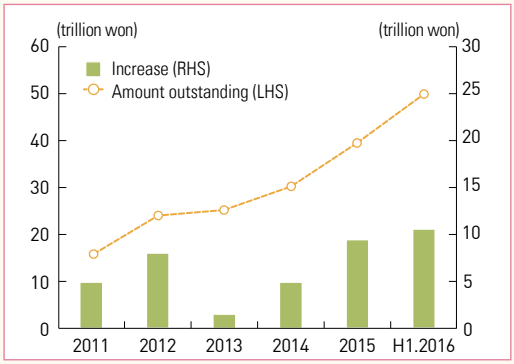
The concentration in overnight repos is mainly attributed to the lack of systems or infrastructure to facilitate term trades. For instance, securities companies, who are major repo sellers, avoid term repo trading because the use of secured

12) ① Improvement of repo trading infrastructure: Establishment of an integrated repo trade system by funds trustees (February 2011), establishment of a real-time trade processing system for repo trades between brokerage companies and the Korea Securities Depository (February 2011), permission of dealer repo trading brokerage of the Korea Securities Finance Corporation (March 2011), promotion of the use of the GMRA (June 2011), establishment of a real-time disclosure system of repo trade information (July 2012)

② Expansion of the repo market participation base: Putting more weight on repo trades amount when selecting the BOK repo counterparties (July 2011), exemption of reverse repo trades in calculating the total trading limit by one person in MMFs (January 2012) and limitation of customer repo trades between financial institutions (September 2012)

bonds is restricted after selling repos. Although the repo sellers can replace their collateral securities within the pre-determined scope of securities through the GCF (General Collateral Financing) repo system introduced in 2013, it is not effective in promoting term repo market because approval of the repo buyers is required every time the securities are to be exchanged, and because the collateral securities, which could be exchanged in the system, are limited to government bonds and MSBs. In addition, the lack of awareness of the liquidity risk management makes sellers to prefer overnight trading.

Figure 9 Outstanding balances[1] of institutional repos



Note: 1) Based on daily average outstanding balances during the periods
Source: Korea Securities Depository

Table 8 Shares in institutional repos[1] by maturity

Unit: %

	2011	2012	2013	2014	2015	H1.2016
Overnight	80.1	83.0	86.9	89.6	91.7	91.9
Term	14.1	7.7	5.0	4.3	3.3	3.8
2 to 7 days	11.6	6.8	4.6	3.9	3.0	3.5
8 days or longer	2.5	0.9	0.4	0.4	0.3	0.3
Open	5.8	9.3	8.1	6.1	5.0	4.3

Note: 1) Based on daily average trading volumes during the periods
Source: Korea Securities Depository

Accordingly, in March 2016, the Financial Services Commission, together with the Bank of Korea and other related institutions, organized the Short-term Financial Market Activation Plan Task Force to discuss the related issues. Based on the discussions, in September, they announced plans to promote term repo trading.

First, the measures to remove the restrictions on term repo trading include; ① improving the GCF with simplifying the collateral securities changing process, ② permitting various financial institutions, who are capable of providing term repos

such as pension funds or public enterprises, to participate in the OTC repo market, ③ permitting the participation of asset management companies and insurance companies in the exchange-traded repo market, ④ redesigning the repo-related commission systems of the Korea Securities Finance Corporation, the Korea Exchange, and the Korea Securities Depository to give an incentive to longer-term repo trades.

Secondly, the measures to reinforce the market-makers' role in the trading of term repos are; ① putting more weight on each institution's term repo trade performance in the assessment and selection criteria of KTB primary dealers and eligible counterparties for the Bank of Korea OMOs.[13] ② allowing the Korea Securities Finance Corporation temporarily to borrow or lend funds in the call market in proportion to its term repo trades.

Finally, in addition to the aforementioned measures, the plan also includes; ① strengthening the stress test procedures concerning the daily liquidity of securities companies in order to improve their liquidity risk management in overnight borrowing, ② imposing more restriction[14] on the daily call money borrowing of the securities companies selected as KTB primary dealers or eligible counterparties for the BOK OMOs.

13) Since 2008, the Bank of Korea considers repo transaction performance when it selects the eligible counterparties for the BOK repo trading, and since 2015, it has assigned weights differently in accordance with the maturities. Meanwhile, the Ministry of Strategy and Finance considers institutional repo transaction performance when selecting the primary dealers, but does not assign different weights according to the maturities.

14) Since March 2015, the amount of call money borrowing for securities companies that are primary dealers or eligible counterparties for OMOs is limited to 100% of their equity capital based on their daily balance (within 15% of their equity capital on a monthly average balance basis).

IV

BOK repurchase agreement (BOK repo) market

1. Definition and significance

The Bank of Korea uses repurchase agreements (repos) as one of its main instruments for open market operations. The longest maturity for these repos is 91 days, which is considered short compared to the maturities of other open market operation tools. The use of such short maturity instruments helps in the smoothing out of temporary shortages or excesses of market liquidity.

Korea has seen a consistent trend of structural excess liquidity over the past years, due to the supply of liquidity coming from overseas, for example, through the current account surplus. The Bank of Korea's repo transactions are therefore mostly repo sales with the aim of absorbing such excess liquidity. During the global financial crisis, however, the Bank of Korea took on a more proactive role in conducting repo purchases to increase market liquidity and relieve the credit crunch.[15)]

2. Trade terms, securities and counterparties

The Bank of Korea's repo trades may take place either in public offerings with the eligible counterparties or in private placements with specified institutions. Private placements are used in exceptional cases to stabilize the financial market, or to facilitate monetary policy operations and the terms such as the interest rate or

15) Between October 2008 and February 2009, nine instances of repo purchases were undertaken to provide 13.3 trillion won in liquidity to stabilize the money market. In December 2008, out of the 2.1 trillion won funneled into the newly-established Bond Market Stabilization Fund, 1.9 trillion won were supplied through repo purchases.

maturity are set through bargaining with the counterparties.

Tradings in public offering are divided into competitive bidding and tenders. In competitive bidding, an interest rate bidding method is used to determine the successful bidder based on the interest rate set by the Bank of Korea and the bid rates offered by the financial institutions. In the case of repo purchases, the successful bidders are determined in the descending order of bidding rates above the minimum rate set by the BOK. In the case of repo sales, the successful bidders are decided in the ascending order of bidding rates below the maximum rate set by the BOK. In a tender, the selling rate is fixed and the selling amount is proportionally allocated according to the bidding amounts of the participating bidders.

In principle, the Bank of Korea holds regular auctions of seven-day maturity repo sales every Thursday in order to control short-term liquidity. However, if the Monetary Policy Board sets the Base Rate on a day other than Thursday, the auction day and the maturity of repo sales are adjusted accordingly. Besides these regular repo trades, short-term repo trades may also take place on exception if the call rate shows high instability.

The regular seven-day repo sales are carried out by fixed-rate tenders, with the Base Rate used as the pre-set interest rate. For seven-day repo purchases, in contrast, they are conducted by competitive bidding, with the Base Rate serving as the minimum rate that bidders must meet. Meanwhile, for short-term repo trades such as overnight repos, fixed-rate tenders are made using the Base Rate. With maturities longer than seven days, such as 14-day repos, repo transactions are carried out by competitive bidding. The longest maturity of the Bank's repo trades is 91 days, and the minimum bidding amount in all trades is set at 10 billion won.

As of end-June 2016, the types of securities eligible for repo trades are government

bonds, government-guaranteed bonds, MSBs[16] and mortgage-backed securities (MBSs) issued by the Korea Housing Finance Corporation.[17] After the Lehman Brothers' collapse in September 2008, bank debentures and some kinds of special bonds[18] were temporarily included as eligible securities for one year from November 7, 2008 to deal with concerns in the overall financial market instability and to alleviate the credit crunch. The expansion of eligible securities for OMOs aimed for diversifying the channels of liquidity supply, and inducing smooth flows in the bond market and thereby stabilizing the financial market.

The Bank of Korea can conduct its OMOs with most financial institutions, including banks, securities companies, insurance companies and asset management companies.[19] To make the process more efficient, eligible counterparties for the Bank's repos are selected among those meeting certain criteria. The selection is done by the Monetary Policy Board once each year (usually in July).

As the financial crisis further deepened after the Lehman Brothers bankruptcy, 12 securities companies who were eligible for the competitive bidding for MSBs were temporarily allowed to participate in repo trading, between December 15, 2008 and July 31, 2009, which expanded the number of eligible repo counterparties to 33. This was done to respond to the increase in securities companies' demand

16) Limited to cases where they are purchased on the condition of resale

17) In June 2014, the MBSs issued by the Korea Housing Finance Corporation were included in repo trading securities to promote household debt restructuring.

18) Bonds issued by the Korea Development Bank, the Industrial Bank of Korea, the National Agricultural Cooperative Federation, the National Federation of Fisheries Cooperatives, the Export-Import Bank of Korea, the Korea Land and Housing Corporation, the Korea Housing Finance Corporation, the Small and Medium Business Corporation, and MBSs issued by the Korea Housing Finance Corporation

19) The eligible institutions of OMOs under the Bank of Korea Open Market Operation Regulations Article 2 (Target Organizations) are as follows.

① Banks under the Banking Act, Industrial Bank of Korea, the Korea Development Bank and Export-Import Bank of Korea

② Investment traders, investment brokers, asset management companies, trust companies, securities finance companies, merchant banks, fund brokerage companies and the Korea Exchange under the Financial Investment Services and Capital Markets Act

③ Insurance companies under the Insurance Business Act

④ The National Pension Fund under the National Pension Act

for the BOK repo purchases following the credit crunch and to provide greater liquidity to the financial market. As of end-August 2016, there were a total of 23 institutions eligible for the BOK repos.

Table 9 Numbers[1] of the BOK repo trading counterparties

	2011	2012	2013	2014	2015	Aug.2016
Banks[2]	19	19	19	19	18	18
Securities companies[3]	10	10	9	7	6	5
Total	29	29	28	26	24	23

Notes: 1) At period-ends
2) Including foreign bank branches
3) Including the Korea Securities Finance Corporation

Box 3

Bank of Korea open market operations (OMOs)

The OMO is a monetary policy instrument used by the central bank to affect the liquidity or market interest rates through the trading of securities with financial institutions. Today, most of the developed countries' central banks use OMO as their main monetary policy instrument, along with reserve requirement system and lending and deposit facilities. After the financial crisis, the importance of OMO as a means of stabilizing financial markets has become more emphasized.

The OMO is the most suitable policy instrument for the market economy system because its operating time and size can be more flexibly adjusted compared to other monetary policy instruments, and also because it is performed according to market mechanisms in the financial market with the various participating economic agents. The OMO is also advantageous in that a central bank can execute the policy promptly through immediate sales and purchases of securities with financial institutions.

The Bank of Korea uses OMOs to affect the amount of financial institutions' reserves and thereby adjust the call rate so that it does not deviate significantly from the Base Rate. Financial institutions that are obliged to hold reserves by law[20] must deposit the required reserves within the Bank of Korea. When banks face shortages or excesses of reserves, they turn to the call market to make up the shortages or invest the excess funds.

When there exists the shortage of reserves among financial institutions and the call rate faces upward pressure, the Bank of Korea will constrain the rise of the call rate by supplying reserves through OMOs. On the other hand, when there is

20) Financial institutions shall deposit reserves in the Bank of Korea according to the Bank of Korea Act Chapter 4 Section 2 (Deposits and Reserves of banking institutions).

downward pressure on the call rate due to the surplus of reserves, the Bank of Korea will absorb the surplus to constrain the fall of the call rate.

The instruments of the Bank of Korea's OMO include the issuance of MSBs, securities trading, and deposits into the Monetary Stabilization Account.

MSBs are the securities issued by the Bank of Korea, and have been useful as the Bank's major OMO instruments since the days when the quantity of government bonds issued was insufficient for being used for OMOs. Because MSBs have relatively long maturities, they are used as a structural adjustment tool for controlling overall liquidity surplus from external factors such as current account surpluses.

Securities trading is divided into outright transactions and repos. With outright transactions, outright sales to absorb liquidity do not need to be used because issuing MSBs can have the same effect. Outright purchases are used in limited cases such as for stabilizing the financial market when the market rates are heightened rapidly or for holding sufficient amount of government bonds for repo sales. Accordingly, most of the securities trading is done through repo trading. Repo sales (purchases) have the effect of absorbing (supplying) funds during the maturity period as the government bonds are sold (purchased) and repurchased (resold) to the financial institutions at maturity.

The Monetary Stabilization Account is an account set up within the Bank of Korea to raise term deposits from financial institutions, and used as a means of controlling short-term liquidity. In the normal course of time, it is possible to raise deposits through competitive bidding in a market-friendly manner, but in an unusual situation such as rapid credit expansion, financial institutions can be compelled to deposit funds in the Monetary Stabilization Account by the Bank of Korea.

V

Certificate of deposit (CD) market

1. Definition and significance

A negotiable certificate of deposit (CD) is a time deposit that has been given the feature of transferability. A CD is classified as a type of security,[21] however, in that the certificate must be held in possession for the execution or transfer of rights to the deposit. A CD is also a debt obligation subject to reserve requirements under the Bank of Korea Act, but CDs issued to banks are excluded from this requirement. Meanwhile, CDs have not been covered in the Depositor Protection Act since the revision of the law in 2001.

2. Trade terms, participating agents and trade mechanism

Investors are restricted from withdrawing funds before maturity but are allowed to transfer ownership by selling their CDs in order to cash them in. While CDs can be issued with any maturity of 30 days or longer, in practice, the majority of CDs traded between financial institutions have maturities of up to one year. There are no restrictions on the minimum CD face value, but banks mostly set 5 million to 10 million won as the minimum available value in accordance with their internal rules.

CDs are issued at a discount, which means that the purchasers pay the discounted value at the time of issuance, and receive the full face value at maturity. For ease of comparison with other financial instruments, however, banks post their rate of return

21) The Financial Investment Services and Capital Markets Act does not legally define CDs as securities, but CDs can be defined as such by the Commercial Act in a broad sense.

instead of the discount rate. The CD rate (rate of return) is generally determined by factors such as other market interest rates, the amount issued and the length of maturity. The issuing bank's credit rating is another factor affecting the rate.

The CD market is a type of money market consisting of the issuing parties, the intermediaries and the purchasing parties. The issuers are banks with the obligations of meeting reserve requirements, and can therefore be all banks, including nationwide banks, local banks, specialized banks except the Export-Import Bank of Korea, and foreign bank branches.

The brokerage role is played by securities companies, merchant banks and the three fund brokerage companies.[22] The broker institutions may simply link purchasers to sellers and vice versa, or they may take on a more active roles as deal-makers. Due to their lack of funds, however, they generally focus on simple brokering.

Depending on the purchaser, CDs can be classified into two types, customer CDs and interbank CDs. The customer CDs are divided into bankbook CDs, which are issued directly at the bank window, and marketable CDs, which are issued through brokerage agency. Individuals, non-financial corporations, and local governments usually buy directly from the issuing bank window, while financial institutions such as asset management companies and insurance companies purchase through the broker institutions.

The interbank CD is generally issued by negotiation with an issuing bank and a buying bank without going through a brokerage. Interbank CDs are issued to smooth out banks' shortages and excesses of funds. While there are no reserve requirements in the case of interbank CDs, a strict ban is placed on their transfer to any other party beside the initial purchasing bank.[23]

22) Korea Money Brokerage Corporation, Seoul Money Brokerage Services and KIDB Money Brokerage Corporation

23) Interbank CDs are issued with an "Interbank" stamp on the upper right corner to indicate transfer restrictions to persons other than the issuing bank.

3. Discussion on the improvement of the CD rate and reference rate

The CD rate (final quotation yield) is calculated and announced twice daily (11:30 and 15:30) by the Korea Financial Investment Association who receives the rates of return on the CDs (91 days) issued by nationwide banks with AAA credit ratings from 10 securities companies.[24] When reporting the rates of return, the securities companies must comprehensively consider factors such as the issuance and trading details of the CDs, the yields of similar bonds such as bank debentures, the Bank of Korea Base Rate, and the short-term interest rate trends of the day. The Korea Financial Investment Association calculates and announces the final rate of return by simple averaging (rounding off to the third decimal place) the eight returns after excluding the highest and lowest yields submitted.

The CD rate is widely used as a reference rate for floating rate loans, interest rate swaps and inter-office transactions, and also affects bank loan and deposit rates. However, there has been a controversy about whether it is appropriate to use the CD rate as a reference rate for financial trades such as bank loans. This is because the issuance and circulation of the 91-day CD is not so large, which leads to the stickiness of the movement of the CD rate, the difficulty of determining the CD rate level, and the possibility of the large fluctuation of the CD rate due to poor financial situations of some banks.[25]

There have in consequence been continual efforts to develop alternative reference rates to replace the CD rate. The KORIBOR[26] was introduced by the

24) The reporting companies are selected by the chairman of the Korea Financial Investment Association every six months. In the second half of 2016, NH Investment & Securities, Bookook Securities, SK Securities, LIG Investment & Securities, Yuanta Securities Korea, KB Securities, KTB Investment & Securities, Kiwoom Securities, Hana Financial Investment, and Hi Investment & Securities were selected.

25) For example, if some banks whose financial situations are poor issue CDs with high rates when there is low issuance and distribution of 91-day CDs, this affects the return rate of the securities company and may cause sharp fluctuations in the CD interest rate, which is the final offer return rate.

26) See <Box 4> "KORIBOR Overview."

banking sector as one possible replacement in July 2004, but has not been widely used. The COFIX[27] was introduced in February 2010 by the financial authorities as another possible replacement, and since then has been partly used to set banks' household loan rates.

27) See <Box 5> "COFIX Overview."

Box 4

KORIBOR Overview

(Introduction background)

KORIBOR (KORea Inter-Bank Offered Rate), which benchmarks the UK's LIBOR, is the offered rate for interbank uncollateralized Korean won borrowing. Given that the need for short-term reference rate at various maturities at a time had increased, and that the role of the CD rate of return as a reference rate had weakened due to uncertainty in issuing amount and undeveloped secondary market, it was introduced in July 2004.

(Calculation and disclosure)

KORIBOR is calculated and announced by the following procedures. First, the reference banks[28] quote their offered rates for each maturities from 10:40 to 10:55 every business day to the KORIBOR calculator (Yeonhap Informax). The calculator determines KORIBOR by arithmetic averaging of the middle six of the 12 interest rates, and then notifies the supervising organization.[29] KORIBOR is announced through an information provider (Yeonhap Informax) as soon as it is approved by the supervising organizaton who checks for any errors on the rate. In principle, the rate is announced at 11:00 on the day, and is posted on the website of the Korea Federation of Banks at 15:00.

28) As of June 2016, these consist of six nationwide banks (Kookmin Bank, Woori Bank, KEB Hana Bank, Shinhan Bank, Citi Bank Korea, and SC Bank Korea), three specialized banks (Industrial Bank of Korea, NH Bank and Korea Development Bank) and three local banks (Daegu Bank, Busan Bank, and Jeonbuk Bank).

29) The KORIBOR Expert Committee in the Korea Federation of Banks is the official organizing authority. It deliberates and makes decisions on the key issues for efficient operation of the KORIBOR system, such as KORIBOR's calculation method and the selection of the reference banks. However, until the KORIBOR system is settled, the Bank of Korea is in charge of interest rate review and approval.

(Efforts for improvement)

As a result of the LIBOR crisis in July 2012, discussions to improve the credibility and utilization of KORIBOR were made as part of the debates on improving the short-term reference rate in Korea. In December 2013, the Korea Federation of Banks announced plans to improve KORIBOR with the reference banks. In accordance with the plans, KORIBOR's basic principle of quoting the rates and the internal control system for the reference banks were established. From July 1, 2014, KORIBOR has not been calculated for some maturities that there was low usability and that it was hard to quote the rate due to the absence of reference rate. Thus, the announced rates were reduced from 10 to six.[30)]

30) Four maturities have been excluded, including two weeks, four months, five months, and nine months. Therefore, there are six KORIBOR maturities (one week, one month, two months, three months, six months, and 12 months) at present.

Box 5

COFIX Overview

(Introduction background)

The CD rate had originally been used as the main benchmark interest rate for mortgage loans. However, as CDs took up a low portion of the overall financing of banks[31] and the trend of the CD rate differed from that of market interest rate occasionally, it did not properly reflect banks' funding costs. After consultation with the banks, the Korea Federation of Banks introduced the COFIX (Cost of Funds Index), the weighted average interest rate of bank funding products, as a new loan reference interest rate (first announced in February 2010).

Since then, banks have been actively launching loan products with their rate linked to COFIX (COFIX-linked loans) and making it easier to switch from existing loans to COFIX-linked loans. As a result, they have been rapidly replacing CD rate-linked loans.[32]

(Calculation and disclosure)

Based on the financing information provided by eight banks[33], COFIX is calculated by the Korea Federation of Banks, and it is announced on the 15th day

31) As of end-October 2009, the proportions of financing instruments of banks were 67.1% for deposits, 16.7% for bank debentures and 11.0% for CDs.

32) COFIX-linked loans accounted for 31.3% of total floating rate loans as of June 30, 2016, on the other hand, CD rate-linked loans accounted for 14.3%. In the case of mortgage loans in particular, COFIX-linked loans accounted for 66.5% as of end-June 2016.

33) At present, information providers are Kookmin Bank, Woori Bank, Shinhan Bank, KEB Hana Bank, NH Bank, Industrial Bank of Korea, Citi Bank Korea, and SC Bank Korea.

of every month through the website of the Korea Federation of Banks after 15:00 (next business day if the day is a holiday).

(Introduction of short-term COFIX)

COFIX is the average cost of funds, with an average maturity of nine to 10 months, and is announced only once a month. So, banks still tend to prefer CD rates to COFIX as a reference base for floating rate loans with one to two years of maturity.

In July 2012, Task Force[34] was formed on the Short-term Reference Rate and determined to introduce a short-term COFIX to be used in corporate loans with short maturities and household credit loans. The short-term COFIX is the average interest rate of short-term (three-month) funding products, and has been announced once a week since December 20, 2012 on the basis of weekly acquired new funds.

Table 10 COFIX and Short-term COFIX

	COFIX	Short-term COFIX
Concept	Weighted average cost index of bank funding products	Weighted average cost index of bank short-term (3-month-long) funding products
Disclosure cycle (date)	Once a month (the 15th day of each month)	Once a week (the third business day of every week)
Index type	COFIX by outstanding balance and COFIX by monthly acquired new funds	COFIX by weekly acquired new funds

34) Spurred by the British and American authorities' imposition on June 27, 2012 of around 450 million dollars in fines on Barclays Bank in relation to its manipulation of LIBOR, the Task Force is formed as concerns on the possibility of a similar in the CD rate aroused. The Task Force consists of the Financial Services Commission, the Ministry of Strategy and Finance, the Bank of Korea, the Financial Supervisory Service, the Korea Institute of Finance, the Korea Capital Market Institute, academia (university professors), the Korea Federation of Banks, and the Korea Financial Investment Association.

4. Market trends

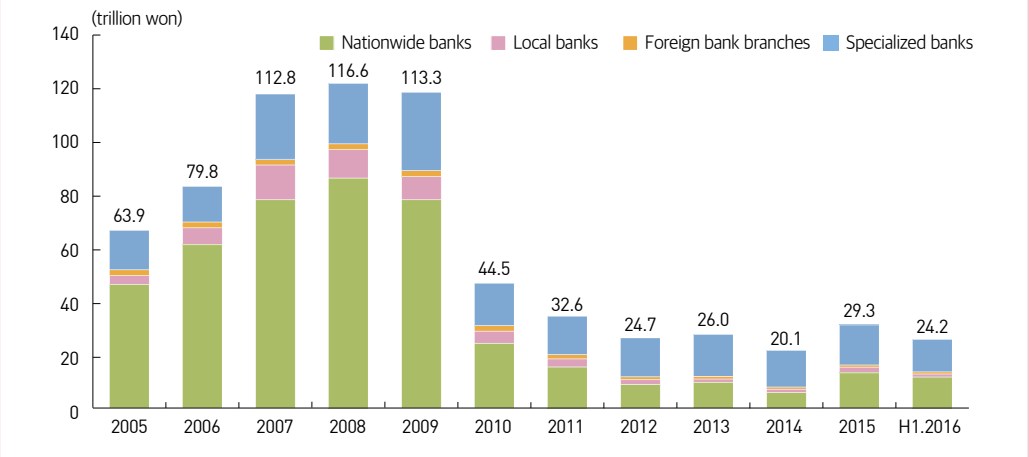
Since 2005, banks have extended the issuance of CDs to raise more funds for mortgage loans and other forms of lendings. In particular, in 2007, banks increased further CD issuance as depositors shifted to the stock market due to the stock market boom, as well as credit continued to expand.

In 2008, the growth of CD issuance slowed as the stock prices dropped due to external factors such as the possibility of economic recession in the US and the special time deposit promotions brought in more funds to banks.

