

# Payment and Settlement Trends in 2014

## I. Overview

Payment and settlement activities are divided, according to types of parties involved, into retail payments by consumers and large-value payment and settlement between financial institutions.

In 2014, payments made through noncash payment instruments amounted to KRW 314 trillion in daily average value, displaying an increase in its growth rate from the year before (1.9% in 2013 → 4.6% in 2014). Retail payments made through debit transfers or using cards increased 3.9% to 70.4 trillion, and large-value payments processed over BOK-Wire+ jumped 4.8% to 243.9 trillion.

〈Table 1〉 Payment and Settlement Value by Payment Instrument (daily average)

	2012	2013	2014	
			Yearly	changes <sup>3)</sup>
Retail payment	68.8	67.8	70.4	3.9
Checks and Bills	29.3	26.0	24.4	-6.0
Fund Transfers <sup>1)</sup>	38.0	40.1	44.2	10.2
Payment Cards <sup>2)</sup>	1.6	1.6	1.7	5.5
Large-value payment	226.1	232.7	243.9	4.8
Total	295.0	300.5	314.3	4.6

Notes: (1) includes Giro system, E - banking system, Interbank shared network, CD system, CMS system, Local bank shared system, E - commerce system  
 (2) Credit cards (except cash advance), Debit cards, Check cards, Pre - paid cards, IC debit cards, E - money  
 (3) Year - on - year rates of change (the same throughout)

## II. Retail Payment System Trends

### 1. Checks and Bills

In 2014, the average daily clearings of checks and bills amounted to 24.0 trillion won, continu-

ing a downward trend following last year (△11.3%→△6.0%) The widespread use of the new 50,000-won bank notes and the reduction in the volume of issuance of call bills by financial investment companies appear to have contributed to this decline in the use of checks and bills.

〈Table 2〉 Checks and Bills Cleared (daily average, value basis) (billions of won, %)

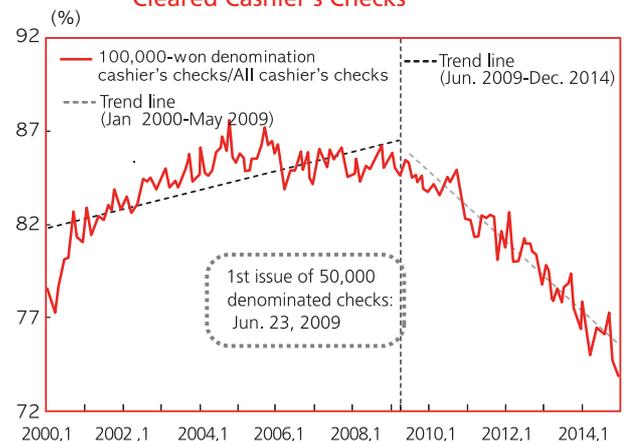
	2012	2013	2014	
			Yearly	changes
Cashier's Checks	3,051	2,669	2,514	-5.8
(100,000 won denomination)	147	113	94	-16.7
Promissory Notes, etc.	23,190	20,799	19,398	-6.7
(Promissory Notes)	8,454	7,212	5,283	-26.7
(Current account checks)	14,134	13,018	13,469	3.5
(E-bills)	411	397	495	24.6
Others <sup>1)</sup>	3,046	2,508	2,501	-0.3
Total	29,287	25,977	24,414	-6.0

Note: (1) includes Postal money orders, notices for call fund settlement, receipts for principal of securities, etc

Source: KFTC.

The use of cashier's checks decreased owing to the emergence of various new payment means, widespread adoption of credit cards and

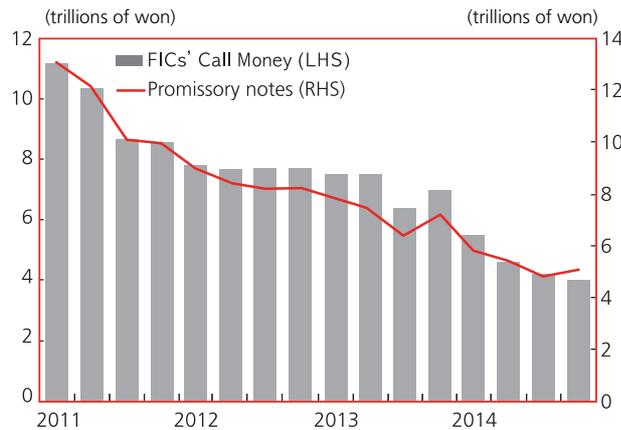
〈Figure 1〉 Percentage Share of 100,000 won Denomination Cashier's Checks in All Cleared Cashier's Checks



the substitution of growing use of 50,000 won-bank notes, with 100,000-denominated checks leading the downtrend.