Even after 2009, the abundance in short-term liquidity continued, which decreased CD issuance. In particular, since the announcement to introduce the loan-to-deposit ratio regulation[35] at the end of 2009, the volume of CD issuance started to sharply decrease because the CDs were excluded from the category of deposits for regulatory purposes when calculating loan-to-deposit ratios. As a result, the CD outstanding balance dropped from 113.3 trillion won at end-2009 to 44.5 trillion won at end-2010. It steadily declined until June 2012, when loan-to-deposit ratios regulation began to be implemented, and the balance remained around the 20 trillion won level afterwards.

35) In order to restrain excessive loan growth through wholesale funding and to induce sound asset growth, KRW-denominated loans (monthly average) were limited to less than 100% of KRW deposits (excluding CDs). Initially, the regulation was planned to be applied from January 2014, but it began to be applied from June 2012.

Figure 10 CD outstanding balances[1)]



Note: 1) At period-ends
Source: Bank of Korea

Looking at the total CD market by buyer, the proportion of interbank CDs in the total CD market decreased gradually from 21.0% in 2000 to less than 1% in 2008. After October 2013, there was almost no record of trading. This is attributed to the increase in channels for raising funds, such as bank debentures. Another reason is the fact that with interbank CDs, unlike with customer CDs, there are limitations on transfers, making transactions inconvenient. As a result, as of end-June 2016, most of the CD outstanding balance was of customer CDs, of which 84.7% were bankbook CDs.

Meanwhile, marketable CDs, which are the subject of CD rate, had decreased in outstanding balance to the level of 1 trillion won in August[36)] 2012 due to the loan-to-deposit ratio regulation. After the financial authorities provided administrative guidance, which imposed on banks to issue marketable CDs, in August 2012, the issuance gradually recovered. As of end-June 2016, the outstanding balance of marketable CDs was 3.7 trillion won, accounting for 15.3% of the total.

36) The outstanding balance of marketable CDs sharply dropped from 14 trillion won at the end of 2009 to 2.4 trillion won at the end of June 2012, and then dropped to 1 trillion won during August.

Table 11 Outstanding balances[1] of CDs by type[2]

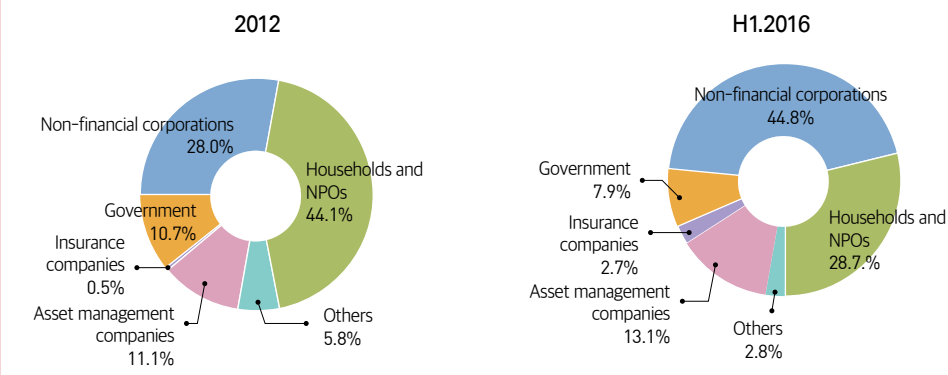
Units: trillion won, %

	2008	2010	2012	2014	H1.2016
Customer CDs	116.4 (99.8)	44.3 (99.6)	24.5 (99.2)	20.1 (100.0)	24.2 (100.0)
Bankbook CDs	96.5 (82.8)	37.7 (84.7)	21.3 (86.5)	16.6 (82.5)	20.5 (84.7)
Marketable CDs	19.5 (17.1)	6.6 (14.9)	3.1 (12.7)	3.5 (17.5)	3.7 (15.3)
Interbank CDs	0.2 (0.2)	0.2 (0.4)	0.2 (0.8)	0.0 (0.0)	0.0 (0.0)
Total	116.6 (100.0)	44.5 (100.0)	24.7 (100.0)	20.1 (100.0)	24.2 (100.0)

Notes: 1) At period-ends
2) Figures in parentheses indicate the shares in the total.
Source: Korea Securities Depository

As for CD holdings by investor type, the share of households and nonprofit organizations dropped from 44.1% at the end of 2012 to 28.7% at end-June 2016, while the proportion of non-financial corporations rose from 28.0% to 44.8%. Asset management companies and insurance companies also rose from 11.6% to 15.8%.

Figure 11 Shares in CD holdings[1] by investor type



Note: 1) Based on outstanding balances at period-ends
Source: Bank of Korea

VI

Commercial paper (CP) market

1. Definition and significance

A commercial paper (CP) is a type of security issued by a corporation with sound credit rating in order to raise short-term funds such as working capital. Although CPs differ from commercial bills in that they do not accompany commercial transactions, the two are legally classified in the same category as promissory notes.

CPs are easy to issue,[37] and usually do not require collateral (excluding asset-backed CPs), and are generally more advantageous than bank loans in terms of interest rates.[38] Due to these advantages, a CP is a useful tool when companies want to raise funds quickly.

2. Trade terms, participating agents and trade mechanisms

For CPs purchased by a securities company's own account, there are no restrictions on the issuer, maturity, or face value of the CPs. However, when a securities company's own account sells, brokers, or arranges CPs in the over-the-counter (OTC) market, only CPs issued by companies that have been rated by two or more credit rating agencies are permitted.

The CP market consists of the issuers, the dealers, and the investors. CPs are

37) For the issuance of stocks and corporate bonds, complicated procedures such as the resolution of the board of directors, the registration of issuer and the submission of registration statement to authority are required according to the Commercial Act and the Financial Investment Services and Capital Markets Act. As for CPs, however, they can be issued when the requirements of the Bills of Exchange and Promissory Notes Act are satisfied.

38) As of end-June 2016, the benchmark interest rate for A1-rated CPs (maturity of three-month) is 1.52%, falling below the bank's corporate loan rate (based on new loans and deposits) of 3.41%.

issued at a discount and their face value is repaid on maturity. The issuer receives the paper[39] from the bank at which it has opened its account, and discusses the maturity, amount and interest rate of the CP to be issued with the dealer. At this time, the dealer generally establishes a contract with the issuer regarding the CP transaction, and set a issuing amount limit. The dealer discounts CPs (the dealer buys CPs at a discount) and then sells them to investors such as asset management companies at interest rates lower than the discount rates.

The discounts and sales of CPs are mainly managed by securities companies and merchant banks. Securities companies typically sell CPs they discounted rather than holding them. Merchant banks discount CPs not only for sales but also for their own holdings. CP discounting by banks, asset management companies and insurance companies is not very active. In the case of banks, CP discounting (for their holdings) is regarded as lending, and the limit on aggregate lending to one borrower is thus directly applied.[40] General loans or discounts of commercial bills are moreover also available for meeting corporate short-term funds needs, further lowering the CP profiles in banks' portfolios. Asset management companies, insurance companies and specialized credit finance business companies lack the abilities to assess issuer credit ratings and thus prefer purchasing CPs through brokers such as securities companies and merchant banks, whose fees for these transactions are not burdensome to these investors.

The major investors in CPs are merchant banks, the money market funds (MMFs) of asset management companies and trust business entities. Asset management companies' investments in CPs are usually brokered by securities companies and merchant banks,

39) The paper (promissory note) shall include the followings: The words "promissory note" inserted in the main body of the instrument, an unconditional promise to pay a determinate sum of money, the time for payment, etc. (Article 75 of the Bills of Exchange and Promissory Notes Act).

40) The limit for lending to borrowers of the same category is set at 25% of the lender's aggregate equity capital, with that for lending to a single borrower set at 20% (Article 35 of the Banking Act).

while bank trusts go through dealers or sometimes discount CPs themselves.[41)]

In the primary market, the rate is determined by the issuer and the dealer in consideration of the credit risk of the issuer, maturity, and supply and demand in the CP market.

The official CP rate is disclosed twice a day (11:30, 15:30) by the Korea Financial Investment Association. For this rate, the quoted rates for 91-day A1 CPs are obtained from eight financial institutions,[42)] and the six rates between the maximum and minimum rates are averaged.[43)]

Meanwhile, the domestic CP credit rating system is composed from highest to lowest rating of A1, A2, A3, B, C, and D. For asset-backed CPs, 'sf'(structured finance) is added to the credit rating to indicate that they are structured finance products.

Table 12 CP credit ratings in Korea

	Rating	Definition
Investment grade	A1	Highest rating assigned. The obligor's capacity to meet its financial commitment on the obligation is extremely strong, and not vulnerable to external conditions.
	A2+, A2, A2-	The obligor's capacity to meet its financial commitment on the obligation is strong, but less so than in the case of A1.
	A3+, A3, A3-	The obligor has a decent capacity to meet its financial commitment, but less so than in the case of A2.
Speculative grade	B+, B, B-	The obligor has the capacity to meet its financial commitment, but is vulnerable to external conditions.
	C	The obligation is currently highly vulnerable to the possibility of nonpayment.
	D	The obligation is in payment default.

Source: Korea Investors Service

41) Individuals indirectly invest through banks' specific money trusts, securities companies' CMAs, etc. rather than buying CPs directly.

42) Eight companies as of end-June 2016: KEB Hana Bank, Shinhan Bank, Daishin Securities, Dongbu Securities, Meritz Securities, Eugene Investment & Securities, KTB Investment & Securities and Hi Investment & Securities

43) The CP rate is calculated with the discount rate. In order to compare the interest rate with the other market interest rates, it should be converted to the return rate. The formula is as follows: Return rate = (365 × CP discount rate) / (365 - (91 × CP discount rate) / 100)

3. Market trends

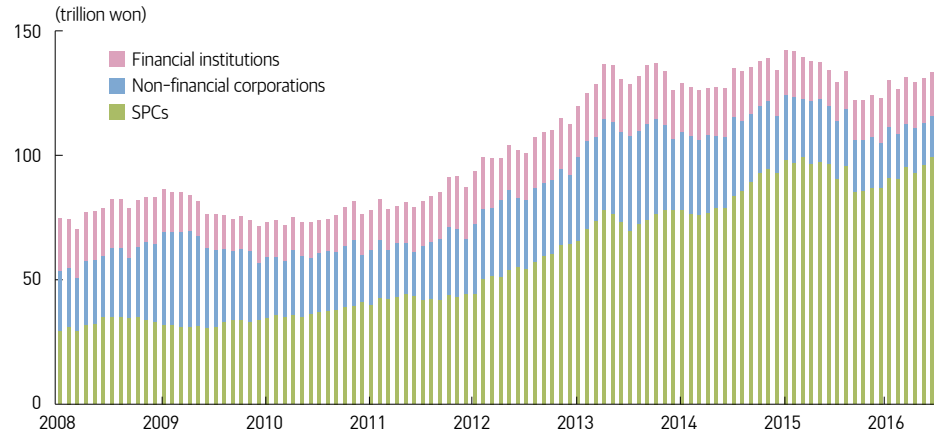
The CP market rapidly expanded as the issuance of ABCPs increased significantly after they emerged as more favorable short-term funding instruments than any others in mid-2000s. The issuance of ABCPs backed by real estate project financing loan (real estate PF-ABCPs) surged due to the active construction market. In addition, the ABCPs using securities held by financial institutions as underlying assets were actively issued in order to earn the spread between long and short-term rates.

After the Lehman Brothers bankruptcy in 2008, however, concerns in the financial market worsened rapidly, leading to deleveraging by many financial institutions such as capital finance companies and credit card companies, and the CP market shrank in turn. ABCP issuance also saw a sharp decline as concerns about the solvency of real estate project financing loans grew. Companies with higher credit ratings increased their issuance of CPs, however, to meet their growing needs to raise funds in advance. Afterwards, despite improving market liquidity and easing of financial market concerns, the volume of CPs declined markedly until end-2009 as corporations expanded their issuance of corporate bonds in efforts to restructure their debts.

Since 2010, the CPs issued by both non-financial and financial corporations have been declining due to the introduction of electronic short-term bonds. However, general ABCPs[44] have increased markedly, showing strong growth in total CP outstanding balance, which exceeded 100 trillion won in 2012, increased to 133 trillion won as of end-June 2016. The proportion of ABCPs of total CPs increased from 57.2% to 74.7% during the same period.

44) In this section, ABCPs with underlying assets other than real estate project financing loans, such as CDS, time deposits, loans are defined as 'general ABCPs.'

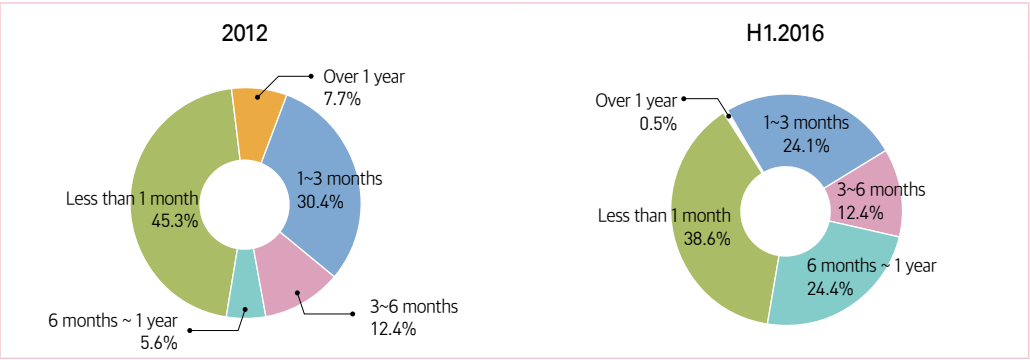
Figure 12 CP outstanding balances[1)]



Note: 1) At period-ends
Source: Korea Credit Information Services

As for the CP maturity structure (based on issuing amount), short-term CPs with maturities of less than one month accounted for the highest percentage at 38.6% in the first half of 2016, followed by those with maturities of one to three months and six months to one year at around 24% each. Compared with the maturity structure in 2012, the proportion of long-term CPs over one year fell sharply, while the portion of six month to one year CPs increased. This is mainly due to the obligation to submit a registration statement to the authority for issuing CPs with maturities over one year, which was introduced in May 2013.

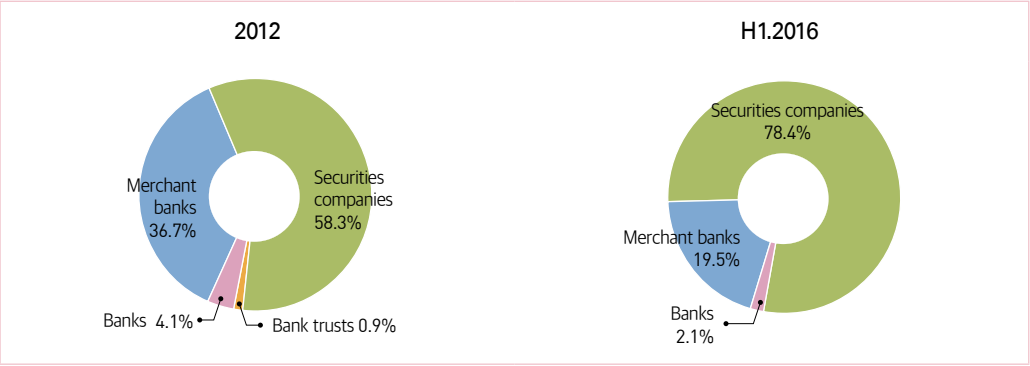
Figure 13 Shares in CPs[1] by maturity



Note: 1) Based on issuing amounts during the periods
Source: Korea Credit Information Services

As for figures by dealers, the share of securities companies rose from 58.3% in 2012 to 78.4% in the first half of 2016 due to the increase in issuance of ABCPs, which are mainly handled by securities companies. Meanwhile, the share of merchant banks decreased from 36.7% to 19.5%.

Figure 14 Shares in CPs[1] by dealer

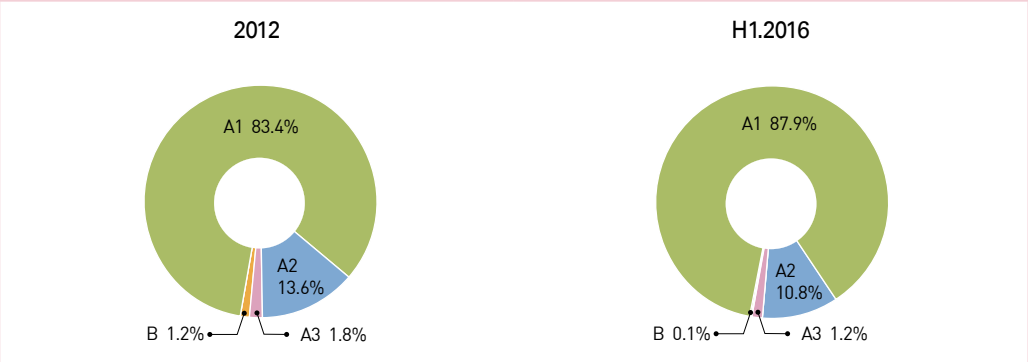


Note: 1) Based on issuing amounts during the periods
Source: Korea Credit Information Services

As for the credit rating structure, the top-class rating of A1 accounted for 87.9% of total issuance amount in the first half of 2016. Compared to 2012, the share of A1 ratings rose as the issuance of ABCPs backed by time deposits, which were regarded as relatively safe assets, increased. Furthermore, investors, who

had experienced credit events such as STX corporation crisis, became to take preference for low risk assets more, contributing to the rise of the share of A1 ratings.

Figure 15 Shares in CPs[1] by credit rating



Note: 1) Based on issuing amounts during the periods
Source: Korea Credit Information Services

VII

Electronic short-term bond market

1. Definition, significance and background

Electronic short-term bonds (E-STBs), a sort of corporate bonds under the Financial Investment Services and Capital Markets Act,[45] are defined as short-term financial instruments that are issued and distributed by electronic means. Discussions on these products began after the global financial crisis, and the bonds were introduced on January 15, 2013 through various legislative[46] and system preparations.

Legally, electronic short-term bonds are classified as bonds, not notes, but in terms of economic features they are the same as the existing commercial papers (CPs). However, electronic short-term bonds differ from CPs in that they are issued and circulated by way of registration in the electronic account book of the central registrar without issuing physical certificates.

There were two main reasons for the introduction of electronic short-term bonds. First, electronic short-term bonds were introduced to replace CPs.[47] As CPs do not come with public disclosure obligations, there were some views that the institutional mechanisms for market transparency and investor protection were insufficient in the CP market. The second reason was the need to mitigate the concentration of short-

45) According to Article 2 of the Act on Issuance and Distribution of Short-Term Electronic Bonds, ETC., electronic short-term bonds mean any corporate bonds among debt securities under Article 4 (3) of the Financial Investment Services and Capital Markets Act, which meet the six requirements and are registered by electronic means. The six requirements are described in part 2 (Trade terms, participating agents and trade mechanisms).

46) In July 2011, the Act on Issuance and Distribution of Short-Term Electronic Bonds, ETC. was enacted, and the Enforcement Decree of the Act on Issuance and Distribution of Short-Term Electronic Bonds, ETC. in December 2012.

47) In the first half of 2013, in order to promote electronic short-term bond market, the financial authorities took measures to waive the tax withholding for interest income (maturities of one month or less), to exempt the obligation to submit a registration statement (maturities of three months or less) and to permit MMFs' buying the electronic short-term bonds issued by private placements.

term funding of non-bank financial institutions such as securities companies in the call market, which raised concerns that the market structure would be distorted and that credit risk would increase in the money market.[48] Therefore the electronic short-term bonds were introduced as the alternative means for short-term funding to the CP market and the call market. In additon, they were expected to be a new funding tool that further enhances the convenience of issuance and distribution.

Table 13 Comparison of CPs and electronic short-term bonds

	CP	Electronic short-term bond
Related law	Bills of Exchange and Promissory Notes Act, Financial Investment Services and Capital Markets Act	Commercial Act, Act on Issuance and Distribution of Short-Term Electronic Bonds, ETC., Financial Investment Services and Capital Markets Act
Issuing format	Physical certificates	Electronic registration (no physical certificates)
Minimum issuance amount restrictions	None (eliminated in February 2009)	At least 100 million won
Maturity restrictions	None (eliminated in February 2009)	Less than 1 year
Issuance procedure	The CEO decides the issuing amount and the details	The board of directors decides the issuance limit (outstanding balance), The CEO decides the details
Distribution	The split of face value is not allowed	The split of face value is allowed (minimum unit is 100 million won)
Public disclosure	Disclosing incomplete information through quarterly and semiannual business reports, etc.	Disclosing full information via the Korea Securities Depository's website

2. Trade terms, participating agents and trade mechanisms

Under the Act on Issuance and Distribution of Short-Term Electronic Bonds, ETC., a bond should meet six requirements,[49] which are; ① The amount of each bond shall be at least one hundred million won, ② The maturity shall not exceed

48) See the call market(section 2, Charpter Ⅱ).

49) Article 2.1 of the Act on Issuance and Distribution of Short-Term Electronic Bonds, ETC.

one year, ③ The bond amount shall be paid in lump sum, ④ The intention of paying the full amount of principal and interest in lump sum at maturity shall be prescribed, ⑤ No convertible rights, preemptive rights to new stocks, and other rights to convert it to other securities or to obtain other securities are granted on bond, ⑥ No bonds shall be secured by collateral.

Market participants consist of the central registrar and the account managers, which are required for issuance and distribution of the bonds by electronic means, as well as the issuers, the dealers and investors. The issuers, the dealers and investors of electronic short-term bonds are very similar to those of the CP market. However, unlike CPs, merchant banking accounts of banks and fund brokerage companies cannot underwrite electronic short-term bonds.

The Act on Issuance and Distribution of Short-Term Electronic Bonds, ETC. designates the Korea Securities Depository as the central registrar, stipulating that any person who intends to issue an electronic short-term bond shall open an issuer management account in the Korea Securities Depository (Article 4, Paragraph 1). The central registrar conducts market participant management tasks such as preparing an issuer management account book for each issuer, and also discloses information on the electronic short-term bonds issued through its website.

Account managers are the institutions that manage the client accounts for each rightholder.[50] These account managers can be investment brokers, banks, insurance companies, trust companies, the Korea Securities Depository, and other such institutions. In practice, however, the majority of account managers are securities companies that are investment brokers.

Electronic short-term bonds are issued by the issuers' notifying the central registrar, the Korea Securities Depository, of the issuance and acceptance of the bonds without

50) According to Article 5 of the Act on Issuance and Distribution of Short-Term Electronic Bonds, ETC., any person who intends to be a rightholder of electronic short-term bond shall open a client account in an account manager.

physical certificates and registering them in the electronic accounts.

When electronic short-term bond holders wish to transfer their rights, establish or cancel rights of pledge, designate or cancel trusts, or perform other such actions, they must request for these actions to be registered in their accounts at the Korea Securities Depository or at the account managers where the relevant electronic short-term bonds are registered.

3. Market trends

Since their introduction, electronic short-term bonds have steadily increased. The annual issuance of electronic short-term bonds increased from 57.9 trillion won in 2013 to 994.9 trillion won in 2015, growing by a factor of 17 in three years. By type,[51] the issuance of general electronic short-term bonds by financial institutions is the largest,[52] and the issuance of general electronic short-term bonds by non-financial corporations is the smallest.

In the case of asset-backed electronic short-term bonds (ABSTBs), from 2013 to 2014, the issuance of ABSTBs backed by project financing loans was more active than that of ABSTBs backed by other assets, as real estate PF-ABCPs were converted to electronic short-term bonds through the regulations regarding CP issuance, such as rules on the registration of securities. Since 2015, however, the issuance of electronic short-term bonds using general assets as collateral has also increased significantly.

51) As with CPs, electronic short-term bonds can be classified into general electronic short-term bonds and asset-backed electronic short-term bonds, and general electronic short-term bonds can be classified into those issued by financial institutions and those issued by non-financial corporations.

52) However, since 2015, the asset-backed electronic short-term bonds issued by SPCs have accounted for the largest portion of the outstanding balance. The net issuance of general electronic short-term bonds issued by financial institutions is small because their maturities are short and most of the issuance is repaid at an early date.

Table 14 Electronic short-term bond issuances[1)] Unit: trillion won

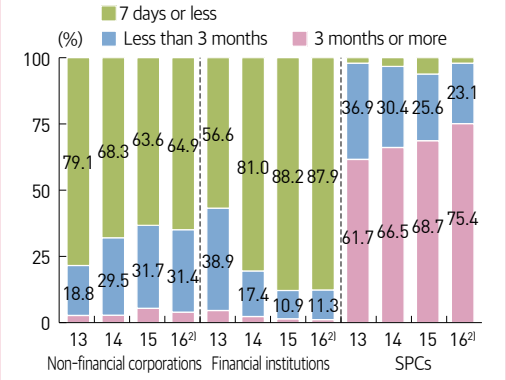
		2013	2014	2015	H1.2016
Non-financial corporations	Private	9.6	31.2	42.6	29.3
	Public	0.1	18.4	17.5	6.9
	Sub-total (A)	9.7	49.6	60.1	36.2
Financial institutions	Securities	9.8	270.2	670.8	346.4
	Capital	1.7	6.0	10.2	3.6
	Card	14.4	73.3	118.3	58.9
	Others	0.5	20.7	38.4	26.8
	Sub-total (B)	26.4	370.2	837.7	435.7
SPCs	General ABSTB	4.2	19.2	50.1	29.8
	PF ABSTB	17.7	37.6	47.0	26.6
	Sub-total (C)	21.9	56.8	97.1	56.4
Total (A+B+C)		57.9	476.6	994.9	528.3

Note: 1) Based on issuing amounts during the periods
Source: Korea Securities Depository

As such, the issuance of electronic short-term bonds has increased significantly, and the outstanding balance has been steadily increasing as well. The issuance balance was insignificant for several months after their introduction in January 2013, but started to increase rapidly after July of that year, reaching 35.4 trillion won in June 2016.

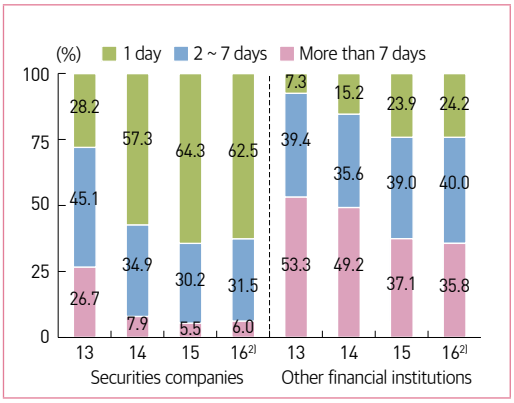
The maturity structure of electronic short-term bonds varies greatly depending on the issuers. In the case of electronic short-term bonds issued by non-financial corporations and financial institutions, bonds with maturities less than seven days accounted for 64.9% and 87.9%, respectively, in the first half of 2016. Bonds with maturities less than three months accounted for 96.3% and 99.2%, respectively, showing that the proportion of short-term maturity bonds is overwhelmingly high.

Figure 16 Shares in E-STBs by maturity[1)]



Note: 1) Based on issuing amounts during the periods
2) In the first half of 2016
Source: Korea Securities Depository

Figure 17 Shares in financial institutions' E-STBs by maturity[1)]



Note: 1) Based on issuing amounts during the periods
2) In the first half of 2016
Source: Korea Securities Depository

Meanwhile, looking at the balance of electronic short-term bonds by credit rating, the respective proportions of A1 short-term bonds issued by non-financial corporations and financial institutions were 80.5% and 89.8% respectively at end-June 2016.[53)]

Table 15 Shares in electronic short-term bonds by credit rating[1)]

Unit: %

	Non-financial corporations	Financial institutions	SPCs	Total
A1	80.5	89.8	68.2	73.8
A2 and below	19.5	10.2	31.8	26.2
Total	100.0	100.0	100.0	100.0

Note: 1) Based on outstanding balance at end-June 2016
Source: Korea Securities Depository

53) This is mainly due to the fact that MMFs and securities trusts, which are major investors in electronic short-term bonds, prefer safe assets.


TUESDAY
15
JANUARY
BUSINESS

Chapter 3
Capital markets

I

Overview

Capital markets are markets in which corporations, governments and public organizations raise long-term funds. Defined broadly, they also include the markets for long-term loans, such as project financing loans, but generally they refer to the long-term securities markets where securities like government bonds, corporate bonds, and stocks are issued and traded.

The Korean government's efforts to develop the capital markets had been focused on the stock market, and the bond market had for some time taken a back seat. Since the 1997 currency crisis, however, the government has introduced new systems and reinforced the bond market's infrastructure in order to bring it to a level on par with those of other developed countries. New systems to promote liquidity in the government bond market are the Korea Treasury Bond (KTB) primary dealer system, the fungible issue system, and the Korea Treasury Bond conversion offer system.[1] Efforts have also been made to lengthen the maturities of government bonds, in order to secure more stable funding and to meet the demand of long-term institutional investors. In line with these efforts, the government began issuing 30-year bonds in September 2012 and 50-year bonds in September 2016. In addition, the types of government bonds have been expanded with the issuance of inflation-linked KTBs (first issued in March 2007).

The stock market has evolved over the years since its legal groundwork was first laid in the 1960s with the enactment of the Securities and Exchange Act (in January 1962) and subsequent laws and measures promoting initial public offerings. The

1) Refer to <Box 6> for more details on the major systems concerning the government bond market.

stock market currently consists of the KOSPI market, the KOSDAQ market, the KONEX market (established in July 2013) and the K-OTC market (established in August 2014).

The capital markets were gradually opened to foreign investors under the three-level Financial Liberalization and Market Opening Plan, announced in June 1993, and the Plan for Capital Liberalization, which was submitted to the OECD as part of Korea's application for OECD membership in September 1996. At present, the upper limits on foreign investment in the stock market have been completely eliminated except in the cases of investment in a few selected public corporations.[2] As for bonds, all limits related to foreign investment in listed bonds were also completely lifted in December 1997.

As of end-June 2016, the Korean capital markets were worth 2,997 trillion won, over 26 times their size at the end of 1990. Total bond market capitalization was 1,539 trillion won, and total stock market capitalization was 1,458 trillion won. Foreign investors accounted for 5.6% of the bond market and 33.0% of the stock market. Within the bond market, meanwhile, the share of corporate bonds has shrunk from 63.0% in 1990 to 14.7% as of the end of June 2016, while government bonds and financial bonds have taken up increasingly larger shares. This has been attributable mainly to an increase in government expenditure, specialized banks funding and the issuance of new types of capital securities. As for the stock markets, the KOSPI market accounted for the majority at 85.7% as of end-June 2016.

2) For public corporations, no more than 30% of total equity capital can come from foreign investors and no more than 3% from any single foreign investor.

Table 16

Capital market size[1)]

Units: trillion won, %

	1990		2000		2010		2015		H1.2016	
	Volume	Share	Volume	Share	Volume	Share	Volume	Share	Volume	Share
Bonds[2)]	35.0	100.0	423.6	100.0	1,112.9	100.0	1,493.0	100.0	1,539.0	100.0
Government bonds	3.1	8.9	73.3	17.3	362.6	32.6	566.2	37.9	601.6	39.1
Municipal bonds	1.1	3.0	9.8	2.3	15.8	1.4	21.3	1.4	21.4	1.4
Financial bonds	6.6	18.9	49.1	11.6	217.3	19.5	313.9	21.0	323.7	21.0
MSBs	0	0.0	66.4	15.7	122.4	11.0	123.6	8.3	127.8	8.3
Special bonds	2.1	6.1	97.2	22.9	204.2	18.3	243.0	16.3	237.7	15.4
Corporate bonds	22.1	63.0	127.9	30.2	190.6	17.1	225.1	15.1	226.9	14.7
Stocks[3)]	79.0	100.0	215.2	100.0	1,239.9	100.0	1,444.5	100.0	1,458.3	100.0
KOSPI	79.0	100.0	186.2	86.5	1,141.9	92.1	1,242.9	86.0	1,250.2	85.7
KOSDAQ	-	-	29.0	13.5	98.0	7.9	201.6	14.0	208.1	14.3
Total	114.0	-	638.8	-	2,352.7	-	2,937.5	-	2,997.3	-

Notes: 1) Based on outstanding balances at period-ends
2) Based on figures for bonds deposited in the Korea Securities Depository (excluding short-term MSBs with maturities of one year or less and T-bills)
3) Market capitalization of stocks listed in the KOSPI and the KOSDAQ

Sources: Korea Securities Depository, KOSCOM

II

Bond market

1. Definition and significance

Bonds are securities issued by governments or corporations as a means of raising large amounts of relatively long-term funds from numerous unspecified investors in exchange for a promise to make predetermined interest payments and repay the principal at maturity. From the investor's point of view, a bond is a major vehicle through which capital gains from price changes can be expected in addition to the promised interest. The bond market can be sub-divided into the primary market in which bonds are initially issued and the secondary market where they are traded.

Bonds in Korea can be categorized into the followings: government bonds such as Korea Treasury Bonds (KTBs) and National Housing Bonds (NHBs), Monetary Stabilization Bonds (MSBs) issued by the Bank of Korea, municipal bonds, corporate bonds, financial bonds issued by banks, financial investment companies, and specialized credit finance business companies, and special bonds issued by corporations established directly by law such as the Korea Electric Power Corporation and the Korea Deposit Insurance Corporation. The parties eligible to issue bonds and the maximum issuance amounts are stipulated by the relevant laws. For government bonds, the National Assembly must approve their issuance beforehand, and for corporate bonds, a procedure that includes submission of a registration statement to the Financial Services Commission must be followed. Even if bonds are issued by the same organization, they are not considered to be identical if they have different maturities or coupon rates.

Table 17 Major issuers, relevant laws and maximum issuance amounts by bond type

Bond type	Issuer	Relevant law	Maximum issuance amount
KTBs	Government	State Bond Act	Within limits approved by the National Assembly
NHBs	"	Housing and Urban Fund Act	"
Treasury bills	"	Management of the National Funds Act	"
MSBs	The BOK	The Bank of Korea Monetary Stabilization Bond Act	Within limits approved by the Monetary Policy Board
Bank debentures	Banks	Banking Act	Up to five times of equity capital
Corporate bonds	Corporations	Commercial Act	No limit[1)]

Note: 1) The maximum issuance limit was eliminated in April 2012.

2. Primary market

Government bonds

The bonds issued by the government comprise KTBs, treasury bills, NHBs and indemnity bonds.[3)] The ways in which they are issued and their interest is paid differ depending upon the bond type.

KTBs and treasury bills are issued through competitive bidding, NHBs are issued to parties that must purchase them for licences from government and for registration applications to government, and indemnity bonds are issued directly to the parties concerned.

KTBs are coupon bonds that pay interest semi-annually, and treasury bills are discount bonds (zero-coupon bonds). NHBs and indemnity bonds are compound bonds on which both principal and interest are repaid at maturity.

As for bond maturities, there used to be four different maturities for KTBs (3,

3) Indemnity bonds are issued based on the Act on Acquisition of and Compensation for Land, ETC. for Public Works.

5, 10 and 20 years), but with the addition of 30-year KTBs in September 2012 and 50-year KTBs in September 2016, that number has increased to six. At end-June 2016, 3-year bonds accounted for 13% of the total outstanding balance of KTBs, while 5-year bonds made up 22%, 10-year bonds 39%, 20-year bonds 18% and 30-year bonds 8%. Treasury bills that are most commonly issued have maturities of three months or less. NHBs (Type 1) have maturities of 5 years. Since March 2007, inflation-linked KTBs of 10-year maturity have also been issued.

In order for government bonds to be issued, the Minister of Strategy and Finance first receives requests for issuance from the various government ministries and makes a plan for issuance. This plan is then reviewed and voted on by the National Assembly, and if it is approved the bonds are issued. The government decides on the amount to be issued within the limit set by the National Assembly. Issuance in principle takes place publicly in the open market.

The issuance of government bonds other than NHBs is carried out by the Bank of Korea. KTBs are issued through competitive bidding among KTB primary dealers using BOK-Wire+ one business day before the issuance date. Treasury bills can meanwhile be issued to KTB primary dealers, eligible counterparties for MSB and institutions entrusted with government fund management.

Box 6

Major government bond market-related systems

Korea, since the late 1990s, has both introduced and revised a variety of systems to foster the government bond market, and among these new and revised systmes, the KTB primary dealer system, the fungible issue system and the KTB conversion offer system have greatly contributed to the market's development. The KTB primary dealer system was introduced in July 1999 to ease the distribution of KTBs and promote the KTB market. Primary dealers are required to purchase at least 10% of the KTBs issuance volume, and to offer quotes of at least ten bid and ask prices for benchmark KTBs. They also have duties related to the trading and holding of KTBs. In exchange for meeting these duties, KTB primary dealers receive the benefits of exclusive participation in KTB auctions, as well as the rights to purchase KTBs through non-competitive bids and receive financial loans at low interest rates. As of end-June 2016, there are total of 19 KTB primary dealers (nine banks and ten securities companies), and four banks are designated as KTB preliminary primary dealers.

The fungible issue system was introduced in May 2000 to boost KTB market liquidity. Under this system, the coupon rates and maturity dates of KTBs issued over certain periods of time are standardized. In the past, the maturity dates and coupon rates differed each time KTBs were issued, resulting in too many KTB types and then low liquidity in each type of KTB. The fungible issue system has resolved this problem, and also helped to stabilize the reference interest rate. As of June 2016, the fungible issue period for 3-year, 5-year and 10-year KTBs is six months. For Inflation-linked KTB (10-year maturity) and KTBs with maturities of 20 or 30 years, this period is one year.[4)]

4) The fungible issue period has not been decided yet for the 50-year KTBs issued on September 2016.

Under the KTB conversion offer system, off-the-run KTBs are exchanged for on-the-run ones. The system was introduced in May 2009 to improve KTB liquidity by supplying more on-the-run KTBs. This system is similar to the buy-back system in place since December 2000, as both systems enhance KTB liquidity. Unlike the buy-back system, however, the KTB conversion offer system does not have the effect of maturity dispersion, since the remaining maturities of the KTBs to be converted are similar to those of the KTBs they are exchanged for. Also, since there is an exchange of KTBs under the conversion offer system, unlike under the buy-back system where the exchange is for cash, there are several differences, such as in the issuance procedures, the transaction counterparts, and the flows of funds.

Table 18 Issuance details of government bonds

	Issuance method	Coupon rate	Interest payment	Maturity
KTBs	Competitive bidding	Determined at bidding	Coupon bond (semi - annually)	3~50 years
Inflation-linked KTBs	"	1.00%[1)]	"	10 years
Treasury bills	"	Winning bid for discount yield	Discount	Less than 1 year[2)]
NHBs (Type 1)[3)]	Mandatory placement	1.25%[1)]	Compounded annually	5 years
Indemnity bonds	Delivery to landowner and persons concerned	Market rate[4)]	Compounded annually	Less than 5 years[5)]

Notes: 1) As of June 2016
2) In practice, the bills issued generally have maturities of less than 3 months.
3) NHB Type 2 was eliminated in May 2013 and Type 3 in February 2016.
4) 3-year maturity time deposit rate of nationwide banks
5) In practice, indemnity bonds are issued with 3-year maturity.

Both KTB primary dealers and individuals can participate in KTB auctions, although the individuals still need to go through primary dealers. Individuals' purchase amounts can range anywhere from 100,000 to one billion won.

The competitive biddings for KTBs and treasury bills use a pricing auction method that combines a Dutch auction[5] with a conventional auction.[6] Under this method, the accepted bid yield is determined by first arranging all bids into groups at intervals of 3bp, and then selecting the bidders responsible for the lowest group of bids as the winners (who will all pay the highest bid yield in that group).

KTBs are generally auctioned from 10:40 to 11:00 (but for KTBs to be pre-issued, auction time is 09:40~10:00) every Monday. Those of 30-year maturity are auctioned at the same times on Tuesday. The KTB delivery and cash payments are carried out on the next business day after the auction. Upon receiving payment for the auctioned KTBs, the BOK registers them with the Korea Securities Depository (KSD). After the securities are transferred electronically to the customers' accounts, all issuance and settlement procedures are completed.

Table 19 Government bond issuance procedure

① Plan for issuance drafted and revised	Each government ministry submits a request to the Minister of Strategy and Finance. The Ministry of Strategy and Finance consults with each government ministry and drafts a plan for issuance.
② Plan submitted to cabinet meeting for review	The Ministry of Strategy and Finance submits the plan to the cabinet meeting for review.
③ Plan submitted to National Assembly for review	Once the plan is approved at the cabinet meeting, it is confirmed by the President before submission to the National Assembly.
④ National Assembly votes on plan	The Standing Committee of the National Assembly reviews and votes on the plan, and notifies the government of the voting result.
⑤ Plan for bond issuance established	The Government plans the Government Bond issuance schedule.
⑥ Government bonds issued	Once the plan is confirmed and set, issuance is carried out by a designated organization.
⑦ Revenue collected	The funds raised via sales or underwriting are deposited into the government's account at the Bank of Korea.

5) The winners are decided starting from the bidder that offered the lowest yield, followed by the one offering the second lowest yield and so on until the full amount of issuance has been covered. The highest yield offered among the winning bidders is then applied to all winners across the board, as the yield at issuance.

6) The winners are decided starting with the bidder that offered the lowest yield, followed by the one offering the second lowest yield and so on until the full amount of issuance has been covered. The individual winner's offered yield is then applied for each investor.

Corporate bonds

Issuance of corporate bonds can take the forms of either public offerings or private placements. A public offering is when an organization such as a securities company, a merchant bank or the Korea Development Bank underwrites the total amount of funds and issues the securities to investors. In a private placement, the issuing company consults directly with the demand-side parties over the issuance. The revision of the Commercial Act in April 2012 removed the maximum limit on the corporate bond issuance amount, and corporate bonds may now also be issued without approval from a company's board of directors if so provided in the company's articles of incorporation.

Companies that issue corporate bonds are required to obtain credit ratings from two or more credit rating agencies on their profitabilities, cash flows and financial stability. There are ten grades of bond ratings, ranging from AAA to D. Grades from AAA to BBB indicate the principal and interest of the bonds are deemed to be recoverable. Grades of BB or below are considered speculative grades, where the capacities for repayment are questionable. Among corporate bonds issued in the first half of 2016, 70% had grades of A or higher, 5% had BBB grades, and 25% had speculative grades of BB or below.

Since the 1997 currency crisis, guarantors of corporate bonds have been reluctant to guarantee repayments, and they themselves have come under scrutiny. As a result, investors have been placing more importance on the issuing companies' credit ratings than on whether repayment is guaranteed. This has led in turn to more general issuance of non-guaranteed corporate bonds.

At present, corporate bonds are issued through the firm commitment underwriting by managing underwriters. The issuer hires a managing underwriter (typically a securities company) to manage the overall issuance process, and the underwriter, after

assuming the liability for the total amount of the corporate bonds, sells the bonds to buyers (banks, asset management companies, insurance companies and other institutional investors). The underwriter conducts a book-building with institutional investors through the Korea Financial Investment Association's Free Bond system, and based on this result, consults with the issuer to make final decisions on the quantity, price and buyers of the issued bonds. The buyers submit subscriptions to the underwriter at the specified date and time and notify the subscription details to their trustee banks, instructing them to pay the underwriter. The underwriter deposits these funds to the issuer's main bank on the day of the subscription. After the underwriter has registered the bonds under the investors' names with the KSD, the process is complete.

Table 20 Corporate bond credit ratings[1)]

Rating	Definition
Investment grade	
AAA	Highest ability to repay principal and interest
AA	Excellent ability to repay principal and interest, but slightly less than with AAA-rated bonds
A	Very good ability to repay principal and interest, but vulnerable to deteriorations in economic conditions and environments
BBB	Good ability to repay principal and interest, but possibility exists of future ability to repay being reduced by deteriorations in economic conditions and environments
Speculative grade	
BB	Ability to repay principal and interest not immediately problematic, but bond has speculative features since future stability is not guaranteed
B	Ability to repay principal and interest lacking, making the bond speculative; repayment of interest in case of recession not certain
CCC	Uncertainties currently exist concerning ability to repay principal and interest; highly speculative given the high risk of default
CC	More risk factors compared with higher grades
C	High risk of default; ability to repay principal and interest lacking
D	Unable to repay

Note: 1) Credit ratings given by Korea Investors Service to non-secured preferred corporate bonds (including financial bonds). Within the categories AA to B, sub-ratings are given using the markings of "+" or "-".

3. Secondary market

The secondary market for bonds can be divided into the exchange-traded market and over-the-counter (OTC) market, but at present, bonds are mainly traded in the OTC market. This is because bonds have a variety of types and their terms and conditions are not standardized, making them difficult to transact over the Korea Exchange's automated trading system. There are no designated time periods for trading in the OTC market, but trading takes place mostly between 09:00 and 16:00, in units of 10 billion won. Once a deal has been struck, the investor requests its bank to make a transfer of funds, and the selling institution requests its securities company (brokerage firm) to change the registry of the bonds at the KSD. Settlement and registration are generally done on the business day following the trade (T+1).

The exchange-traded markets in the Korea Exchange are devided into the General Bonds market[7] and the Korean Treasury Bonds market (KTS). General investors can participate in the General Bonds market, where transactions can involve all listed bonds with the exception of KTBs. In practice, however, most transactions involve small-value government and public bonds and convertible bonds, which have to be traded in the exchange-traded market because of the needs to increase the liquidity of small-value government and public bonds (such as Type 1 NHBs) and to broaden the demand base for convertible bonds.

Participants in the Korean Treasury Bonds market are limited to financial institutions that play market-maker roles. A dealer inputs data for a two-way quotation to the Korea Exchange's automated trading system, and when the terms requested by two counterparties match, a deal is automatically struck. Trading in

7) Including the Small-lot Government and Municipal Bonds market

the KTS was sluggish in the past owing to primary dealers' reluctance to reveal transaction information via the automated system, but due to the requirement that primary dealers have to carry out the market making role for benchmark KTBs in the exchange-traded market, these benchmark bonds have come to be more actively traded in recent years. Trading in the exchange-traded market accounted for 16.4% of all KTB trades from March to December 2006, but the percentage shot up to 48.1% in the fist half of 2016.

Table 21 OTC market and Exchange-traded market

	OTC market		Exchange-traded market (Korea Exchange)	
	Simple brokerage by securities companies	Brokerage by IDB[1]	General Bonds market	Korean Treasury Bonds market
Trading parties	No restriction	Institutional investors, asset management companies, mutual funds, etc.	Regular members of Korea Exchange[2]	Primary dealers, general dealers of government bonds
Trading brokers	Securities companies	IDB	Korea Exchange	Korea Exchange
Main items traded	All bonds	All bonds	Type 1, 2 NHBs, convertible bonds	KTBs, MSBs, and Deposit Insurance Fund bonds
Trading method	Negotiated trading	Virtually negotiated trading[3]	Competitive auction (automatic trading)	Competitive auction (automatic trading)
Trading hours	No restriction, but usually 09:00~16:00	No restriction, but usually 09:00~16:00	09:00~15:30	09:00~15:30
Settlement	T+1~30	T+1~30	T	T+1
Minimum trading unit	No restriction, but usually 10 billion won	No restriction, but usually 10 billion won	General bond 1,000 won, E-STB 100 million won	1 billion won

Notes: 1) IDBs (inter-dealer brokers) in practice broker bond trades in the same way as securities companies, as they have been allowed to have institutional investors as clients since February 2003.
2) General investors may participate in the market by commissioning their trades to securities companies.
3) The initial goal was to have a completely automated system with no involvement of brokers, but as of now simple brokering is done by securities companies.

Box 7

Bond market infrastructure

(Disclosure of quotation yields)

After receiving the rates for bonds traded in the OTC market from designated securities companies, the Korea Financial Investment Association (KOFIA) posts the final quotation yields on its website. The quotation yield is the average of the secondary market rates, which are considered to accurately portray the OTC market transaction details. It is also used as a benchmark price for bond trading.

(Mark-to-market valuation)

Bonds are marked to market differently depending upon the type of account concerned. For trading securities, the mark-to-market valuation is reflected in profit and losses for the current term in the income statement. Available-for-sale securities are also marked to market, but rather than being reflected in the income statement, they are included under the category of accumulated other comprehensive income in balance sheet. Held-to-maturity securities are evaluated based on their book values. When bonds held by financial institutions are marked to market, the use of yields disclosed by the KOFIA or bond rating agencies is required. For collective investment properties, for which mark-to-market valuation was introduced in July 2000, the final yields in the securities market or the rates provided by two or more credit rating agencies are used.

(Settlement)

To increase bond trading safety and efficiency, the delivery versus payment (DvP) system is used, in which the transfer of bond ownership and settlement of funds occur simultaneously. DvP is a system that links, in real-time, the transfer of bond ownership between the trading parties' accounts at the KSD with the payment for the bonds made through the KSD's account opened at BOK-Wire+. As institutional investors' awareness of settlement risks have risen, and the bond delivery date has been changed from the trading day to the day following the trade, the amount of funds transferred through DvP has increased from a mere 346 trillion won in 2001 to 19,743 trillion won in 2015.

(Registry and deposit)

A registry system is in place to protect the rights of investors and to make it more convenient to carry out the administrative tasks needed for bond issuance, and a deposit system is in place to increase convenience during the trading itself. Under the State Bond Act and the Registration of Bonds and Debentures Act, a bond holder does not necessarily need to possess the bonds in physical form, but can instead make a book entry with the holder's name, address, and bond amount in a bond register managed by a registrar. Registry secures the bond holder's rights as a creditor, and records of any trading of the bond, the allocation of collateral, or the markings regarding the assets in trust are entered in the register, thus protecting the bond holder. Most bonds are not actually issued physically, but only through such registries. Most government bonds and MSBs are registered by the Bank of Korea, while municipal

bonds, financial bonds and corporate bonds are registered by the KSD. Meanwhile, under the bond deposit system, the KSD receives the deposits of bonds regardless of whether they are issued physically or by registry. Depositors have their rights regarding their bonds ensured through depositor's account book[8], and they are able to trade bonds or receive principal and interest payments more conveniently.