The utilization of promissory notes also fell as a result of a decline in the issuance of call bills, caused by the shrinking volume of call borrowing by financial investment companies and an increase in the use of electronic repayments<sup>1)</sup> over BOK-Wire+.

〈Figure 2〉 Settlement by Promissory Notes and FICs' Call Money (daily average)



## 2. Funds Transfers

In 2014, the value of payments and settlement made through funds transfers jumped 10.2% to 44 trillion won in daily average. Helped by the rapid emergence of new electronic banking platforms such as internet banking, firm banking and mobile banking, the use of debit transfers increased at a faster rate than in the previous year (5.7% → 10.2%).

The user base of mobile banking is expanding at a particularly impressive rate, thanks to the near ubiquitous adoption of mobile phones and smartphones.

〈Table 3〉 Value of Payments via Fund Transfers<sup>1)</sup> (daily average)

	2012	2013	2014	
			Year	change
Electronic Banking System	32.4	34.4	37.8	10.1
(Internet banking)	16.9	17.4	18.4	5.5
(Firm banking)	12.1	13.5	15.6	15.9
(Mobile banking)	0.1	0.1	0.2	31.3
Giro credit transfer	0.9	1.0	1.0	4.4
CMS system	0.4	0.4	0.4	0.5
IFT system, etc. <sup>2)</sup>	4.2	4.4	5.0	12.6
Total	38.0	40.1	44.2	10.2

Notes: (1) Excludes BOK - Wire+

(2) Includes CD system, Local bank shared system, E - commerce system, and EFTPOS system

Source: KFTC.

## 3. Payment Cards

In 2014, the use of payment cards increased 5.5% to KRW 1.7 trillion in daily average value with check cards leading the uptrend (4.8% in 2013 → 5.5% in 2014).

〈Table 4〉 Use of Payment Cards<sup>1)</sup> (daily average)

	2012	2013	2014	
			Yearly	changes
Credit cards <sup>2)</sup>	1,328	1,373	1,416	3.1
Individuals	983	1,022	1,055	3.3
Corporations	345	351	360	2.6
Check cards	232	263	312	18.3
Prepaid cards <sup>3)</sup>	4.3	3.3	2.7	-18.5
Debit cards	0.1	0.0	0.0	-30.3
IC debit cards	0.0	0.1	0.3	233.6
Total	1,564	1,639	1,730	5.5

Notes: (1) Based on transaction authorizations.

(2) Excludes cash advances.

(3) Includes only cards issued by stand - alone payment card companies, and by banks and bank subsidiaries that issue payment cards.

Sources: Stand - alone payment card companies, banks and bank subsidiaries issuing payment cards, KFTC.

1) Since the implementation and deployment of a comprehensive call settlement system, as part of the BOK-Wire+ system, in 2010, financial investment companies are increasingly opting to electronically repay their call money, rather than issue promissory notes (% share of repayments over BOK-Wire+ in all call money repayments made by financial investment companies: 24.9% in 2011 → 39.6% in 2012 → 47.7% in 2013 → 51.6% in 2014)

By type of card, the use of check cards surged a whopping 18.3%, continuing the steep uptrend from the previous year (13.7%). Increased tax benefits and the launch of new check card products and other marketing efforts by card companies appear to have contributed to this result.

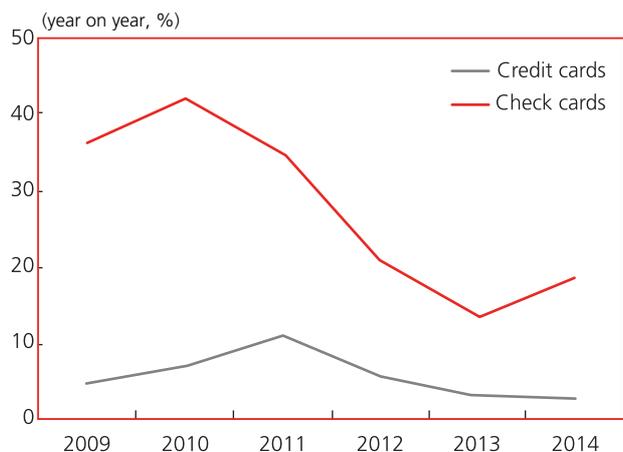
〈Table 5〉 Income Deduction Rate by Type of Payment Card

	2012	2012	2013	2014	
				1H	2H
Credit cards	20	20	15	15	15
Debit cards	25	30	30	30	30+101

Note: (1) Applies only to the portion of the total amount used in 2014 which is in excess of the amount in 2013.