There is also a system that combines the registry and deposit systems. Registry for a group of bond holders is made under the KSD's name in the registrar's bond register, and the individual holdings of these investors are marked in the depositor's account book of the KSD. Public corporation bonds are currently issued using this combined method, with the KSD serving as both the registrar and the deposit-holding institution. For KTBs and MSBs, the Bank of Korea registers them under the name of the KSD, and the KSD makes the individual underwriters' deposits.

8) Through registering, the depositors hold the right to ownership of the bond, the right to transfer ownership and to establish a pledge, and the power to defend themselves against claims from third parties.

4. Market trends

As of end-June 2016, the total outstanding balance of bonds was 1,596 trillion won. Government bonds accounted for the largest share at 602 trillion won (38%), followed by financial bonds at 324 trillion won (20%), special bonds at 238 trillion won (15%), corporate bonds at 227 trillion won (14%) and MSBs at 185 trillion won (12%).

The outstanding bond balance was 2.5 times larger than it was at the end of 2002, impacted by increased financial demand from the public sector to support economic recovery and the need to absorb excess liquidity from overseas and domestic sectors.

Table 22 Outstanding balances[1] of bonds by type[2] Units: billion won, %

	2002	2006	2008	2010	2012	2014	H1.2016
Government bonds[3]	98,271 (16.2)	257,752 (31.4)	282,432 (30.1)	362,587 (31.4)	423,657 (32.8)	509,694 (34.5)	601,560 (37.7)
Municipal bonds[4]	8,766 (1.4)	11,461 (1.4)	12,779 (1.4)	15,792 (1.4)	16,918 (1.3)	19,071 (1.3)	21,401 (1.3)
Special bonds[5]	131,102 (21.7)	93,084 (11.3)	120,140 (12.8)	204,177 (17.7)	274,012 (21.2)	249,836 (16.9)	237,723 (14.9)
MSBs	84,278 (13.9)	158,390 (19.3)	126,937 (13.5)	163,530 (14.2)	163,070 (12.6)	181,476 (12.3)	184,869 (11.6)
Financial bonds[6]	104,426 (17.2)	165,127 (20.1)	249,073 (26.6)	217,329 (18.8)	206,587 (16.0)	294,685 (20.0)	323,668 (20.3)
Corporate bonds	180,049 (29.8)	134,441 (16.4)	145,858 (15.6)	190,598 (16.5)	205,783 (16.0)	221,240 (15.0)	226,932 (14.2)
Total	606,892 (100.0)	820,225 (100.0)	937,219 (100.0)	1,154,013 (100.0)	1,290,027 (100.0)	1,476,002 (100.0)	1,596,153 (100.0)

Notes: 1) At period-ends
2) Figures in parentheses show the shares in the total outstanding balances.
3) KTBs, National Housing Bonds (Types 1, 2 and 3), Grain bonds, Foreign Exchange Stabilization Bonds, Indemnity bonds
4) Municipal Development Bonds, Urban Railroad Bonds, etc.
5) Bonds of public corporations, Deposit Insurance Fund bonds, Korea Electric Power Corporation bonds, etc.
6) Industrial finance bonds, small and medium enterprise financing bonds, bank debentures, corporate bonds of specialized credit finance business companies, etc.
Sources: Bank of Korea, Financial Supervisory Service, Korea Securities Depository

The volume of bonds traded in the secondary market (monthly average basis) increased from 177 trillion won in 2002 to 619 trillion won during the first half of 2016. The main factors behind this rise include the increased bond issuance following the currency crisis, greater trading for profit by institutional investors with the introduction of mark-to-market bond valuation and low market rate, and efforts to boost bond transactions such as the reform of the primary dealer system. At present, OTC transactions comprise a high proportion of bond transactions, and exchange-traded transactions, led by transactions in government bonds, have greatly increased in proportion from 9% in 2010 to 32% in the first half of 2016. Looking at OTC transactions by bond type, during the first half of 2016, government bonds accounted for 56% of total OTC trading and MSBs for 23%. Special bonds and corporate bonds showed sluggishness, at 6% and 3% of total OTC trading, respectively.

Table 23 Trading volumes[1] of bonds by type

Unit: billion won

	2002	2006	2008	2010	2012	2014	H1.2016
OTC	172,933	252,383	234,055	471,695	498,846	435,411	421,174
Government bonds[2]	63,475	138,032	105,159	270,106	284,988	246,223	235,687
Municipal bonds[3]	486	580	720	1,130	1,185	1,200	1,215
Special bonds[4]	11,494	5,850	10,286	19,043	31,042	25,599	23,341
MSBs	64,364	75,745	74,495	116,944	123,039	101,023	96,647
Financial bonds[5]	26,340	26,516	38,557	52,821	42,801	48,188	52,961
Corporate bonds	8,256	5,660	4,838	11,651	15,791	13,178	11,323
Exchange-traded	4,115	24,482	30,329	46,999	108,581	112,035	198,287
Total	177,048	276,865	264,384	518,694	607,427	547,446	619,461

Notes: 1) Based on monthly average trading volumes during the periods
2) KTBs, National Housing Bonds (Types 1, 2 and 3), Grain bonds, Foreign Exchange Stabilization Bonds, Indemnity bonds
3) Municipal Development Bonds, Urban Railroad Bonds, etc.
4) Bonds of public corporations, Deposit Insurance Fund bonds, Korea Electric Power Corporation bonds, etc.
5) Industrial finance bonds, small and medium enterprise financing bonds, bank debentures, corporate bonds of specialized credit finance business companies, etc.
Sources: Korea Exchange, Korea Financial Investment Association

Secondary market bond yields rose dramatically in the second half of 2007, as foreign investors and foreign bank branches increased their sales volumes at losses with the mounting of sub-prime mortgage-related investment losses and the worsening of short-term liquidity conditions in the global financial market. Starting from 2008, expectations of a Base Rate cut following the sharp cut in the US Federal Funds Rate prompted yields to rapidly slide until April. Yields began to climb back in May as inflation increased and the Korean won/US dollar exchange rate rose, and this uptrend continued until mid-July. They subsequently headed downward again from October, due to increased unease in the financial markets at home and abroad, the cuts in policy rates and the increased liquidity supply by major country central banks.

In 2009, the yield on KTBs (3-year maturity) plunged to 3.26% in January

following several cuts in the Base Rate, then rose again due to concerns of the increase of bond supply led by the formulation of supplementary revised budget bill of the government and the increase of public corporation bond issuance, as well as concerns about the international financial market. It then maintained a gradual upward trend while fluctuating within a narrow range due to the interaction of upward pressures, such as expectations of a Base Rate hike, with downward pressures such as the easing of concerns about the international financial market, etc.

In 2010, the 3-year KTB yield fell gradually until April even despite expectations of a Base Rate hike, owing to inflows of foreign investment funds into the bond market. The yield rose temporarily in May to June, due to the European sovereign debt crisis and geopolitical risks related to North Korea, but reversed to a downtrend beginning in July in response to the possibility of economic slowdowns in developed countries and continued inflows of foreign investment funds.

In 2011, the 3-year KTB yield rose following inflation concerns and the BOK's Base Rate hike, reaching over 4% in February. However, it plunged steeply in March due to the Great East Japan Earthquake and political instability in the Middle East and the Northern Africa, and then it remained at the upper 3% range. From August, it started to slide again in August, as investors strengthened their preference for safe assets due to concerns about the US economy slowing down, the downgrading of the US sovereign credit rating, and the spread of the European sovereign debt crisis.

The yield showed a continuing gradual upward trend at the beginning of 2012, driven by the easing of risks in the Euro zone, reduced expectations of the BOK Base Rate cut, and anticipations of global economic recovery. From April, however, the reemergence of Euro zone-related concerns and an increase in risk aversion due to the global economic downturn pushed it back into a downtrend. In particular, the Base Rate cut in July and the expectations of further cuts led to a

drop in long-term interest rates. However, these expectations eased after the Base Rate cut in October, which led to a brief rally.

In 2013, the 3-year KTB yield declined due to concerns over a slowdown in the domestic economy and foreign investor's buying KTB futures on a large-scale, but rebounded significantly after May at the prospects of the US Federal Reserve winding down its quantitative easing (the Taper Tantrum). It fluctuated subsequently, mainly under the influence of changes in market expectations regarding the Federal Reserve's quantitative easing.

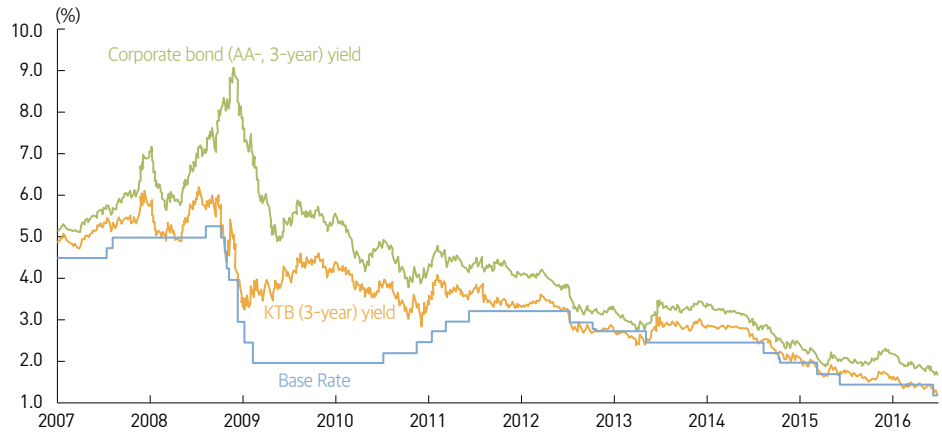
In 2014, the 3-year KTB yield fluctuated in a narrow range, as it was influenced by a combination of factors such as the increase in Ukraine's geopolitical risk and expectations of policy rate hikes by the US Federal Reserve. However, from mid-June, it showed a continued trend of decrease due to the weakened economic recovery in the wake of the Sewol Ferry Accident, etc., the Base Rate cuts in both August and October, and expectations of additional policy rate cuts for major central banks' further easing.

In 2015, the 3-year KTB yield dropped rapidly until mid-April due to the BOK's Base Rate cut in March and the easing of monetary policies by central banks like the ECB and the Reserve Bank of Australia. It then rose sharply, owing to the surge in long-term German and US government bond yields and worries about oversupply of long-term bonds following the surge in MBS issuance related to the so called relief conversion conforming loans, which allow households with floating rate mortgage loans to switch into fixed rate amortizing loans at lower rates by Mortgage Refinancing Program. In August, it decreased again due to the People's Bank of China's devaluation of the yuan and anxiety in the Chinese stock market, which strengthened the preference for safe assets. The yield increased afterwards due to the market reflecting in advance the possibility of a Fed rate hike, but fell again when the FOMC suggested a moderate hike in December amid

falling international oil prices.

In 2016, the 3-year KTB yield rose until mid-April due to rising oil prices and concerns over the US Federal Reserve's policy rate hikes, but declined continuously thereafter due to the Base Rate cut, as well as expectations of financial easing by major countries and the decline in global interest rates following the result of UK's Brexit referendum. From late August, the yield fluctuated in line with expectations of the US Federal Reserve's monetary policy changes.

Figure 18 Bond market yields and Base Rate



Sources: Bank of Korea, Korea Financial Investment Association

Box 8

Yield curve inversions

The spread between short- and long-term interest rates (3-year KTB yield – Base Rate) fluctuates based on the economic and inflation outlook, monetary policy expectations, and supply/demand conditions in the bond market. Long-term interest rates are generally higher than short-term interest rates considering term premia, but the yield curve may invert on certain occasions, such as when concerns over a domestic economic slowdown raise expectations of a Base Rate cut, or demand for longer-term bonds increases.

The yield curve has inverted several times in Korea since 2000. In particular, the 3-year KTB yield fell below the Base Rate in February 2016, and except for a temporary reversion following the Base Rate cut on June 9th, the yield curve remained inverted until the end of August. This arouse from a combination of domestic and external factors, such as the decline in global long-term interest rates stemming from expectations of further monetary easing by major economies, strengthened preference for safe assets following uncertainties in the international financial market, and sustained expectations for the Base Rate cuts due to delay in economic recovery.

This recent inversion of the yield curve has occurred not only in Korea but also in Euro zone countries with zero or negative policy rates as well as major countries like Japan and Australia. In particular, in Germany, France and Japan, the yield curve inversions have persisted for longer than two years.

It should be noted that if the yield curve stayed inverted for a long period of time, the intermediary roles of financial institutions might be undermined and long-term institutional investors such as insurance companies and pension funds might be more likely to take on higher risks.

Table 24 Yield curve inversions[1] in Korea

	Number of days	Spread (max ~ min, bp)[1]
Feb. 2001	1	-5
June 2003	3	-5 ~ -2
Oct. - Dec. 2004	8	-10 ~ -1
Feb. - May 2008	23[2]	-12 ~ -2
Oct. 2008	3	-20 ~ -16
July - Oct. 2012	67	-29 ~ -1
Feb. - May 2013	63	-31 ~ -2
Apr. 2015	17	-6 ~ -2
Feb. - Aug. 2016	99[3]	-12 ~ -1

Notes: 1) 3-year KTB yield - Base Rate
2) Feb. 29 - Mar. 6 (5 days) and Apr. 10 - May 7 (18 days)
3) Feb. 11 - Mar. 9 (16 days), Mar. 28 - June 8 (44 days), June 27 - Aug. 26 (39 days)
Sources: Bank of Korea, Korea Financial Investment Association

III

Monetary Stabilization Bond (MSB) market

1. Definition and significance

The Monetary Stabilization Bond (MSB) market is the marketplace where MSBs are issued and traded. Under Article 69 of the Bank of Korea Act and the Bank of Korea Monetary Stabilization Bond Act, MSBs are issued in order to adjust liquidity. Along with repurchase agreements and the Monetary Stabilization Account[9], MSBs are one of the Bank of Korea's major tools for open market operations.

2. Issuance process

MSBs are usually issued through public offerings such as competitive bidding and fixed rate tender. The Monetary Policy Board determines the ceiling for MSB issuance every three months in consideration of financial market and liquidity conditions. At the end of every month since end-May 2016, the Bank of Korea forecasts the issuance conditions for the following month, establishes an MSB issuance plan, and announces the plan to the public. The final issuance amounts are decided in accordance with liquidity conditions and posted publicly one business day before each bidding.

MSBs are issued with various maturities of up to two years, in ten types of discount bonds (zero-coupon bonds) and three types of coupon bonds. Regular issuances are usually of 91- and 182-day maturity discount bonds and 1- and 2-year maturity

9) This account was introduced in October 2010 as a "market-friendly monetary stabilization account" in order to diversify the means of liquidity control with the competitive bidding term deposit.

coupon bonds.

In order to participate in a competitive bidding or a fixed rate tender, a financial institution must first be selected as an "eligible counterparty." The Bank of Korea makes this selection in July of each year among the financial institutions satisfying preliminary criteria such as financial solvency, considering factors such as their MSB trading performance, as well as their participation in open market operations and cooperation in carrying them out. As of end-August 2016, there were total of 22 financial institutions (11 banks and 11 securities companies) eligible to participate in the competitive bidding and fixed rate tenders for MSBs.

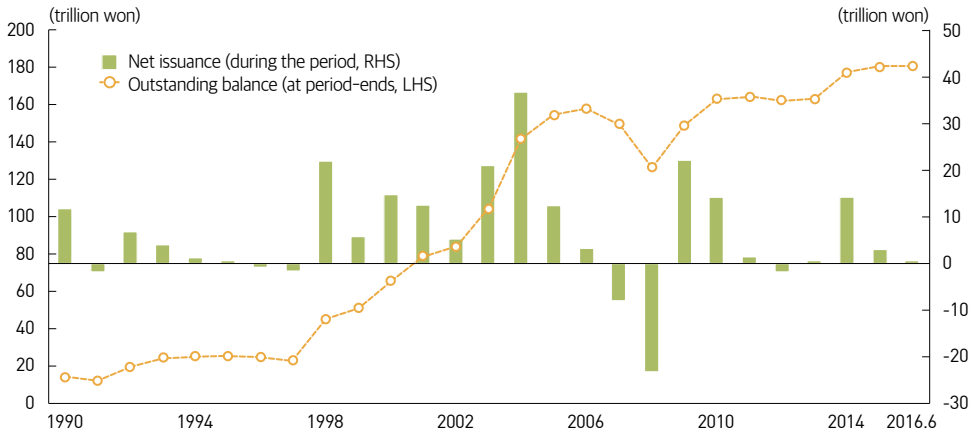
The competitive bidding is held regularly every Monday and Wednesday[10], and the fixed rate tenders are held on the fourth Wednesday of each month.

3. Market trends

The outstanding MSB balance increased continuously after the 1997 currency crisis to reach 158.4 trillion won at the end of 2006. From there it decreased to 126.9 trillion won until end-2008, after which it increased to 163.5 trillion won at the end of 2010 to absorb liquidity supplied by the expansionary monetary and fiscal policies carried out in response to the global financial crisis. After 2014, the balance increased due to the current account surplus and the expansion of the ceiling on the Bank intermediated Lending Support Facility by the Bank of Korea. As of end-June 2016, the MSB balance is 181.4 trillion won.

10) Currently, the competitive biddings for 2-year MSBs are held on the first and third Wednesdays of each month, those for 1-year MSBs on the second and fourth Mondays, those for 182-day MSBs on the first and third Mondays, and those for 91-day MSBs every Mondays.

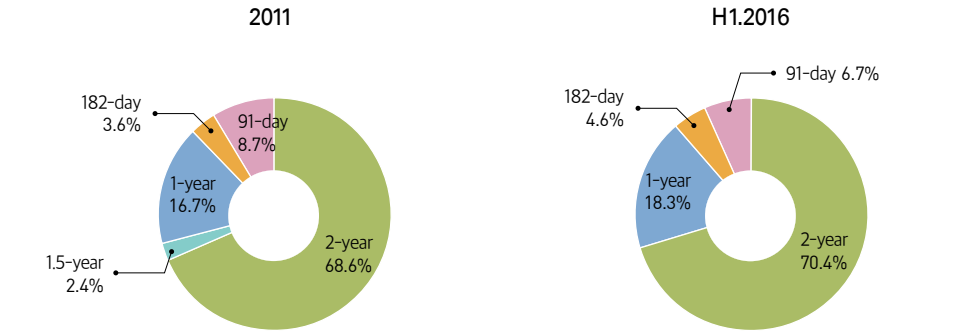
Figure 19 Outstanding MSB balances and net issuances



Source: Bank of Korea

MSBs with maturities of one year or more accounted for a large share of the total, rising slightly from 87.7% of the total outstanding MSB balance at the end of 2011 to 88.7% at end-June 2016.

Figure 20 Shares in MSB issuance[1] by maturity



Note: 1) Based on outstanding balances at period-ends
Source: Bank of Korea

Like other types of bonds, MSBs are traded in the secondary market with securities companies serving as intermediaries. The monthly average trading volume decreased

from 133.5 trillion won in 2011 to 105.2 trillion won in 2015. The main reason for this was that despite the increase in the outstanding balance, the transaction demand decreased due to the falls in the interest rate and its volatility.[11] Accordingly, monthly average turnover ratio (traded volume/outstanding balance) decreased from 0.8 in 2011 to 0.6 in 2015.

Table 25 MSB turnover ratios[1]

Units: trillion won, times

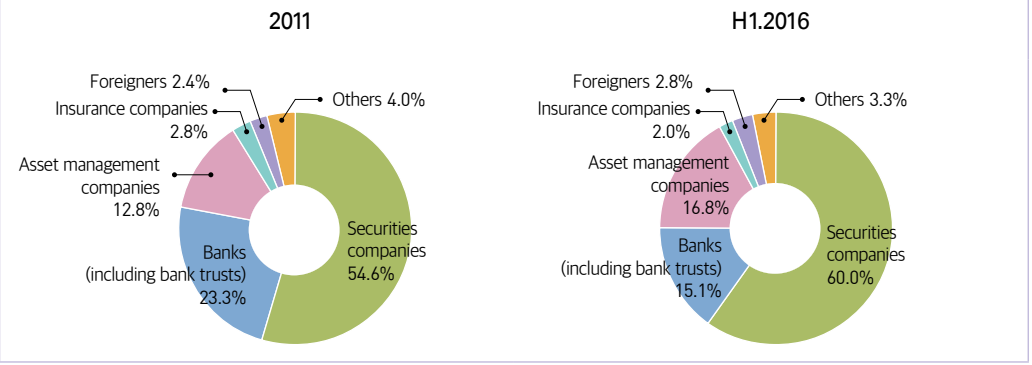
	2011	2012	2013	2014	2015	H1.2016
Trading volume[2](A)	133.5	123.0	115.9	101.0	105.2	96.6
Outstanding balance[3](B)	166.2	162.0	163.1	171.8	182.5	177.6
Turnover ratio (A/B)	0.80	0.76	0.71	0.59	0.58	0.54

Notes: 1) Based on the OTC market figure
2) Based on monthly average trading volumes during the periods
3) Based on daily average outstanding balances during the periods
Sources: Korea Financial Investment Association, Bank of Korea

Looking at MSB trading by financial institution in the secondary market, the shares of trading by securities companies and asset management companies increased from 54.6% and 12.8% respectively in 2011 to 60.0% and 16.8% through the first half of 2016. During this same period, the share of trading by banks fell from 23.3% to 15.1%.

11) For the same reason, monthly average trading volume in the OTC bond market decreased from 488.6 trillion won in 2011 to 444.4 trillion won in 2015.

Figure 21 Shares in MSB tradings[1] by institution type



Note: 1) Based on trading volumes during the periods
Source : Korea Financial Investment Association

As for MSB holdings by investor type, domestic banks accounted for 27.9% of the total outstanding balance as of end-June 2016, and asset management companies, securities companies and foreign investors accounted for 19.6%, 16.2% and 13.7%, respectively.

IV

Asset-backed securities (ABS) market

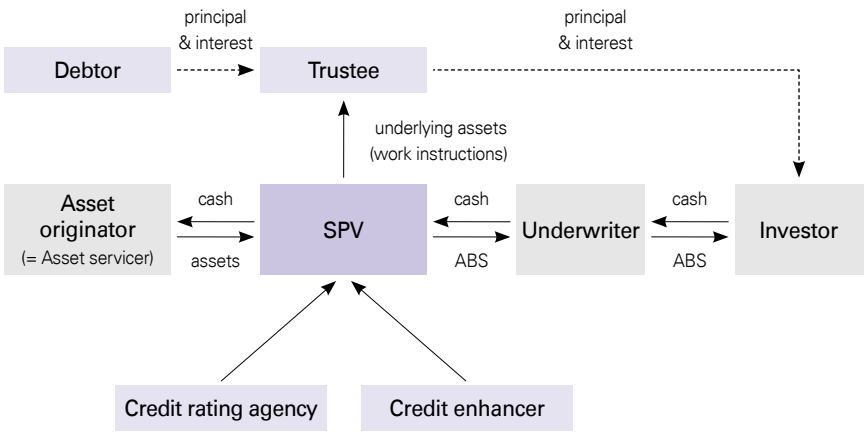
1. Definition and significance

An asset-backed security (ABS) is a type of security issued using assets with low liquidity such as real estate, accounts receivables, securities and mortgages as collateral. ABSs are issued through a process involving the transfer of legal ownership of the underlying assets from the asset originator to a special purpose vehicle (SPV), and the principal and interest of the security are paid out of the cash flows originated from the underlying assets. In Korea, the legal groundwork for asset-backed securitization was laid in September 1998, with the introduction of the Asset-Backed Securitization Act (ABS Act).

2. Issuance Process

The ABS issuance process is as follows. The asset originator bundles the underlying assets into a specified pool and transfers ownership to the SPV, which issues ABSs using the underlying assets as collateral. The ABSs issued are sold to general investors, and the cash from the sale that the SPV receives are then transferred to the originator in exchange for the ownership of the assets.

Figure 22 Structure of asset securitization



Under the ABS Act, the asset originator may be a financial institution, the Korea Asset Management Corporation, the Korea Land & Housing Corporation, and a corporation authorized by the Financial Services Commission, etc. The SPV may be a special purpose company (SPC), a trust, or a foreign corporation specializing in the ABS business.[12] To promote ABS issuance, the ABS Act simplifies the administrative procedures by stipulating that registration with the Financial Services Commission is sufficient to make transfers of asset ownership official.

SPCs established under the ABS Act take the form of limited companies, and may only carry out businesses related to ABS issuance and repayment. To make SPC establishment easier, only one equity holder is required for incorporation. However, since an SPC can only issue ABSs once, the originators must establish separate SPCs each time ABSs are issued. The trust business entity acts as an SPV when an ABS takes the form of beneficiary certificates (pass-through securities). In such a case, the originator transfers the underlying assets to the trust business entity, and it issues

12) Korea Housing Finance Corporation is the SPV that specializes in the securitization of mortgage loans under the Act on Special Purpose Companies for Mortgage-backed Bonds.

beneficiary certificates whose principal and interest are paid with the cash flow from the underlying assets.