Meanwhile, the use of credit cards grew only by a modest 3.1%, due among other to the crackdown on illegal credit card marketing practices and a decrease in new card issues by companies affected by customer data breach incidents.

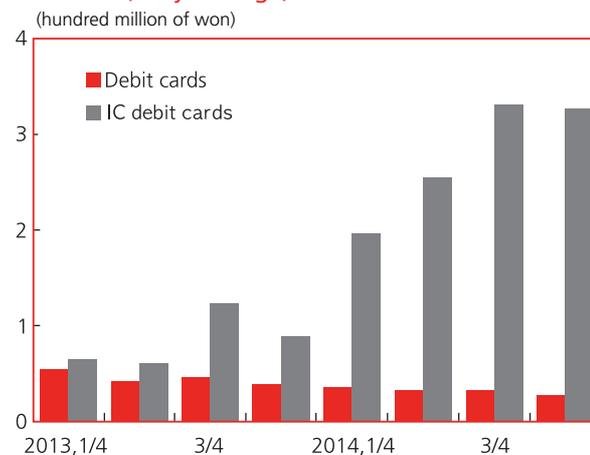
〈Figure 3〉 Growth Rate in the Use of Credit and Check Cards



The utilization of IC cash cards<sup>2)</sup> grew at a brisk pace, as the merchant network rapidly expanded, helped by low fees (1.0%). On the other hand, the use of prepaid cards and debit

cards continuously declined, and their share of all cards in terms of use also shrank sharply.

〈Figure 4〉 Use of IC Debit Cards and Debit cards (daily average)



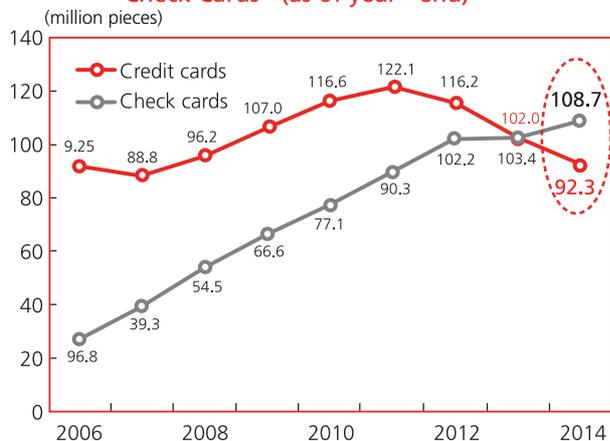
In terms of number of new issues, check cards outstripped credit cards (92.32 million new issues) with 108.75 million new cards issued as of the end of 2014. Higher tax benefits associated with the use of check cards, compared to other types of cards, and the release of new products bundled with value-added services appear to have contributed to this result.

As for credit cards, the number of new issues fell from a year earlier (9.70 million), adversely affected by a series of customer data leak incidents (Jan. 2014) and the announcement of a new crackdown on illegal credit card marketing practices (May 2014).

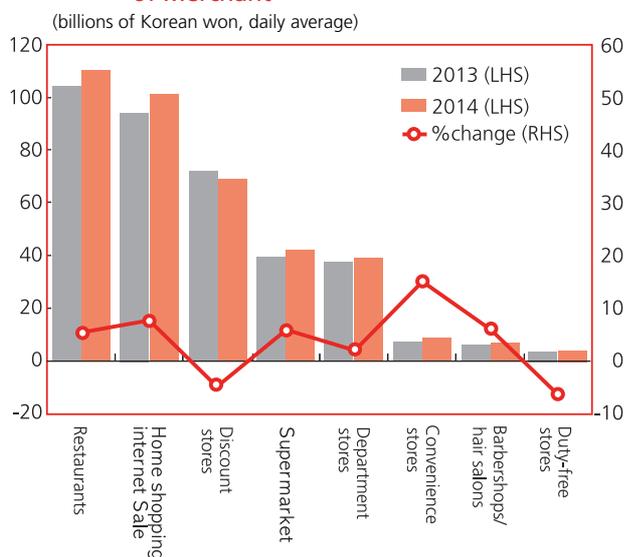
In 2014, the per-transaction value of credit card (purchases of goods and services for personal use) and check card payments decreased further to KRW 46,000 and KRW 26,000, respectively, down KRW 4,000 and KRW 2,000 from a year earlier, due to the increasing use of payment cards for small-value everyday purchases at convenience stores and restaurants or for TV and internet shopping.

2) Thanks to joint development efforts by KFTC and domestic banks, standard cash cards, designed for utilization at a CD/ATM, can be used at stores equipped with an IC card terminal since November 2012.