The asset servicer is the organization that actually manages the assets on behalf of the SPC, which is just a paper company. The originator generally also acts as a servicer, as it has the best knowledge of the assets. The trustee safely stores the underlying assets, and oversees general administrative affairs related to payment of principal and interest and exercise of the rights to the collateral. Having a trustee is not required under the ABS Act, but the general practice is to have one. Usually a creditworthy bank serves as the trustee.

To promote active trading of the securities, credit rating agencies carry out the role of grading ABSs to offer investors information on the risks they involve. Credit enhancers may guarantee payments for ABSs or offer credit lines within certain limits. While the principal and interest of an ABS are first paid out of the cash flows from the underlying assets, if these are insufficient, then credit guarantees are needed.[13)]

The underwriter not only mediates the opinions of all institutions involved in the issuance process, but also adjusts the issuance amount, credit rating and maturity of the ABS after conducting research on potential investor demand through its own sales network.

Legal and accounting firms are involved in ABS issuance as well, to deal with various complicated legal issues and other issues related to the evaluation of the underlying assets and the ABSs.

13) These credit guarantees are referred to as external credit enhancing measures, and are distinguished from internal measures such as tranching.

3. Market trends

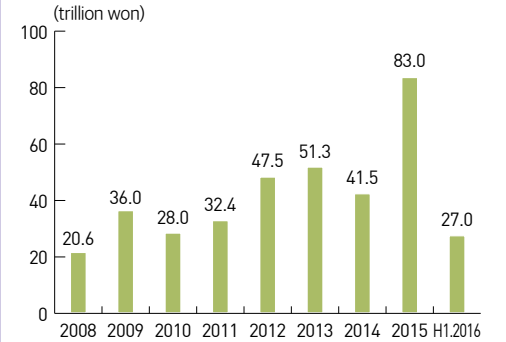
Since the introduction of the ABS Act, financial institutions and public enterprises actively issued ABSs to improve their BIS capital ratios, liquidity and financial structures. In 2001, there was an increase in ABS issuance by specialized credit finance business companies due to the rapid increase of credit card usage. Since 2004, the issuance of ABSs such as MBSs and securities backed by real estate project financing loans (real estate PF-ABSs) increased, but ABS issuance for NPL adjustments were reduced. Directly after the 2008 global financial crisis, there was a sharp increase in the number of government-led primary collateralized bond obligations to support small- and medium-sized enterprises, and since the Korea Housing Finance Corporation (KHFC) launched securitization-purpose conforming loan (conforming loan) in 2012, MBS issuance has greatly increased as well. In 2015 in particular, as MBS issuance surged due to the increase in "*Bogeumjari* Loans"[14] and conforming loans as well as the implementation of "relief conversion conforming loans" by Mortgage Refinancing Program, the ABS issuance amount reached 83 trillion won. In the first half of 2016, ABS issuance was lower than in the first half of the previous year.

Looking at ABS issuance by security type, bonds accounted for the majority before 2012, but the proportion of beneficiary certificates (pass-through securities)[15] has risen gradually due to the increase in MBS issuance by the KHFC. In particular, the share of beneficiary certificates increased significantly in 2015 due to the implementation of relief conversion conforming loans program, and remained above 50% in the first half of 2016.

14) It is a long-term mortgage loan provided by the Korean Housing Finance Corporation that allows customers to repay the principal and interest of their loan over a period of ten to thirty years with fixed interest rates.

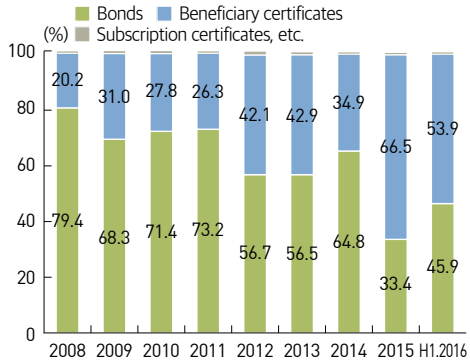
15) Mortage-backed securities issued by the KHFC take the form of beneficiary certificates.

Figure 23 ABS issuances[1)]



Note: 1) Based on issuing amounts during the periods
Source: Financial Supervisory Service

Figure 24 Shares in ABSs by security type[1)]



Note: 1) Based on issuing amounts during the periods
Source: Financial Supervisory Service

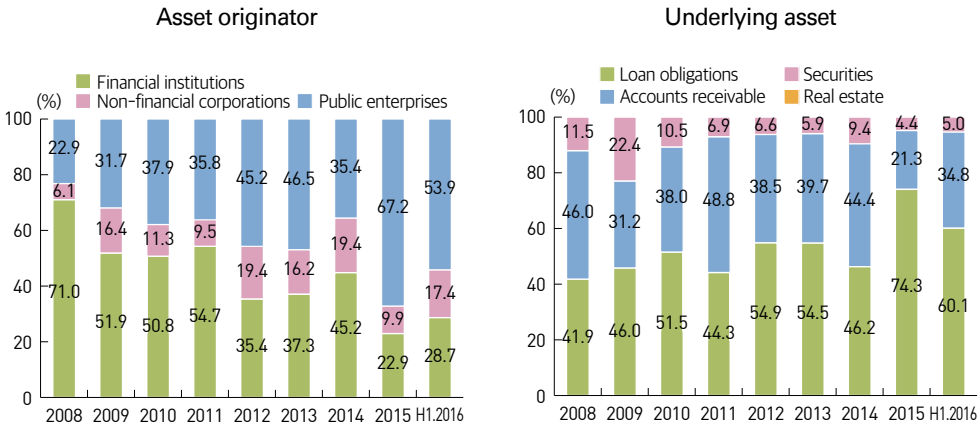
As for issuance by asset originator type, since 2008, total issuance by financial institutions has continued to expand, led mainly by credit card companies and installment financing loan business entities. Total issuance by non-financial corporations, which had decreased sharply[16)] due to the plunge in ABS issuance for real estate project financing loan, increased steadily from the securitization of auto loans and installment loans. Meanwhile, the issuance by public enterprises such as the KHFC has expanded rapidly due to the increase in *Bogeumjari* Loans and conforming loans. In 2015 in particular, issuance by public enterprises increased sharply due to the implementation of relief conversion conforming loans, and in the first half of 2016, it accounted for more than half of the total ABS issuance.

Looking at ABS issuance by underlying asset, from 2008 to 2014, around 50% of ABSs were backed by loans, mainly mortgages, followed by auto installment loans and other accounts receivable at 40% and by securities at 10%. However, in 2015, the KHFC more than tripled its MBS issuance, which raised the share of

16) The total issuance volume by non-financial corporations increased from 4.9 trillion won in 2004 to 8.8 trillion won in 2006, then sharply decreased to 1.3 trillion won in 2008 due to the global financial crisis and the housing market recession.

ABSs backed by loans to 70%. In the first half of 2016, this figure maintained a high level of 60%.

Figure 25 Shares in ABSs by asset originator and underlying asset[1)]



Note: 1) Based on issuing amounts during the periods
Source: Financial Supervisory Service

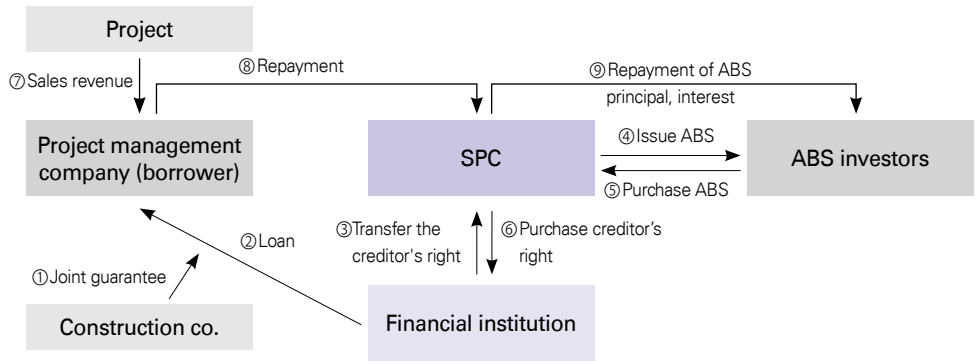
Box 9

Real estate project financing loan ABS structure

Real estate project financing loan ABSs (real estate PF-ABSs) are securities issued by SPCs, using as collateral the loans from financial institutions to project management companies to develop apartments, commercial centers, etc.[17] As with other ABSs, the creditors' rights to the underlying assets are transferred to the SPCs, but real estate PF ABSs differ in that construction companies serve as the credit enhancers.

The principal and interest of a real estate PF ABS are paid based on the cash flows from the development project. However, if the project fails to generate enough revenue, it will become difficult for the project management company to make the principal and interest payments. In such a case, the repayment obligations are likely to transfer to the construction company, hurting its financial soundness. From the investors' standpoint, moreover, this raises concerns that they will end up holding non-performing loans.

Figure 26 Real estate project financing loan ABS structure



17) The major participants in real estate PF ABS issuance and repayment are as follows:
- **Project management company**: Gains approval for a real estate development project and carries it out. Usually the project management company has a low credit rating, making it difficult to secure the large-scale loans needed to purchase and develop land.
- **Construction company**: Guarantees repayment of the loans taken out by the project management company with low credit, or provides the collateral to thereby 'enhance' the project company's credit. It is also the company responsible for construction during the project.
- **Financial institution**: Lends money to the project management company and then transfers its credit rights to the SPC, who issues the ABSs.

V

Stock market

1. Definition and significance

The stock market is where securities indicating equity ownerships in their issuing corporations are traded. Issuers of stocks do not bear repayment obligations and instead pay dividends based on their business performance. This makes stocks a very stable source of funds for the issuers. As equity capital, the funds raised through stock issuance also help a company to improve its financial structure.

The stock market can be sub-divided into the primary market, where new stocks are issued, and the secondary market, where already issued stocks can be traded. The secondary market consists of the KOSPI (Korea Composite Stock Price Index), the KOSDAQ (Korea Securities Dealers Automated Quotations), the KONEX (Korea New Exchange) and the K-OTC (Korea Over-The-Counter).

2. Primary market

In Korea, stocks are usually supplied through an initial public offering (IPO) or paid-in-capital.[18] In an IPO, a corporation first registers with the Financial Services Commission and undergoes an accounting audit of its recent financial statements by an auditor designated by the Securities & Futures Commission. The corporation selects an managing underwriter and revises its articles of incorporation to reflect information such as the number of authorized shares and the face value per share.

18) The issuance methods can be distinguished into a public offering or a private placement, depending on how the shareholders are selected, and into direct or indirect issuance, depending on how the administrative tasks and risk exposures are managed.

It also forms an Employee Stock Ownership Association, and submits a securities registration statement to the Financial Services Commission. The next steps include a book-building, deciding the public offering price, handling the subscriptions, allotments, and payments of stock price, registering the change in equity capital, and submitting a post issuance report to the Financial Services Commission. Once the corporation's application for initial listing is made to the Korea Exchange (KRX) and approved, the IPO procedure is complete.

In the case of paid-in capital increases, especially capital increases by allocation to shareholders, the following steps take place: ① the board of directors decides to issue new stocks, ② a registration statement is submitted to the Financial Services Commission, ③ the issuance of new stocks and the record date for allocation are announced, ④ shareholders with pre-emptive rights are informed of the plan to allot new stocks, ⑤ the subscriptions for the new stocks are received, ⑥ any forfeited stocks are disposed of, ⑦ the payments for stocks are received and the issuance of new stocks is registered, and ⑧ an application for listing of the new stocks is submitted.

Total stock issuance in Korea reached a historic peak of 17 trillion won in 2007. Except in 2008 when the global financial crisis occurred, it reached a considerable scale in 2009 to 2011 as well thanks to economic recovery and the introduction of Special Purpose Acquisition Companies (SPACs).[19] In 2012 and 2013, issuance was low due to the prolonged international financial uncertainties such as the European sovereign debt crisis, the reduction of the scale of quantitative easing in the US, and financial and economic instability in emerging economies. Issuance recovered somewhat in 2014 and 2015 due to the stabilization of the domestic stock market.

19) SPACs are paper companies whose main purpose is to merge with other companies after listing through an IPO. They were first introduced in Korea in December 2009.

Table 26 Stock issuances[1)2)]

Units: billion won, numbers of cases

	Paid-in capital	IPOs			Total
		Placement	Sales	Sub-total	
2006	4,459 (233)	1,706 (60)	11 (1)	1,717 (61)	6,176 (294)
2007	14,292 (326)	2,302 (68)	409 (3)	2,711 (71)	17,003 (397)
2008	3,754 (203)	717 (42)	17 (1)	734 (43)	4,488 (246)
2009	9,223 (309)	1,674 (65)	1,791 (11)	3,465 (76)	12,688 (385)
2010	4,363 (135)	4,304 (96)	6,037 (16)	10,341 (112)	14,703 (247)
2011	9,410 (79)	2,439 (67)	192 (14)	3,780 (81)	13,190 (160)
2012	1,795 (55)	466 (25)	-	466 (25)	2,261 (80)
2013	3,644 (61)	1,096 (39)	193 (8)	1,289 (47)	4,933 (108)
2014	3,742 (66)	1,753 (70)	2,912 (12)	4,665 (82)	8,407 (148)
2015	4,639 (54)	3,153 (115)	1,368 (27)	4,521 (142)	9,160 (196)
H1.2016	2,594 (29)	810 (21)	271 (10)	1,081 (31)	3,675 (60)

Notes: 1) Based on figures from companies listed on the KOSPI and the KOSDAQ markets
2) Figures in parentheses indicate the numbers of cases.
Source: Financial Supervisory Service

2. Secondary market

KOSPI market

The KOSPI market is the main secondary stock market of Korea, run by the KRX, and is called as such because the aggregate market capitalization of stocks traded in this market is used as the reference to calculate the KOSPI, Korea's representative stock market index.[20)] As of the end of June 2016, its total market capitalization stood at 1,250 trillion won for the 769 companies listed, and foreign investors[21)] accounted

20) The KOSPI is an index that is calculated based on the aggregate market capitalization of all listed companies in this secondary stock market, and was introduced on January 4th, 1983 using the base value of 100 for the market's value on January 4, 1980.

21) The previous restrictions on investment by foreigners have all been lifted, with the exception of the restrictions applied to investment in key industries important to the national economy.

for 33.0% of the total value of shares held.[22)]

Companies wishing to list shares in the KOSPI market must meet certain requirements, such as minimum business activity period,[23)] business size[24)] and distribution of shares.[25)] Listed companies must also maintain management performance, including sales and operating profits, above certain levels. The KRX observes how well these requirements are met and whether the details are publicly posted as required, and can delist a company if it fails to meet these requirements. The actual delisting may take place after the company's stocks being designated as 'administrative issues' for a certain period of time.

Trading takes place from Monday to Friday, and the market is closed on Saturdays, Sundays, national holidays, Labor Day and New Year's Eve, etc. Trading hours[26)] are classified into three periods: the regular session from 09:00 to 15:30, the pre-hours session from 07:30 to 09:00, and the after-hours session from 15:40 to 18:00.[27)] The tick sizes vary from units of one won (for stocks with prices below 1,000 won per share) to units of 1,000 won (for those whose prices are 500,000 won or higher). The minimum unit of shares traded is set at one. The KOSPI market operates through an individual competitive trading method, in which bids and offers are received by the KRX and buyers and sellers are matched under certain trading principles.

In order to prevent sharp fluctuations in stock prices, the KRX operates a daily price limit system, a circuit breaker, and an arrangement to ease volatility of individual issue system. The daily price limit system limits the range within which

22) The listed stock transactions of foreign investors accounted for 27.6% in H1 2016.

23) On the date of applying for listing eligibility review, the company must have been established and operating continuously for more than three years.

24) The total number of common stocks to be listed must be more than one million stocks and the equity capital should be more than 30 billion won.

25) The number of general shareholders must be more than 700, and general shareholders should own more than 25% of the total number of common stocks.

26) Offers and bids are received from 08:00 to 15:30 for the regular session, from 07:30 to 09:00 for the pre-hours session, and from 15:30 to 18:00 for the after-hours session.

27) After-hours trading at the closing prices takes place from 15:40 to 16:00 and after-hours trading by single price auction takes place from 16:00 to 18:00.

prices may fluctuate within a single day. At present the range is set at within 30% above or below the stock's previous day closing price. The circuit breaker is a system to stop trading gradually if the KOSPI falls more than a certain percentage of its previous day levels and lasts for one minute.[28] The arrangement to ease volatility of individual issue system is a stock price stabilization scheme, divided into the dynamic volatility interruption and static volatility interruption,[29] and grants short term cooling time in case of a sudden change in a stock's price due to fat-finger errors, supply and demand imbalances, and other reasons. There is also a system called Side Car[30] through which program trading is halted when a futures price rises or falls too rapidly within a short period of time.

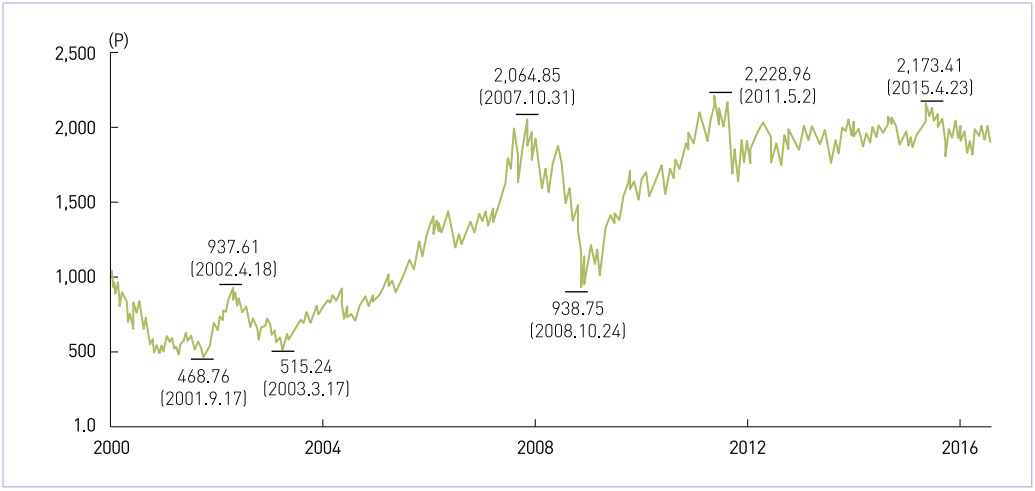
The KOSPI exceeded the 2,000 level for the first time on July 25, 2007, owing to the increased inflows beginning in late 2006 of medium- to long-term investment funds such as installment-type equity funds. The index subsequently plunged to 938.8 on October 24, 2008 due to the global financial crisis, but then started to pick up again from the rapid economic recovery and inflows of foreign investment funds. After reaching a historic high of 2,229.0 on May 2, 2011, the index showed continuing alternations between down- and upturns in the 1,800 to 2,100 range. As of end-June 2016, the KOSPI stood at 1,970.4.

28) If the KOSPI falls more than 8% compared to the previous day's closing price and remains at that level for at least one minute, trading stops for 20 minutes and then resumes for 10 minutes as single price trading (first step). If it drops more than 15% from the previous day and more than 1% over the first step for one minute, trading stops for 20 minutes and then resumes for 10 minutes as single price trading (second step). Finally, if the KOSPI falls more than 20% compared to the previous day and it drops more than 1% compared to the second step for one minute, the day's trading is ended (third step).

29) The dynamic volatility interruption (introduced in September 2014) is triggered when stock prices are expected to change by more than a certain percentage, while the static volatility interruption (introduced in June 2015) is triggered when stock prices change more than 10% in aggregate. In both systems when activated, there is typically a two minute cooling time in which trades are switched to single price trading.

30) The Side Car system comes into effect when the price of basic item in futures market rises or falls by 5% or more compared to the basic price, and stay at the level for one minute. If the move in prices is upward, bids for purchases are suspended for five minutes; if it is downward, bids for sales are suspended for five minutes.

Figure 27 KOSPI



Source: Korea Exchange

KOSDAQ market

The KOSDAQ market offers fund-raising opportunities to small and medium-sized corporations and venture firms that do not meet the requirements for listing in the KOSPI market. It also offers investors high risk, high return investment vehicles. As of end-June 2016, the total KOSDAQ market capitalization amounted to 208 trillion won, with 1,169 companies listed.

The KOSDAQ has more relaxed listing requirements than the KOSPI. The quantitative requirement is either equity capital of at least 3 billion won[31] or market capitalization of at least 9 billion won. In terms of distributional requirements, there must be at least 500 minority shareholders with voting rights. The requirements for management performance are also more relaxed.

Just as in the KOSPI market, companies listed in the KOSDAQ market are required to satisfy and maintain certain requirements regarding their management

31) 1.5 billion won is required for venture firms.

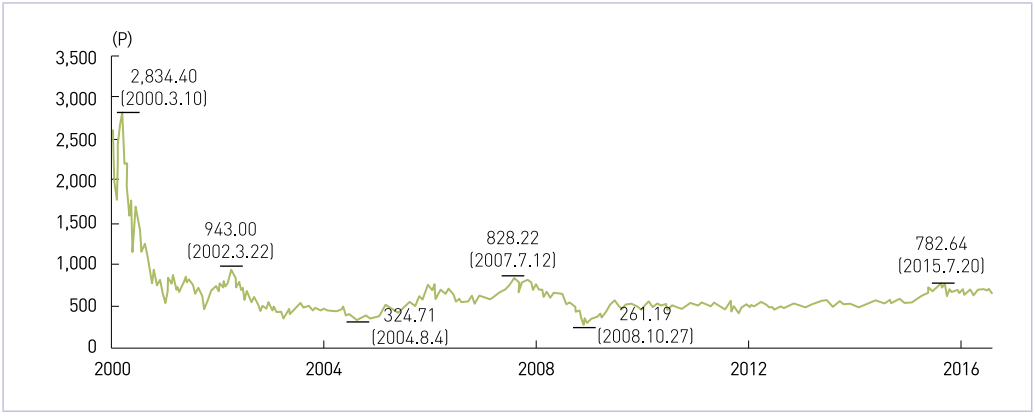
performance. Companies that fall short of these requirements and duties, or become insolvent, are delisted.

The trading hours and trading methods in the KOSDAQ market are the same as in the KOSPI market. The trading unit is one share, and the tick sizes range from one won (for stocks with prices below 1,000 won) per share to 100 won (for stocks priced at 50,000 won or higher). As in the KOSPI market, the range of price fluctuation allowed for a stock during one day is set at ±30% of the previous day's closing price. The KOSDAQ market also adopts the circuit breaker, the arrangement to ease volatility of individual issue system and the Side Car.

The KOSDAQ Index[32] showed an overall rising trend from 2005, in line with the improved prospects for companies' profits and expectations of growth in the biotech industry. It reached 828.2 on July 12, 2007, but then plummeted and recorded a historic low of 261.2 on October 27, 2008 due to concerns related to the global financial crisis. It subsequently regained activity and recovered to 500 points, and remained around this level for a long period of time. In 2015, the index increased with the rise of the KOSPI, but could not recover to its levels before the global financial crisis. As of end-June 2016, the KOSDAQ Index stood at 675.1.

32) The KOSDAQ Index is calculated based on the aggregate market capitalization of all companies in the KOSDAQ market. The reference date is July 1, 1996, and the price levels of that day are set at the baseline of 1,000. The KOSDAQ Index was first quoted on January 3, 1997.

Figure 28 KOSDAQ



Source: Korea Exchange

KONEX market

The KONEX market was established in the Korea Exchange in July 2013 as a specialized market for new small and medium-sized enterprises. As of the end of June 2016, the KONEX market capitalization stood at 5.2 trillion won for the 124 companies listed.

The listing requirements are significantly relaxed[33] compared to those of the KOSDAQ market, but companies to list on the KONEX market must appoint a designated advisor[34] and qualify as a small and medium-sized enterprise under the Framework Act on Small and Medium Enterprises. When a KONEX-listed company that meets certain criteria wishes to transfer to the KOSDAQ market and receives the recommendation of its advisor, the KRX supports rapid transfer through measures such as exempting the company from examination of the going concerns of the company and shortening the examination period. The conditions

33) There is no restriction in the KONEX market on the number of years since incorporation, business size, the distribution of stocks, financial conditions and management performance.

34) The designated advisor examines the listing eligibility of corporation-to-be-listed, and acts as a guardian of the company through consultation and representation of disclosure and reporting after listing.

for delisting in the KONEX market are similar to that in the KOSDAQ market, but the requirements related to financial conditions and management performance do not apply.

The trading hours, trading units and quotation units in the KONEX market are the same as in the KOSDAQ market. In the case of trading method, one-sided auctions are allowed during off-hours trading, with individual competition being the principle. However, the KONEX market has introduced a basic deposit system[35] to restrict market participants to professional investors, collective investment vehicles, etc., and in consideration of the fact that trading is not active, it is obligatory to designate a liquidity provider. The daily volatility of individual stocks is limited to 15% of the closing price on the previous day, but the arrangement to ease volatility of individual issue system and the circuit breaker applied to the KOSPI market and the KOSDAQ market are not operated.

K-OTC market

The K-OTC market[36] is an over-the-counter (OTC) market designed to facilitate the trading of stocks that are not listed on the KRX. As of the end of June 2016, the number of companies whose stocks are traded in the K-OTC market was 138, and daily average trading volume was around 600 million won.

In order to trade unlisted stocks in the K-OTC market, the Korea Financial Investment Association (KOFIA) must register or designate[37] unlisted stocks that

35) In order to buy shares in the KONEX market, more than 100 million won must be deposited as cash or securities.

36) In the past, the K-OTC was operated under the name FreeBoard to foster venture companies that were not listed on the KOSPI or the KOSDAQ markets. However, after the establishment of the KONEX market, its role became ambiguous, and in August 2014, the market operation method was improved in the direction that stocks of all unlisted companies can be traded regardless of their company size and the name was changed to the K-OTC market.

37) Registration requires the application of the enterprise, while a designation for direct trading can be made by the KOFIA without such an application.

meet the requirements for registration or designation. The issuance requirements are that the company ① is not subject to full capital impairment, ② posts more than 500 million won in revenue, ③ receives an adequate audit opinion, ④ has an agreement for transfer agent services signed with a transfer agent, and that ⑤ its stock certificates are pursuant to the regulation on treatment of securities set by the Korea Securities Depository, ⑥ its articles of association shall not impose any limitations on stock transfer.

Trading on the K-OTC market takes place from 09:00 to 15:30, in the form of private sales.[38] The trading unit is one share and the tick sizes vary from units of one won (for stocks with prices below 1,000 won per share) to units of 1,000 won (for those whose prices are 500,000 won or higher). There are no pre- or after-hours markets, and prices may move within a range of ±30% from the reference price. Customer margins of 100% of the traded volumes are required. On the other hand, with the exception of minority shareholders of venture companies, all gains on transfer made on the K-OTC market are subject to the capital gain tax.[39]

38) Deals are made by matching offers and bids prices. For same-price bids and offers, the offer or bid received first takes priority. In cases of mismatches in price or quantity, investors wishing to make deals must consider the available counter offers and adjust their own accordingly.

39) For gains resulting from transfers of ownership, a capital gain tax of 20% is imposed for shares issued by conglomerates and 10% for those by small and medium-sized corporations.


Last
38.20%
50.00%

Chapter 4

Financial derivatives markets

I

Overview

A financial derivative is a financial contract whose value is determined by the change in value of an underlying asset such as currency, bond or stock. Depending on the form of the contract concerned, derivatives can be sub-categorized further into forwards, futures, options or swaps, etc..

Financial derivatives offer many benefits compared to direct investment in the underlying assets. They can be used to enhance leverage, and their cash flows can be constructed in various ways that would not be possible through investing in the underlying assets alone. There is also no exchange of the investment principal, which gives greater flexibility in fund management. From a broader point of view, derivatives also increase the efficiency of the overall market, as information available in the derivatives market can be disseminated through the spot market as well by means such as arbitrage trading.

On the other hand, derivatives come with not only a high level of counterparty risk but also a significant leverage effect and complex transaction structures. Therefore, if they are not carefully controlled, there is a risk that even large financial institutions could end up facing financial difficulties. In addition, derivatives can deepen the linkages between financial markets and spread the risks of individual financial institutions to the entire financial system.

In terms of derivatives trading in Korea, forward exchange trading was quite active early on due to the need on hedging foreign exchange risk, but besides this exception, other derivatives markets were almost non-existent until the mid-1990s. Then the derivatives markets rapidly developed as the liberalization and globalization of the financial markets starting from that period led to increased

financial volatility, which in turn increased the demand for derivatives, and relevant systems and legal frameworks were put into place.

In the exchange-traded market, equity futures and options are the most actively traded,[1] while in the over-the-counter derivatives market, forward exchanges and interest rate swaps are the most active. In 2015, the KOSPI 200 option was the third most traded derivative among the world's stock index futures and options.

1) Outside of these products, three-year and ten-year KTB futures and US dollar futures are relatively active.

II

Equity derivatives market

1. Stock index (single stock) futures markets

A stock index futures market is a market in which futures contracts based on the level of a stock index are traded. In Korea, the market for trading the futures based on the KOSPI 200 index opened in May 1996, and the market for KOSDAQ 50 futures based on KOSDAQ 50 index opened in January 2001. Since then, the KOSPI 200 futures market has evolved into Korea's leading futures market, but the KOSDAQ 50 futures market was replaced by the KOSDAQ Star Index futures market due to sluggish trading, and this market in turn was replaced by the KOSDAQ 150 futures market, which opened in November 2015. Meanwhile, the single stock futures market, which uses individual stocks as the underlying assets, opened in May 2008, and the KOSPI 200 sector index futures market, which is based on sector-specific indices, opened in November 2014.

In the KOSPI 200 futures market,[2)] there are a total of seven contract months available for trading within a three year period, with the last trading days falling on the second Thursday of March, June, September or December. The market opens at the same time as the stock market at 09:00, and closes at 15:45, 15 minutes after the stock market, so that unsettled positions can be dealt with. The trading of futures on their last trading day, however, ends at 15:20. This is because the stock market runs on a single-price auction system from 15:20 to 15:30, and therefore the information flow of the underlying assets' prices ceases at that time.

2) In July 2015, the Mini-KOSPI 200 futures were listed on the market, where the amount of transactions per contract was reduced to one-fifth of the KOSPI 200 futures.

The minimum trading unit is one contract, with the price of one contract being a multiple of the futures price in points times 500,000 won.[3] Futures prices move at a minimum of 0.05 points, making the prices of contracts move at a minimum of 25,000 won (KRW 500,000 × 0.05) as of end-June 2016.

For investor protection, the KOSPI 200 futures market has a limitation on price movements similar to that in the equity market. Originally, this limitation was upward or downward movements within ranges of 10% from the closing levels of the futures in the previous day. However, in June 2015, the price fluctuation range of the spot market was expanded (±15% → ±30%), and so the price fluctuation range of the futures market was changed to be limited by phases (price limit by phases). The price fluctuation is initially restricted to ±8% (first phase) of the closing price on the previous day. When the price of a future with the biggest trading volume in the previous day reaches the upper limit and remains there for more than five minutes, the price fluctuation range is expanded to ±15% (second phase). After that, if the price of the future reaches the upper limit again and remains there for at least five minutes, the price fluctuation range is further increased to ±20% (third phase).

Meanwhile, the circuit breaker, which had been operated as part of the investor protection system, was abolished in June 2015 due to its overlap with the daily price limit system. However, if the circuit breaker in the spot market is triggered, trading in the futures market will also be stopped at the same time. There is also a Side Car scheme that ensures that sudden price changes in the futures market do not have ripple effects throughout the spot market. If the price of the future with the biggest trading volume in the previous day changes by 5% or more from the previous day's close, and this persists for one minute or longer, the offers and bids

3) In March 2017, the Korea Exchange decreased the multiplier for KOSPI 200 futures from 500,000 won to 250,000 won and the multiplier for mini-KOSPI 200 futures from 100,000 won to 50,000 won.

for program trading in the entire stock market are halted for five minutes.

In the KOSDAQ 150 futures market, the multiplier is 10,000 won, the tick size is 0.1 point, and the minimum price change is 1,000 won. The settlement months, trading hours, last trading days and daily price limits are the same as in the KOSPI 200 futures market.

In the single stock futures market, listed stocks with large market capitalizations, superior liquidity and better financial status are selected as underlying assets, and there are a total of nine contract months available for trading. The multiplier is ten, and if the underlying asset is a listed stock on the KOSPI market, the tick size is 10 to 1,000 won depending on the stock price.[4] The price limit system is operated step by step as with the KOSPI 200 futures. As with the KOSPI 200 futures, the price limit system is operated by phases, but the limits for each phase are set higher to ±10%, ±20% and ±30% of the futures base prices, respectively. Most other trading schemes are the same as with the KOSPI 200 futures.

In the Sector Index futures market, the underlying assets are the seven KOSPI 200 sector indexes and two KOSPI dividend indexes as of end-June 2016. The multiplier is 10,000 won for KOSPI 200 sector index futures and 2,000 won for KOSPI dividend index futures, and the tick size is 0.2 points and 0.5 points, respectively. Most of the other trading schemes, such as the daily price limit system, are the same as with the KOSPI 200 futures.

4) If the underlying asset is listed on the KOSDAQ market, the tick size will range from 1 to 100 won depending on the stock price.

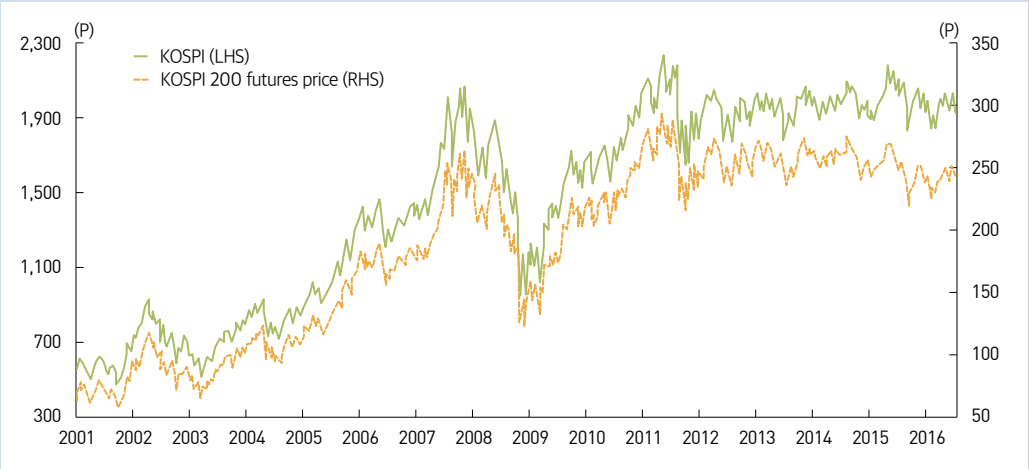
Table 27 Comparison of KOSPI 200 and KOSDAQ 150 futures markets
(As of end-June 2016)

	KOSPI 200 futures	KOSDAQ 150 futures
Contract size	KOSPI 200 futures price in points × KRW 500,000[1)]	KOSDAQ 150 futures price in points × KRW 10,000
Contract months	March, June, September, December	
Tick size	0.05 points	0.1 point
Tick value	KRW 25,000 (KRW 500,000[1)]×0.05)	KRW 1,000 (KRW 10,000×0.10)
Trading hours	09:00 - 15:45 (09:00 - 15:20 on last trading day)	
Last trading day	Second Thursday of contract month (or previous business day if the day is a public holiday)	
Settlement method	Cash settlement	
Daily price limit	±8% (first phase), ±15% (second phase), ±20% (third phase) of base price	
Margin	Basic deposit : Different by investor type	
	Initial margin rate: 9% Maintenance margin rate: 6%	Initial margin rate: 12% Maintenance margin rate: 8%
Circuit breaker	Applied when the stock price index (KOSPI or KOSDAQ index) falls by more than 8%/15%/20% from the closing price of the previous trading day for one minute and the trading of the stock market is halted for 20 minutes → All futures trading halted for 20 minutes ※ Futures market's own circuit breaker system abolished in June 2015	
Side car	Applied when the price of the future with the largest trading volume in the previous day changes by 5% or more from its previous day closing price and stays at that level for one minute or more → Bids and offers for program trading in the stock market lose their effect for five minutes (limited to one occasion per day)	Applied when the price of the future with the largest trading volume in the previous day changes by 6% or more from its previous day closing price and the KOSDAQ 150 index changes by 3% or more, and they stay at those levels for one minute or more → Bids and offers for program trading in the stock market lose their effect for five minutes (limited to one occasion per day)

Note: 1) From March 2017, the multiplier is 250,000 won.

As for market trends, the KOSPI 200 futures price (nearest month basis) moves in line with the KOSPI in the spot market. KOSPI 200 futures prices started to rise from 57.4 on September 26, 2001, and then fell as a result of the global financial crisis in 2008. Afterwards, the price climbed back to a record high of 296.0 on May 2, 2011, and remained around 250. As of the end of June 2016, the price stood at 244.3.

Figure 29 KOSPI 200 futures price[1] and the KOSPI



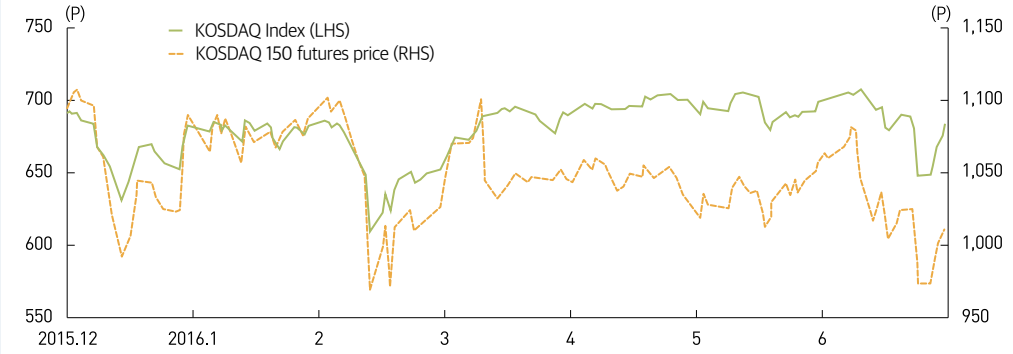
Note: 1) Based on figures for price of nearest month futures
Source: Korea Exchange

The daily average trading of KOSPI 200 futures increased steadily from 176,000 contracts in 2005 to 342,000 contracts in 2010. After then, however, the KOSPI remained within a limited range, and the volume of trading fell below its 2005 level, reaching a total of 136,000 contracts in the first half of 2016. The daily average trading volume also fell sharply, from 43.5 trillion won in 2011 to 16.3 trillion won in the first half of 2016.

In terms of market participant category, the share in the total trading volume (contract) accounted for by foreign investors increased sharply from 23.7% in 2005 to 29.7% in 2010 and 62.8% in the first half of 2016. In the same periods, the share accounted for by financial investment companies (securities and futures companies, etc.) rose from 25.6% to 40.7% before declining to 11.4%. For individuals, the share decreased from 44.0% to 26.4% and then to 22.7%.

The KOSDAQ 150 futures price (nearest month basis) has been moving roughly between 1,000 and 1,100 since the market opened, and stood at 1,003.3 at the end of June 2016.

Figure 30 KOSDAQ 150 futures price[1] and KOSDAQ Index



Note: 1) Based on figures for price of nearest month futures
Source: Korea Exchange

The daily average trading of KOSDAQ 150 futures was 3,000 contracts in the first half of 2016, which is still insignificant. By market participants, the proportion of financial investment companies increased sharply, accounting for 69.4% in June 2016, while the proportion of individuals fell sharply (53.3% in 2010→11.0% in June 2016).[5]

The daily average trading of single stock futures has increased by a factor of five, from 146,000 contracts in 2009 to 733,000 contracts in the first half of 2016. In particular, trading showed rapid growth in 2015 thanks to the market system improvement in the second half of 2014.[6] Individuals account for a large portion of the total market trading volume (contract). That being said, while this share was 70.1% in 2010, it fell to 47.5% in the first half of 2016. In the same period, the share of trading by foreigners increased from 6.3% in 2010 to 25.3% in the first half of 2016, and the share of trading by financial investment companies increased from 16.3% to 24.9%.

5) For 2010, this figure was based on market participants in the Star Index futures.

6) The Korea Exchange introduced a market maker system (September 2014) and a negotiated block trade system (November 2014) to increase the liquidity of the stock futures market.

2. Stock index (single stock) options market

A stock index options market is one in which contracts to buy or sell a certain stock index at a pre-determined price and a pre-determined point of time in the future are traded. In Korea, the KOSPI 200 options market opened first in July 1997, followed by the KOSDAQ 50 options market in November 2001.[7] There is also a single stock options market, which opened in January 2002.

There are eleven contract months in the KOSPI 200 options market.[8] The last trading day for each contract is the second Thursday of the contract month, and on the following day, contracts with a new settlement month are listed.[9]

The initial exercise prices set for the first day of trading for the non-quarterly month ("serial month") contracts consist of 25 exercise prices: one 'at-the-money' price, which is the multiple of 2.5 points nearest to the KOSPI 200 closing price of the previous day, and twelve 'in-the-money' and twelve 'out-of-the-money' prices with 2.5 point intervals between each of them. Meanwhile, March and September contracts have one 'at-the money' price, six 'in-the-money' prices, and six 'out-of-the-money' prices set at five point intervals. For June and December contracts, there are seven exercise prices set at ten point intervals.

After the first day of trading, 'at-the-money' price changes due to a change in the previous day's KOSPI 200 closing price, and for any of the futures expiring in the nearest six contract months, additional exercise prices are set, at intervals of 2.5 points, until there are at least twelve 'in-the-money' and twelve 'out-of-the-money' prices.

The trading unit for KOSPI 200 options is a contract. The trade value of one contract

7) This market was then closed in November 2005 due to a lack of sufficient trading. As of end-June 2016, there is no option market that uses the KOSDAQ market index as the underlying asset.

8) Within a three year period, these consist of the first four non-quarterly months ("serial months") and seven contract months in the quarterly cycle (the first March and September in the cycle, the first June in the cycle and the following June, and each December for the following three years).

9) In July 2015, the mini-KOSPI 200 options, in which the transaction amount per contract was reduced to a fifth of the KOSPI 200 option, were listed. There are six contract months in the mini-KOSPI 200 options market, which is the same as in the KOSPI 200 options market.

is calculated by multiplying the option price in points by 500,000 won.[10] The tick size is 0.01 point if the premium is less than 10 points, and for the others it is 0.05 points. The trading hours and methods are the same as in the KOSPI 200 futures market.

The single stock options market was launched in January 2002 to provide hedging and arbitrage trading instruments for price fluctuations of individual stocks, which are the underlying assets. The single stock options are the same as the KOSPI 200 options in terms of option types, exercise method, settlement method, last trading days, and types of bids and offers, but the number of contract months is different.[11] As the underlying assets are individual stocks, the exercise prices, tick sizes and the trading multipliers are also set somewhat differently. There are nine exercise prices in total, including one 'at-the-money', four 'in-the-money' and four 'out-of-the-money' prices, and for options expiring in the nearest three contract months, these prices are set in intervals between 100 and 50,000 won[12] depending on the stock price level. The tick size is set between 10 and 200 won by premium level, and the trading multiplier is 10.

As for market trends, the KOSPI 200 option's daily average trading of 14.76 million contracts in 2011 was the highest among the stock index options of global exchanges, but this figure fell sharply after the trading multiplier increased (100,000 won→500,000 won) in March 2012. In the first half of 2016 the figure was 1.46 million contracts. The daily average trading value also showed a trend similar to the trading volume (contract), and was 560.2 billion won in the first half of 2016.

Based on trading value, the share of individual and financial investment companies shrank from 33.4% and 17.2% in 2011 to 27.9% and 8.1% in the first half of 2016, respectively, while the share of investment by foreigners increased from 48.2% to 62.4% during the same period.

10) On March 2017, the Korea Exchange decreased the multiplier for KOSPI 200 options from 500,000 won to 250,000 won, and the multiplier for mini KOSPI 200 option from 100,000 won to 50,000 won.

11) There are nine contract months in the single stock options market, including the nearest two non-quarterly months, two quarterly months (March, September), two half-yearly months (June), and three yearly months (December).

12) For options expiring in the other six contract months, the intervals are set at double that of the nearest three contract months.

Meanwhile, since the opening of the single stock options market in January 2002, single stock options trading has been sluggish. However, thanks to the improvement of the market system[13] in late 2014, it has gradually become active. The daily average trading volume was only 3,000 contracts in 2015, but increased to 25,000 contracts in the first half of 2016.

Table 28 Comparison of KOSPI 200 and single stock options markets
(As of end-June 2016)

	KOSPI 200 Options	Single stock options
Exercise style	European	
Contract months	First four non-quarterly ("serial") months and seven months falling on the quarterly cycle (first March and September in the cycle, first June in the cycle and the following June, and each December for the following three years)	First two non-quarterly ("serial") months, first March and September in the quarterly cycle, first June in the cycle and the following June, and each December for the following three years
Last trading day	Second Thursday of contract month (if the market is closed on this day, the schedule is moved earlier to the first available trading day)	
Settlement day	Last trading day + 1	
Settlement method	Cash settlement	
Trading hours	09:00 ~ 15:45 (09:00 ~ 15:20 for last trading day)	
Trade unit	Contract (premium × KRW 500,000[1])	Contract (premium × 10)
Exercise price intervals	Varies by maturity* * nearest six months: 2.5P 7th, 8th nearest months: 5P remaining three months: 10P	Varies by maturity* and exercise price * nearest three months: KRW 100 ~ 50,000 remaining six months: KRW 200 ~ 100,000
Tick size	Premium of 10P or more: 0.05P Premium of below 10P: 0.01P	Five levels depending on premium level (10 ~ 200 won)
Quotation type	Limit quotation, Market quotation, Limit-to-market-on-close quotation, Immediately executable limit quotation	
Daily price limit	Expansion by phase (±8%, ±12%, ±20%)	Expansion by phase (±10%, ±20%, ±30%)
Margin	Initial margin rate: 9% Maintenance margin rate: 6%	Varies by type
Circuit breakers	When trading in stock market is halted	When trading in stock market is halted When trading in underlying stock is halted

Note: 1) From March 2017, the multiplier is 250,000 won.

13) The Korea Exchange selected market makers to expand liquidity in October and reduced underlying assets (33→20) and expanded the number of contract months (four → nine) in November.

III

Interest rate derivatives market

1. Interest rate futures market

Interest rate futures are a type of financial instrument derived from interest rates, which are referred to as the underlying assets. Market participants use them as vehicles for reducing exposure to interest rate risks, arbitrage trading, and increasing their rates of return on investment or better management of their bond portfolios.

Interest rate futures are most commonly used for hedge trading to reduce uncertainties from possible interest rate fluctuations. Market participants holding substantial amounts of treasury bonds, such as primary dealers, asset management companies, pension funds and insurance companies, use short hedges to fix in advance the prices of their bonds nearing maturity. The price of the bond at maturity is guaranteed as the current interest-rate futures price, limiting potential losses if bond prices decline from higher interest rates.

The players in the interest rate futures market can be broken down into three parties: the Korea Exchange (KRX), its derivatives members,[14] and general customers. Interest rate futures are traded on the KRX, which under current law is an incorporated association comprising its members. It is operated by its members' paid-in capital, annual membership fees, and the commission fees that

14) They, consisting of securities companies and futures trading companies, can be broken down further into clearing members and non-clearing members. Clearing members are entitled to settle under their names the trades conducted in their own names or the trades for which settlements have been entrusted to them by non-clearing members. Non-clearing members are allowed to conduct the trades in their own names in the market, but are required to entrust the settlements of trades to clearing members.

it receives for futures trading.[15)]

The KRX has an electronic trading system that automatically processes the orders received, closes deals, and notifies the trading parties involved. Unlike exchanges in most developed countries, it does not have an independent settlement organization, but instead has its own department that handles payment and settlement. To preclude cases in which one member's bankruptcy might make it impossible to carry out a contract, members are required to jointly guarantee payments by making deposits into the joint compensation fund for reparation of any possible losses due to contract breaches.

Interest rate futures prices are determined in the same way as in the stock futures market, in accordance with the principle of priority based on price and time. There is a limit for the order price, but unlike with stock futures, there is no Circuit Breaker. This is because the underlying assets for stock futures are stocks that are also traded on the KRX, while the underlying assets for interest rate futures are bonds, which are usually traded in the OTC market.

Korea's interest rate futures market originated with the listing of certificate of deposit (CD) interest rate futures in April 1999, and of three-year Korea Treasury Bond (KTB) futures in September that same year. In December 2002, Monetary Stabilization Bond (MSB) futures were listed. As trading in short-term interest rate futures remained sluggish, however, CD interest rate futures were delisted in December 2007, followed by MSB futures in February 2011. As of the end of June 2016, the only futures listed were for three-, five- and ten-year KTBs. As three-year KTBs are the most actively traded, they will be used in the following example to explain Korea's interest rate futures system.

The underlying asset of a three-year KTB future is a treasury bond having a

15) The fee had been a set amount, but in 2010 was changed to be percentage-based. As of end-April 2016, the percentage was 0.0001397% of the transaction amount per interest rate futures contract.

maturity of three years, an actual value of 100 million won, and a 5% coupon rate paid semi-annually. The futures price is calculated by dividing the face value of the underlying asset by one million won and rounding up to the second decimal point. For example, if the underlying asset has a face value of 104.5 million won, then the future is priced at 104.50. The minimum price movement (tick) is 0.01, which translates into a monetary value of 10,000 won (= 0.01 × 100 million × 1/100).

The final settlement method used is cash settlement. At maturity, in exchange for the spot bond, the KRX settles the difference between the final settlement price and the price of the futures contract. This method is more convenient than physical delivery, since the underlying asset is illiquid.[16] When determining the final settlement price of the future, the rate of return used is that of the underlying asset. This bond is referred to as the final settlement reference bond.

The contract months for treasury bond futures are the end months of the next two consecutive quarters in the quarterly cycle (March, June, September or December). The last trading day is the third Tuesday of the month, and if the day is a holiday, it moves to the next business day. The trading hours are from 09:00 to 15:45 Monday through Friday, and from 09:00 to 11:30 on the last trading day.

16) Physical delivery was the settlement method for ten-year KTB futures when they were first listed in February 2008, but for convenience this was converted to cash settlement from October 2010.

Table 29 Interest rate futures trading details

	3-year KTB futures	5-year KTB futures	10-year KTB futures
Underlying assets	3-year KTB (100 million won face value, 5% coupon rate)	5-year KTB (100 million won face value, 5% coupon rate)	10-year KTB (100 million won face value, 5% coupon rate)
Price denomination (2 decimal digits)	Face value of 100 million won denominated as 100.00		
Tick	0.01		
Monetary value per tick	10,000 won (100 million won×0.01×1/100)		
Settlement cycle (listed settlement month)	March, June, September, December (2)		
Last trading day (last settlement day)	Third Tuesday of contract month (T+1)		
Settlement method	Cash		
Price change range (price quotation limit[1])	None (±1.5%)	None (±1.8%)	None (±2.7%)
Listing date	1999. 9. 29	2003. 8. 22	2008. 2. 25

Note: 1) Price range limit set to prevent errors in orders
Source: Korea Exchange

To trade futures, investors must first make a margin deposit into their accounts at a member securities firm of the KRX. For three-year KTB futures, the margin for customers (customer margin) is 0.75% (1.35% for five-year, and 2.55% for ten-year) of the entrustment amount (bid price × quantity × 100 million / 100). For members, in order to guarantee the trades settled under their names, the margin (member margin) is set at 0.5% (0.9% for five-year and 1.7% for ten-year) of the final settlement price of the reference bond. If an investor's securities decrease in value below a certain level, the investor receives a margin call from a broker and must deposit additional margin before noon of the following business day. If this

deposit is not made, the broker sells off some of the assets to meet the margin requirement.

Payments for interest rate futures use the market value of the futures as the reference price. If the futures price rises, the futures seller pays the difference between the new and the previous day's futures price at each trading day.

Table 30 Interest rate futures margin rates

Unit: %

	3-year KTB futures	5-year KTB futures	10-year KTB futures
Customer margin rate	0.75	1.35	2.55
Member margin rate	0.50	0.90	1.70

Source: Korea Exchange

In Korea, the trading of three-year KTB futures has grown significantly as transactions of three-year KTBs, the underlying assets, have increased. In particular, in July 2000, as the bond market price system (mark-to-market valuation) was fully implemented, the demand for three-year KTBs as a benchmark bond increased. As more of these bonds continued to be issued, their liquidity increased as well. As a result, three-year KTB futures transactions also increased, reaching an average of 109,000 contracts traded each day in the first half of 2016.

Ten-year KTB futures did not originally see much market growth because long-term investment institutions had a tendency to hold long maturity bonds and so the demand for hedging was not large. However, after the implementation of the system to revitalize the long-term government bond futures market in October 2010, the transactions have increased. In the first half of 2016, daily average trading amounted to nearly 54,000 contracts.

Table 31 Volumes of interest rate futures transactions[1)2)] Unit: number of contracts

	2010	2011	2012	2013	2014	2015	H1.2016
3-year KTB futures	27,863,654 (111,011)	34,140,210 (137,662)	29,728,075 (119,871)	29,291,859 (118,591)	21,519,203 (87,833)	25,997,164 (104,827)	13,216,828 (109,230)
5-year KTB futures	0 (0)	0 (0)	0 (0)	15 (0)	0 (0)	0 (0)	0 (0)
10-year KTB futures	33,054 (132)	3,503,677 (14,128)	13,045,101 (52,601)	11,992,729 (48,554)	9,970,609 (40,696)	11,794,685 (47,559)	6,499,743 (53,717)

Notes: 1) Including spread transactions
2) Figures in parentheses indicate daily average trading volumes.
Source: KOSCOM

In terms of transaction share by investor type for three-year KTB futures, in the first half of 2016, financial investment companies (securities and futures companies), foreign investors and banks accounted for 52.4%, 31.8% and 11.2%, respectively, and for ten-year KTB futures, they accounted for 49.9%, 31.8% and 11.7%, respectively.

Financial investment companies' share in total futures trading has gradually grown to more than half since 2010, mainly owing to securities companies using futures for hedges and aggressive arbitrage strategies, as well as to futures trading companies using them for short-term arbitrage. The share of asset management companies is insignificant due to new policies limiting their investment in derivatives and prohibiting their opening of combined accounts for futures trading.

Meanwhile, foreign investors are mostly involved in speculative trading without holding the underlying bonds, leading these investors to have a relatively greater influence on futures prices and be a main cause of futures price volatility.

2. Interest rate swap market

An interest rate swap (IRS) is a contract through which two borrowers exchange the interest payment obligations on their respective loans. This is done in order

to hedge against fluctuations in the interest rates on their loans or to reduce the costs of borrowing. In general, these swaps take the form of converting a floating interest rate to a fixed rate and vice versa.

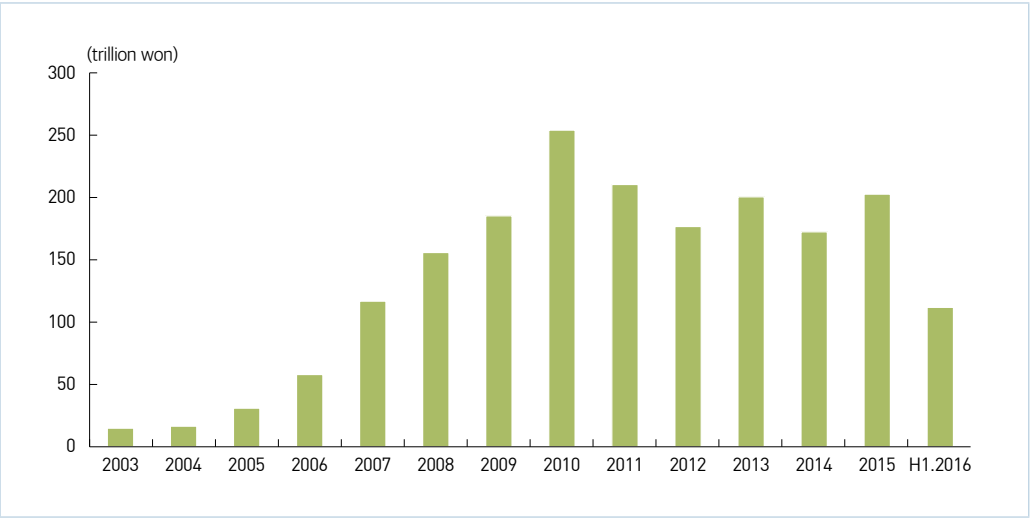
The maturities of interest rate swaps in Korea range from three months to 20 years, but the most frequently traded are those with maturities of one to five years. The minimum trading unit is generally set at ten billion won. The fixed and floating interest rate cash flows are exchanged every three months, with the CD (91-day) rate announced by the Korea Financial Investment Association used as the floating rate.

This market can be subdivided into the interbank and the customer markets. In the customer market, customers such as asset management companies, insurance companies, pension funds and corporations with good credit ratings set the limits for swap trading with the banks creating the swap market (the swap banks) in advance. When a customer requests an interest rate swap to hedge its interest rate risk, and a bank accepts this request, a deal is made.

Meanwhile, the swap banks need to adjust their swap positions for offsetting changes in their positions caused by transactions with customers or for hedging and speculation related to their own assets. They can do this either through offsetting transactions with new customers or through adjustment in the interbank market. Interbank trades are usually done through brokerage firms so as to reduce the search costs. These firms simply broker the deals to avoid bearing the related interest rate risks.

Korea's interest rate swap market began to develop in earnest in 2000, and saw rapid growth from 2005. Since these swaps are traded over-the-counter, it is difficult to gauge their exact trading volume, but after monthly average trading of 16.2 trillion won in 2004, trading has expanded almost 15-fold to an average of 253.1 trillion won per month in 2010. Since then, the market has weakened considerably, recording monthly average trading of 109.1 trillion won in the first half of 2016.

Figure 31 Volumes[1] of interest rate swap[2] transactions



Notes: 1) Based on monthly average trading volumes during the periods
2) OTC market KRW interest rate swap
Source: Financial Supervisory Service

In terms of participating institutions, most of the transactions are made by banks playing the role of swap banks, and among banks themselves, foreign bank branches account for the majority. Domestic banks use interest rate swaps to offset fluctuations in their swap positions from trading with customers or to hedge their interest rate risks arising from mismatches in durations between their assets and liabilities. Foreign bank branches play the role of market makers in the interest rate swap market by participating in retail trading, unwinding transactions associated with retail trading, and hedge trading.

Asset management companies meanwhile use interest rate swaps to secure stable rates of return for their funds. Since the average maturities of the assets held by these firms exceed those of their liabilities, the fixed rate payment positions in the fixed-for-floating rate swaps help them to reduce the durations of their assets on hand and mitigate their asset-liability mismatch problems.

Securities companies raise funds in the money market by selling repurchase

agreements or borrowing call money, and then use these funds to purchase bonds. By taking the fixed rate payment positions in the fixed-for-floating rate swaps at the same time, they can profit from the differences between treasury bond yields and the swap rates.

Table 32 Interest rate swap tradings[1] by institution type[2]

Units: billion won, %

Banks	Securities companies	Insurance companies	Trusts[3]	Others	Total
903,089 (85.9)	147,532 (14.0)	220 (0.0)	153 (0.0)	200 (0.0)	1,051,195 (100.0)

Notes: 1) Based on total trading volume during the first half of 2016
2) Figures in parentheses indicate the shares in the total.
3) Bank trusts and asset management companies
Source: Financial Supervisory Service

IV

Foreign exchange derivatives market

1. Foreign currency swap market

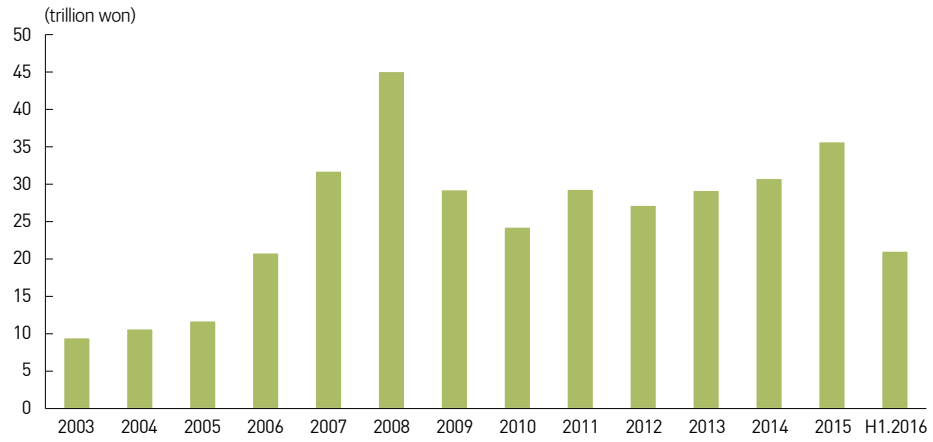
A currency swap (CRS) is a contract in which two parties or more exchange their principal and interest payment obligations for loans borrowed in different currencies, at a pre-determined exchange rate and maturity.

In Korea, currency swap maturities vary from three months to 20 years, but the most common swaps have maturities between one to five years. The minimum trading unit is 10 million US dollars. The swap is usually between Korean won at a fixed rate and a foreign currency at a floating rate. For the floating rate, the six-month LIBOR is most commonly used.

Just like the interest rate swap market, the currency swap market is divided into the interbank market and the customer market. Market-makers and their clients, such as credit card companies and insurance companies, have a contract prior to the trading to set the limits for swap trading. A transaction is made when a request by a client is accepted by a market-maker bank (swap bank). The swap banks use currency swaps to adjust their positions through offset transactions, or for speculative purposes.

From the time the first foreign currency swap was brokered in Korea in September 1999, the currency swap market saw steady growth to reach a historic high of 44.8 trillion won in monthly average trading in 2008. Trading has fallen since then, however, and averaged 20.8 trillion won per month in the first half of 2016. Similar to the case with interest rate swaps, banks account for most of the trading in currency swaps. Foreign bank branches carry out the role of market-makers, as they can supply long-term funds in foreign currency from their headquarters.

Figure 32 Volumes of currency swap transactions[1)]



Note: 1) Based on monthly average trading volumes during the periods
Source: Financial Supervisory Service

Concerning the motivations for using currency swaps, banks use the swaps to adjust their swap positions resulting from transactions with clients such as life insurance companies, credit card companies and public corporations. Life insurance companies with longer-term insurance contracts have a great demand for long-term bond investment that is difficult for the domestic bond market to satisfy, so they invest in long-term foreign currency-denominated bonds (with maturities of around 10 years) and hedge the related foreign exchange and interest rate risks using currency swaps. Foreign investors meanwhile use currency swaps to invest in Korean bonds when the spread between Korean bond yields and currency swap rates widens due to financial market instability or other such factors.

Table 33 Currency swap tradings[1] by institution type[2] Units: billion won, %

Banks	Securities companies	Insurance companies	Trusts[3]	Others	Total
180,672 (72.3)	46,279 (18.5)	21,452 (8.6)	1,451 (0.6)	0 (0.0)	249,854 (100.0)

Notes: 1) Based on total trading volume during the first half of 2016
2) Figures in parentheses represent the shares in the total.
3) Bank trusts and asset management companies
Source: Financial Supervisory Service

2. Forward exchange market

Forward exchange trading can be sub-classified into outright forwards, which are simply long or short forward contracts, and swap forwards, which are parts of swap contracts. Outright forwards can be further broken down into deliverable forwards and non-deliverable forwards (NDFs). The former involve physical delivery of the currencies at maturity, while in the case of the latter, the counterparties settle the difference between the contracted NDF price or rate and the prevailing spot price or rate on an agreed notional amount.

NDF trading by domestic banks has been gradually increasing in line with the growing corporate need for hedging of foreign exchange risk as well as the active market participation of foreigners. Shipbuilding and heavy industrial companies in particular commonly sell forward exchange contracts to hedge their exchange risks on payment for orders to be delivered in the future. As a result of this trend, the daily average forward swap trading has expanded, from 17.92 billion dollars in 2010 to 19.40 billion dollars in the first half of 2016.

Table 34 Volumes of forward exchange transactions[1] by banks Unit: 100 million dollars

	2010	2011	2012	2013	2014	2015	H1.2016
Outright forwards	65.2	74.6	66.4	71.3	75.9	82.6	92.3
(NDF[2])	54.4	61.3	54.8	55.5	57.8	67.9	77.4
Forward exchange swaps	179.2	192.3	198.1	195.4	190.1	191.8	194.0

Notes: 1) Based on daily average trading volumes during the periods
2) Trading between foreign exchange banks in Korea and non-resident foreign investors. For 2010 to 2013, non-deliverable swaps are included.
Source: Bank of Korea

V

Credit derivatives market

1. Definition and significance

A credit derivative is a financial product that an issuer pays a premium (fee), in exchange for separating and transferring the credit risk originally associated with an underlying asset that fluctuates in value depending on the issuer's credit.

For the trading of a credit derivative, what is most important is to define the various types of credit events and the time of their occurrence. When signing their contract, the parties to a transaction agree on the definitions and types of credit events referring to the standards of the International Swaps and Derivatives Association (ISDA).[17] The trading parties comprise the protection buyer, who transfers the credit risk by payment of a premium, and the protection seller, who takes on the risk in exchange for that premium. Credit derivatives transactions do not generally involve transfer of the underlying assets, with the credit risk alone being separated off and traded. This allows for the price of the vehicle to accurately reflect the credit risk and for the risk to be distributed among multiple investors.

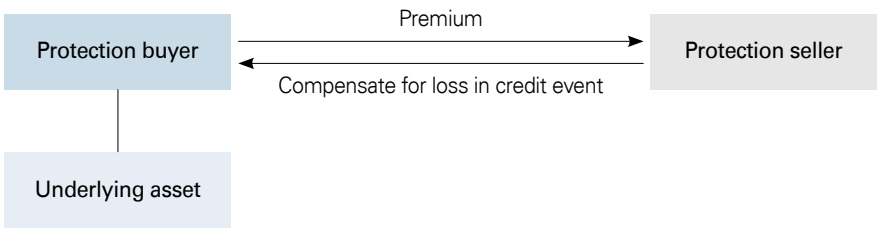
17) Credit events defined by the ISDA are as follows:

Type of event	Definition
① Bankruptcy	Insolvency, liquidation, reconciliation, company reorganization procedures, etc.
② Failure to pay	An expected payment has not been made on a scheduled distribution date.
③ Obligation acceleration	An obligation to pay before the due date has occurred, due to events such as bankruptcy.
④ Moratorium, repudiation	Suspension of payment has been announced by the government.
⑤ Restructuring	Creditors and debtors have re-adjusted the principal, interest, and payment time.

2. Credit default swaps

A credit default swap (CDS) is a financial product which forms the basis of all credit derivative products. The protection buyer pays a premium at regular intervals to the protection seller, and in exchange is compensated by the protection seller for either all or a pre-specified amount of losses incurred by the occurrence of a credit event during the contract term. Alternatively, the protection buyer may hand over the underlying assets impaired by credit event to the protection seller and receive the principal in return. If no such credit event occurs, then the protection buyer ends up paying only the premium. Through CDS purchases, the protection buyer can hedge its credit risks while maintaining its relationships with existing clients. The protection seller meanwhile becomes an investor, receiving income in exchange for taking on risk.

Figure 33 CDS transaction structure

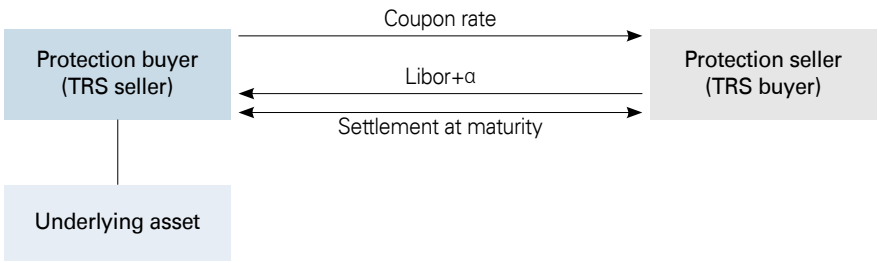


3. Total return swaps

A total return swap (TRS) is a contract under which the total return generated from an underlying asset is exchanged at a pre-specified interest rate (usually Libor + α) at regular intervals. The term "total return" in this context includes not only coupon bond payments but also any capital gains or losses at the time of the

swap's expiration. The protection buyer can receive pre-agreed interest without being exposed to the risk of price changes in the underlying assets in return for transferring all the assets' cash flows to another party. Meanwhile, the protection seller gains the economic benefits of the underlying assets without having to put up the funds to invest in the assets themselves.

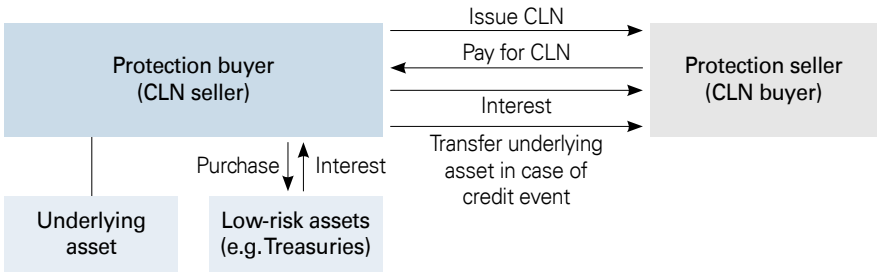
Figure 34 TRS transaction structure



4. Credit-linked notes

A credit-linked note (CLN) is a securitized form of a credit default swap (CDS). The protection buyer of a CLN issues a security which is directly linked to the credit condition of an underlying asset, and pays interest on it under pre-specified terms. The protection seller receives these interest payments in exchange for bearing any losses on the underlying asset that may occur in the case of a credit event. In a CLN transaction, the money that the protection seller (the CLN buyer) pays in exchange for the CLN serves as collateral against losses incurred from a credit event, and thus the protection seller's credit rating does not become an issue.

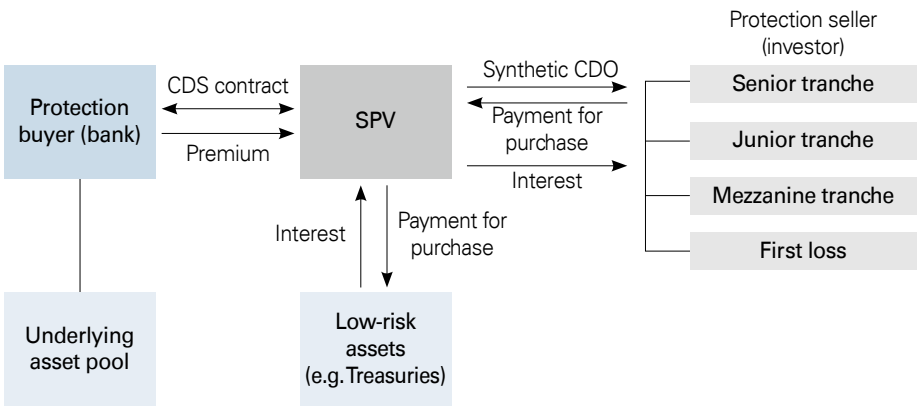
Figure 35 CLN transaction structure



5. Synthetic collateralized debt obligations

A synthetic collateralized debt obligation (Synthetic CDO) is a structured product issued through a special purpose vehicle (SPV) that has been transferred the credit risk inherent in the underlying assets of the protection buyer. Synthetic CDOs are issued in the forms of collateralized loan obligations (CLOs) or collateralized bond obligations (CBOs), and may have three or four subcategories depending on the credit ratings. The credit ratings for securities in the first three tranches (senior, junior, mezzanine) are usually AAA to BB-, while securities in the fourth tranche (first loss) usually have no credit ratings and tend to be owned by the protection buyer. When a credit event occurs, the SPV compensates the protection buyer for losses incurred with funds resulting from the sale of risk-free assets. The losses are covered first by the fourth tranche (first loss) securities, with the remainder covered by the first three tranches owned by the protection seller.

Figure 36 Synthetic CDO transaction structure



6. Market trends

In the past, it was usually foreign financial institutions that designed and issued these instruments while Korean financial institutions tended to act as protection sellers. However, as Korean financial companies have increasingly looked to purchase protection so as to transfer their credit risks, trading in this market is becoming more balanced.[18)]

The credit derivatives trading volume[19)] soared to 7.1 billion dollars in 2006, but the US sub-prime mortgage crisis in 2007 and the global financial crisis in 2008 led to its plunging to 4.4 billion dollars in 2010. In particular, the trading of synthetic CDOs, which are often labeled as one of the causes of the global financial crisis, has become nearly nonexistent since 2009, and the trading of TRSs has seen a drastic decline as well. CDS transactions meanwhile have accounted for the largest share in the credit derivatives market since 2011, as more market participants have come

18) As of end-June 2016, the outstanding balance for protection sales stood at 32.4 trillion won, and that of protection purchases at 37.6 trillion won.

19) It is based on figures reported to and approved by the Bank of Korea under the Foreign Exchange Transactions Act.

to use them to hedge their credit risks. The volume of CDS trading amounted to 6.4 billion dollars at the end of 2015, accounting for 72.5% of total credit derivatives trading.

Table 35 Volumes[1] of credit derivatives transactions[2] Unit: 100 million USD

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
TRS	39.5	29.9	36.6	12.9	6.8	10.0	5.9	10.1	56.9	1.0
CLN[3]	12.5	10.5	1.1	0.8	3.6	7.8	16.0	8.7	8.2	17.7
Synthetic CDO	8.5	12.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CDS	8.1	5.0	27.2	30.4	16.1	41.2	96.8	139.4	60.1	64.4
Others	2.2	2.1	0.0	2.2	17.4	3.2	14.5	17.0	8.0	5.7
Total	70.8	59.6	65.9	46.2	44.0	62.1	133.3	175.3	133.2	88.8

Notes: 1) Based on outstanding balances of notional amounts at period-ends
2) Figures reported to and approved by the Bank of Korea under the Foreign Exchange Transactions Act
3) Including cases where synthetic CDOs are collateral for CLNs
Source: Bank of Korea

Box 10

Trend of CDS Premiums on Korea

Korea's CDS premium[20] had maintained a low level until 2007, but began to rise as global credit uncertainty increased following the announcement in March 2008 that the US investment bank Bear Stearns had fallen into a serious liquidity crisis. In September 2008, such anxieties deepened as Lehman Brothers filed for bankruptcy. The international perception of Korea's financial and foreign exchange markets had meanwhile also deteriorated, and as a result of this combination of factors, the CDS premium jumped to 692 bp in October 2008. However, thanks to collaboration among the world's major central banks, the US Federal Reserve's aggressive policy rate cuts, and a currency swap arrangement between the Bank of Korea and the Federal Reserve, the CDS premium decreased to around 370 bp by the end of October.

In February 2009, the premium rose to 451 bp even despite expectations of a large-scale economic stimulus package in the US, as the possibility of Korean banks facing difficulties in foreign currency borrowings arose due to factors such as increased losses by large banks in the US and Europe and concerns about the deepening global recession. In March, AIG announced larger-than-expected losses for Q4 2008, and the possibility of General Motors filing for bankruptcy emerged. However, amid the US policy authorities' announcement of their quantitative easing policy, Korean stock prices rose and the won/dollar exchange rate regained stability, helping to gradually bring down the CDS premium.

In 2010, the premium rose to 172 bp, due to international financial market

20) Since most of the CDS contracts on Korea are based on five-year government bonds (Foreign Exchange Stabilization Bonds), the CDS premium refers to the premium of these five-year bonds.

instability and an increase in geopolitical risk factors, but it subsequently fell back to around 100 bp. It then maintained this level with minor ups and downs until August 2011, when it started to climb following the downgrade of the US sovereign credit rating and concerns about the spread of the Euro zone sovereign debt crisis, reaching 229 bp in October. The markets were calmer in 2012, however, as the ECB injected increased liquidity into the market, the EU members signed a fiscal pact, and a decision was made for a second bailout for Greece. At the same time, foreign currency funding conditions improved as foreign investors expanded their investment in the Korean market and Korea's sovereign credit rating was upgraded, and all of these factors led the CDS premium to decrease. Since 2013, the CDS premium has remained low due to the weakening of global risk aversion, the enhanced credibility of Korean bonds due to fundamental economic conditions being favorable, and the learning effect on geopolitical risks regarding North Korea.

Figure 37 Foreign Exchange Stabilization Bond CDS Premium

Source: Bloomberg

VI

Derivatives-linked securities market

1. Definition and significance

A derivatives-linked security is a securitized financial instrument bearing the indication of a right under which money or similar payable or recoverable shall be determined according to a predetermined formula tied to fluctuation in the price of any underlying assets, an interest rate, an indicator, a unit, and an index based on any of the aforementioned, or any other similar factor. Derivatives-linked securities are like derivatives in that the investor's profits or losses are determined in connection with changes in the underlying assets' price or other such factors, and are like securities in that the maximum loss possible is limited to the amount invested, that is, the principal. For these reasons, the Financial Investment Services and Capital Markets Act restricts the issuers of derivatives-linked securities to financial investment business entities that obtain authorization for investment trading business of securities and over-the-counter (OTC) derivatives.

From the position of investors, derivatives-linked securities are considered "medium risk and medium return" securities in that they have a higher expected return rate than deposits and are less risky than the individual underlying assets such as stocks. There is an advantage in that it is possible to invest in accordance with the investor's choice because the underlying assets and the profit and loss structures vary. However, in some cases, the entire principal may be lost and there is no collateral or guarantee, which exposes the investor to the credit risk of the issuer.

From the perspective of the issuer, derivatives-linked securities provide relatively higher sales commissions compared to other financial instruments, and

can thus be used to improve profitability. However, they are also burdens on the risk management side in that the issuer may incur losses depending on market conditions and fund management capabilities when the securities are redeemed at maturity. The issuer is also exposed to liquidity risk in the case of mass redemption.

Derivatives-linked securities were introduced in February 2003 as the issuance of securities based on the prices of stocks was allowed by law. From September 2005, non-stock assets or figures such as currency, commodity and credit risks were used as underlying assets of the securities. In February 2009, when the Financial Investment Services and Capital Markets Act was enacted, the range of the underlying assets expanded to natural, environmental, and economic phenomena that can be evaluated in a reasonable and appropriate manner.

The types of securities mainly issued and traded in the derivatives-linked securies market in Korea are Equity-linked warrants (ELWs), Equity-linked securities (ELSs), other Derivatives-linked securities and Exchange-traded notes (ETNs).

2. Equity-linked warrants

An equity-linked warrant (ELW) is a derivatives-linked security that indicates a right to form a transaction of stocks or receive money by either party's unilateral manifestation of intent in a predetermined manner depending on changes in the price of specific stocks or price index. It is a kind of warrant in that it gives the right to purchase a certain stock at a predetermined price, but it is different from other warrants such as stock subscription warrants in that the issuer is a third party different from the stock issuer. ELWs are similar to derivatives like stock index options in terms of economic features such as economic function, risk and profit structure, but differ in other key aspects. First, as ELWs provide the option only for a long position, the maximum loss is limited to the amount invested. Second, for ELWs listed on the

Korea Exchange (KRX), it is possible to invest a small amount of money without any complicated procedures such as margin deposits. Finally, liquidity providers are selected in the case of ELWs, so they have higher liquidity than options.

Table 36 Comparison of ELW and stock index option

	ELW	Stock index option
Legal form	Derivatives-linked security	Derivative
Issuing institution	Qualified investment trader with permission to issue derivatives-linked securities	Option seller (including individual investors)
Secondary market	Stock market	Derivatives market
Credit risk	Exposed to issuer's credit risk	KRX guarantees payment
Term of contract	3 months ~ 3 years	According to contract month system
Measure to supplement liquidity	Selection of a liquidity provider required	None
Basic deposit/ margin	Basic deposit required/no margin	Both basic deposit and margin required
Investment methods	Investor can only buy	Investor can buy and sell
Settlement date	T+2 (same as stock)	T+1

ELWs are divided into call ELWs, which provide the right to buy, and put ELWs, which provide the right to sell. In terms of profit structure, ELWs are divided into "plain vanilla" ELWs with simple put and call option structures and "exotic" ELWs with digital and barrier option structures. In addition, depending on the type of underlying assets, they can be classified into stock-linked ELWs, which are based on a single stock, basket ELWs, which are based on multiple stocks, and index-linked ELWs, which are based on stock price indices. In Korea, basket ELWs are classified as stock-linked ELWs.

When ELWs were introduced in Korea, ELWs were tailored to the individual needs of institutional investors and only issued by private placement, so they were not actively traded. However, after the KRX opened the ELW secondary market in December 2005, the market quickly reorganized to focus on public offerings and trading in the exchange-traded market. Since then, general investors have significantly increased their participation in the market, which has rapidly grown to become the second largest market in the world with daily average trading of 1.6 trillion won.

Meanwhile, the rapid growth in the market has been accompanied by a steady increase in concerns over excessive speculation and the possibility of unfair trading practices by professional investors such as liquidity providers. In response to these concerns, the Financial Supervisory Authority introduced new policies in November 2010, May 2011 and November 2011, including strengthening investor education, introducing a basic deposit system, standardizing the issuance of index-linked ELWs, and restricting the submission of arbitrary quotation by liquidity providers. In June 2014, the plan to standardize the issuance of stock-linked ELWs was introduced as part of the strategy to develop the derivatives market. As a result of these measures, the overheated ELW market gradually stabilized, but the total trading volume shrank to a daily average of 85.9 billion won (during the first half of 2016).

Table 37 Issuances and transactions of ELWs

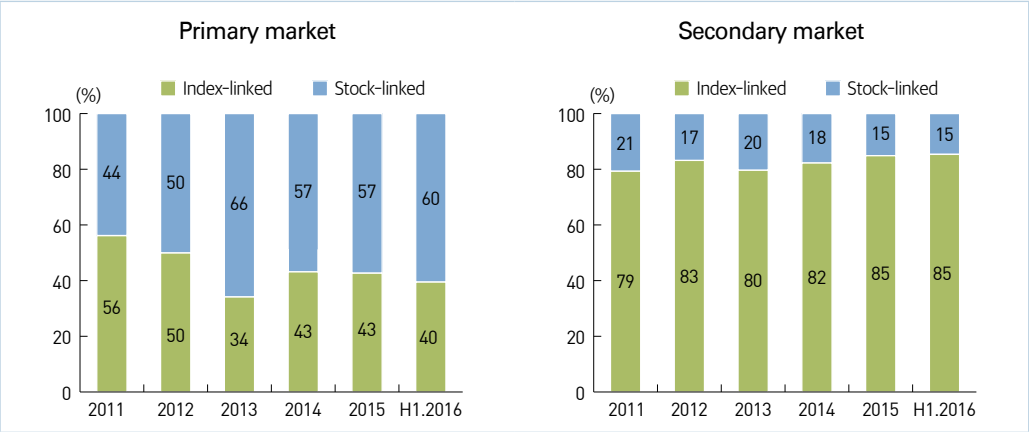
Units: 100 million won, number of trades

	2009	2010	2011	2012	2013	2014	2015	H1.2016
Issuance volume[1]	546	1,460	1,234	571	705	511	575	296
Number of issued securities[1]	10,606	21,284	24,409	11,949	12,923	7,246	5,204	2,585
Daily average trading volume[2]	8,523	16,374	12,857	2,416	1,169	804	848	859
Number of listed ELWs (end-period)[2]	4,367	9,063	7,155	3,896	4,115	2,624	2,284	2,091

Notes: 1) Based on issuing amounts or numbers during the periods
2) Based on ELW market trading in the Korea Exchange
Sources: Korea Securities Depository, Korea Exchange

Most ELWs are issued through public offerings (offering and sale) and traded on the KRX stock market. Looking at trading by underlying asset, for index-linked products, the volume of trading is smaller than that of stock-linked products but the trading is much more active.

Figure 38 Shares in ELWs by underlying asset



Sources: Korea Securities Depository, Korea Exchange

3. Equity-linked securities

An equity-linked security (ELS) is a derivatives-linked security whose investment gains and losses are determined in accordance with a predetermined method in connection with fluctuations in the price of a stock or stock index. Equity-linked fund (ELF), equity-linked trust (ELT), or equity-linked deposit (ELD) are similar in that investment returns are determined by stock price movements, but is distinguished by the fact that the investor's profits or losses are determined according to a predetermined method irrespective of the issuer's financial performance, and the principal is not subject to protected deposit under the Depositor Protection Act.

Table 38 Equity-linked products

	ELS	ELF	ELT	ELD
Issuing institution	Investment trader (securities company)	Collective investment business entity (asset management company)	Trust business entity (securities company, bank)	Bank
Relevant law	Financial Investment Services and Capital Markets Act			Banking Act
Legal form	Derivative-linked security	Securities fund	Beneficiary certificates	Deposit
Deposit protection	No			Yes
Profit/loss structure	Predetermined method linked to stock price	Performance-based dividend by management performance		Predetermined method linked to stock price (principal guaranteed)

The first issuance of ELS was in March 2003, and since then, issuance and trading have grown rapidly as investors recognized ELSs as "medium risk and medium return" financial products and issuers saw them as new sources of revenue. The market grew at a faster pace after 2014 due to the low interest rate trend, but after the second half of 2015, the volume of new issuance shrunk significantly as concerns over the possible loss of related ELS worsened from a plunge in major markets such as Hong Kong. As of the end of June 2016, the domestic ELS market (based on the outstanding balance) reached 53.4 trillion won.

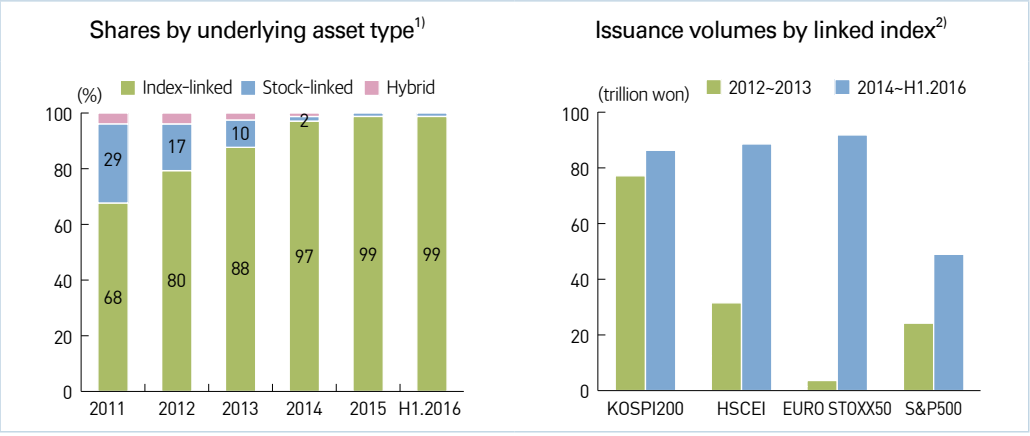
Table 39 Domestic ELS issuance volumes and outstanding balances Unit: trillion won

	2009	2010	2011	2012	2013	2014	2015	H1.2016
Issuance volume[1]	8.9	19.4	25.1	32.6	31.0	51.6	61.3	14.6
Outstanding balance[2]	11.7	11.7	21.9	29.1	27.2	37.9	48.6	53.4

Notes: 1) Based on issuing amounts during the periods
2) At period-ends
Source: Korea Securities Depository

In Korea, the ELS market is comprised mostly of index-linked products. The KOSPI 200 has been mainly used as the underlying asset of these products, but recently, the use of the overseas indices such as HSCEI and EURO STOXX 50 has increased greatly.

Figure 39 ELS issuances by underlying asset



Notes: 1) A hybrid product is one that consists of both indices and individual stocks.
2) ELB included; multiple index products are double-counted.
Source: Korea Securities Depository

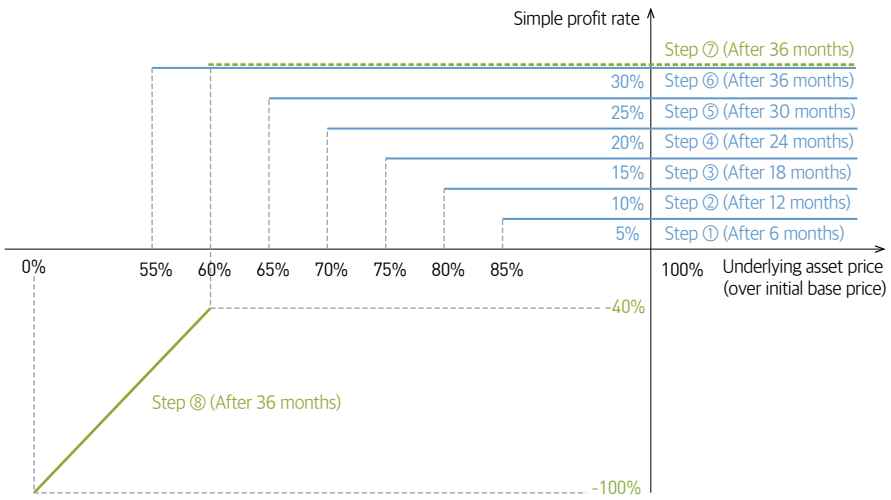
ELS products have a wide range of profit and loss structures, including option styles such as digital, cliquet, European, barrier, and autocallable. Recently, the step-down ELS, which is a kind of autocallable ELS, has been the main type of product issued. The step-down ELS can be redeemed at an early redemption date if the price of the underlying asset has not fallen below its minimum limit since issuance (knock-in) and the lowest price of the underlying asset at each early redemption date (usually six-month basis) is above a certain level (the limit decreases at each early redemption date). In the event that early redemption does not occur, the investment profit or loss will be determined according to the final valuation price at the maturity date.

Table 40 Profit structure of step-down ELS (example)

Knock-in condition[1]	Price condition of underlying asset[1] (over initial base price)	Profit rate
The price of the underlying asset is at least 55% of the original base price after the issue date	① 1st early repayment date (6 months): Over 85% ② 2nd early repayment date (12 months): Over 80% ③ 3rd early repayment date (18 months): Over 75% ④ 4th early repayment date (24 months): Over 70% ⑤ 5th early repayment date (30 months): Over 65% ⑥ Maturity (36 months): 55% ~ 60%	10% per annum
The price of the underlying asset is less than 55% of the original base price after the issue date	⑦ Maturity (36 months): Over 60%	10% per annum
	⑧ Maturity (36 months): Below 60%	Final decrease rate of underlying asset price[1]

Note: 1) Evaluated based on the worst performance of the underlying asset at each point

Figure 40 Profit structure of step-down ELS (example)



4. Other derivatives-linked securities market

Derivatives-linked securities linked not to stock or stock index prices but instead to changes in interest rates, exchange rates, prices of general commodities, credit risk

indicators, and other such figures are classified as this category.

As the underlying assets of these products are varied, the diversification effect is large, but the product structure is somewhat complicated. For this reason, most issuance is done privately for institutional investors, and the market size is significantly smaller than that of ELS. In terms of underlying assets, the most actively issued products in this market are credit-linked products and hybrid (other) products.

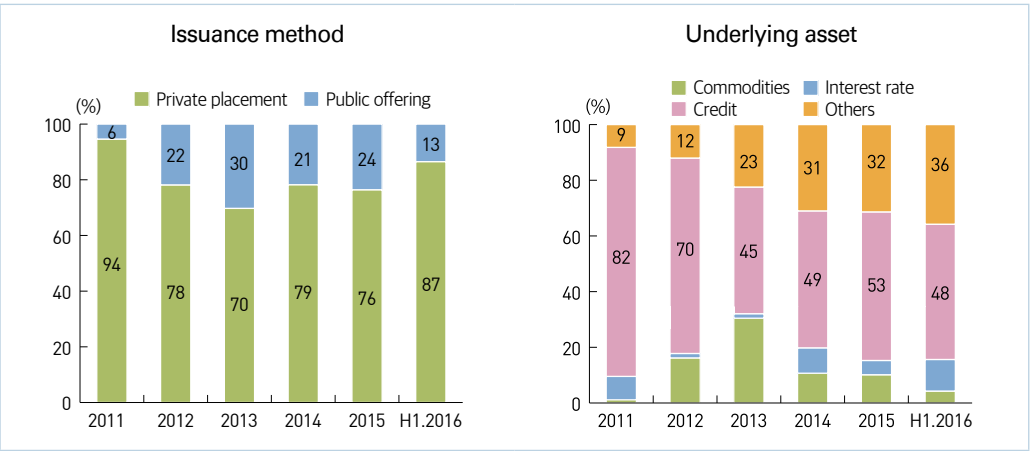
Table 41 Other DLSs issued by securities companies

Unit: trillion won

	2009	2010	2011	2012	2013	2014	2015	H1.2016
Issuance volume[1]	0.6	2.1	4.7	9.5	9.9	10.6	11.8	7.3
Outstanding balance[2]	2.9	3.0	4.6	8.8	13.2	15.8	17.1	18.0

Notes: 1) Based on issuing amounts during the periods
2) At period-ends
Source: Korea Securities Depository

Figure 41 Shares in other DLSs[1] by issuance method and underlying asset



Note: 1) Based on issuing amounts during the periods
Source: Korea Financial Investment Association

The profit structures of other derivatives-linked securities are very similar to that of ELS. A credit-linked note (CLN)-type DLS, a typical credit-linked product, is a product that conforms to the digital option profit and loss structure. The stipulated

profit rate is paid if there is no bankruptcy, insolvency, restructuring, or other credit event takes place with respect to the reference company, debt or designated liabilities in a predetermined period of time. If the credit event occurs, however, the entire principal is lost.

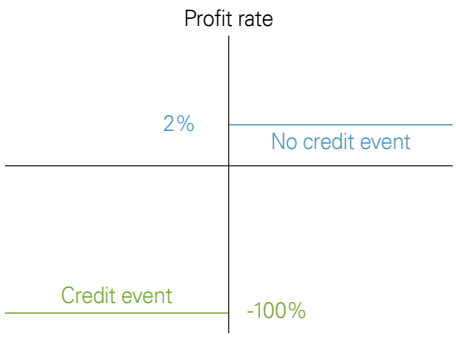
Figure 42 Profit structure of CLN-type derivatives-linked security (example)

Redemption condition

Condition[1]	Redemption date	Profit rate[2]
Credit event	Credit event date + α	-100%
No credit event	Maturity date	2% × (N/365)

Notes: 1) Credit event: Bankruptcy, insolvency or restructuring occurs with respect to the reference company, debt or designated liabilities.
2) N: Observation period of credit event.

Profit structure



5. Exchange-traded notes

An equity-traded note (ETN) is a derivatives-linked security that is listed and traded at the exchange-traded market, just like stocks. Its return is linked to the performance of the underlying indices. If the ELW is considered as an option product and ELS and derivatives-linked securities are considered as predetermined fixed income products whose profits are based on changes in the value of the underlying assets, then the ETN differs from these securities in that it is an index-linked product, of which the cumulative return of the basic index becomes the investment gain.

ETNs are very similar to the exchange-traded funds (ETFs) that are issued by collective investment business entities (asset management companies), in that

they can confirm profits through real-time trading without a separate redemption procedure. However, ETNs are exposed to the credit risk of the issuing institution (securities companies) and have maturities set between one and 20 years, and thus differ from ETFs, which are not exposed to credit risk due to the holding of their assets as trust assets and do not have a separate maturity. In addition, an ETF may run into tracking errors due to partial duplication during the process of tracking the basic index through the operation of the assets held in the ETF, but since ETNs guarantee the contracted income linked with the basic index, they do not have this issue.

Table 42 Comparison of ETN and ETF

	ETN	ETF
Legal form	Derivative-linked securities	Collective investment securities
Issuing institution	Qualified investment trader on derivative-linked securities issuance[1] (securities company)	Collective investment business entity (asset management company)
Credit risk	Yes	No
Profit structure	Predetermined profit provided based on initial index by issuing institution	Performance-based distribution
Tracking error	No	Possible
Maturity	One to 20 years	No
LP system	Yes	

Note: 1) Over one trillion won in equity capital, AA- or more in credit rating, 200% or more in NCR.

The domestic ETN market was opened in November 2014, after the government decided in November 2013 to introduce ETNs as part of its measures to enhance the competitiveness of the financial industry. When the market opened, there were 10 types of ETNs with a total size of 470 billion won, and through product diversification and increased investor awareness, as of end-June 2016, the number of listed ETNs has increased to 106 with a market cap of 2.6 trillion won.

Table 43 ETN market size

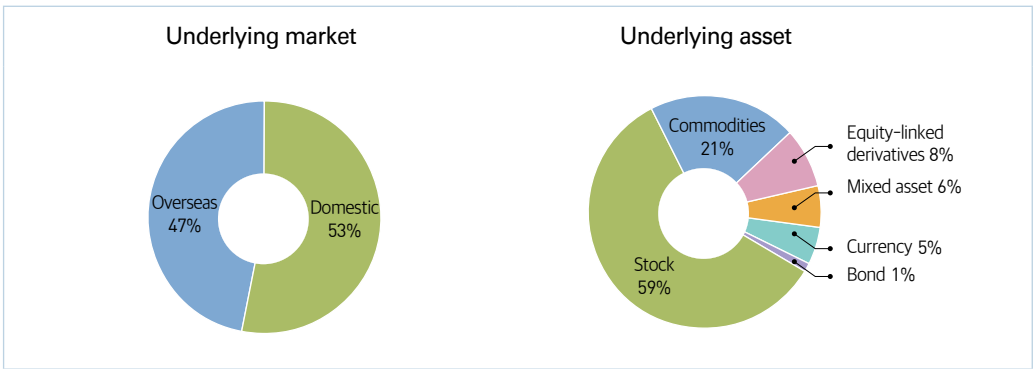
Units: 100 million won, number of trading

	2014	2015				2016	
	4/4	1/4	2/4	3/4	4/4	1/4	2/4
Issuance volume	4,700	5,000	6,300	3,300	4,700	1,600	5,400
Daily average trading volume	2	10	53	174	452	388	333
Total market value (end-period)	4,668	5,467	10,856	14,472	19,330	21,418	26,478
No. of listed ETNs (end-period)	10	11	36	55	78	82	106

Sources: Korea Securities Depository, Korea Exchange

There is more issuance of products based on the domestic index than those products based on the overseas index. By underlying asset, stock and commodity-related indices are heavily being used, while the use of indices related to equity-linked derivatives, mixed assets, and currencies is gradually increasing.

Figure 43 Shares in ETNs by underlying market and underlying asset[1)]



Note: 1) Based on total market value (end-June 2016)
Source: Korea Exchange

INDEX

A

B

C

D

E

F

G

I

K

M

N

O

P

Q

R

S

T

Y

Authors

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Choi, Youngjoo	Kim, Seongeun
Gwon, Taehyo	Ko, Hyeyoung
Han, Jaechan	Lee, Yongmin
Hong, Junyu	Lim, Inhyuk
Hwang, Jiyong	Noh, Jinyoung
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