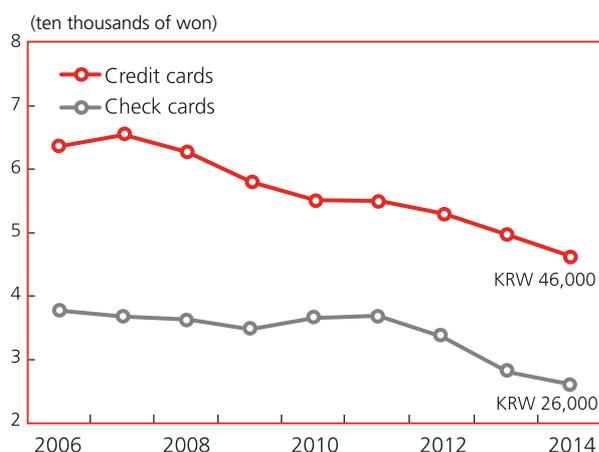
〈Figure 5〉 Issuance Numbers of Credit Cards and Check Cards<sup>1)</sup> (as of year - end)



〈Figure 6〉 The Amount of Use and Growth of Credit Cards for Everyday Purchases by Type of Merchant



〈Figure 7〉 Average Value per Settlement<sup>1)</sup>



Note: Note: (1) Individual's purchases of goods and services.

The use of mobile cards increased massively in 2014, riding on the widespread use of smartphones and the greater availability of app-style cards. Mobile cards, still relatively new, account only for a negligible share of all cards (1.1% in terms of value, 6.5% in terms of number of issues), but are rapidly gaining ground, driven by app-style cards that are optimally adapted to the mobile environment.

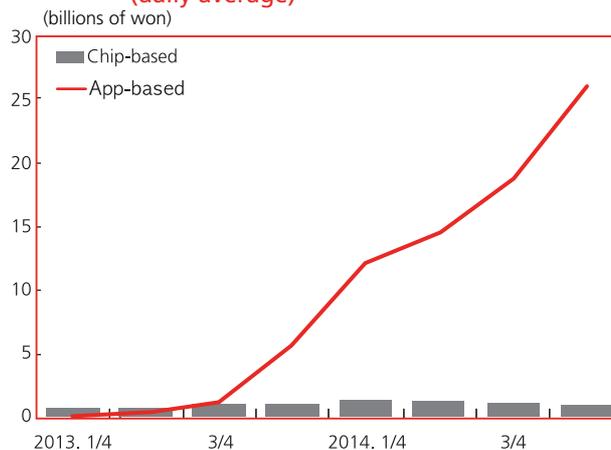
〈Table 6〉 Values of Mobile Card Payments and Issuance Numbers of Mobile cards in 2014

	Payment Value (daily average, billions of won)		Issuance Number (end-of-period, thousand pieces)	
	Chip-based	App-based	Chip-based	App-based
Credit cards	1.1 (53.5)	15.5 (868.0)	1,363 (59.0)	9,376 (369.9)
Check cards	0.1 (-4.0)	2.4 (978.0)	1,164 (66.5)	3,975 (318.8)
Total	1.2 (48.5)	17.9 (881.4)	2,527 (62.3)	13,351 (353.4)
% share <sup>1)</sup>	1.1		6.5	

Notes: (1) % share of all payment cards.

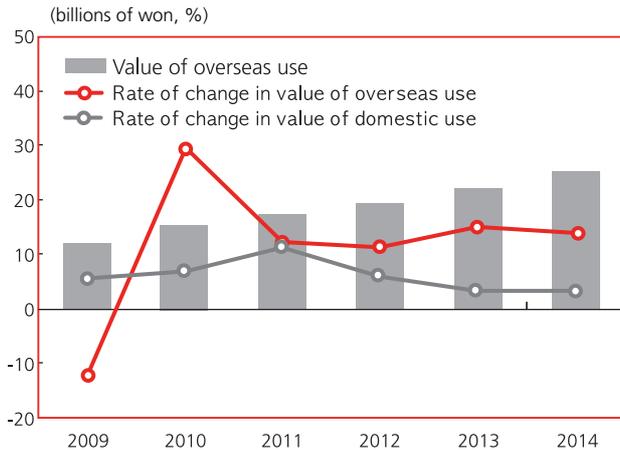
(2) Figures inside the parentheses ( ) are % changes year on year

〈Figure 8〉 Settlement Value by Types of Mobile Cards (daily average)



Meanwhile, the overseas use of credit cards jumped 13.8%, far outpacing the rate of increase in domestic use (3.0%), as the number of Koreans traveling abroad increased,<sup>3)</sup> and the strong won made overseas purchases cheaper for Koreans (KRW 22 billion in 2013→ KRW 25 billion won in 2014).

〈Figure 9〉 Value of Credit Cards Use at Domestic and Overseas(daily average)

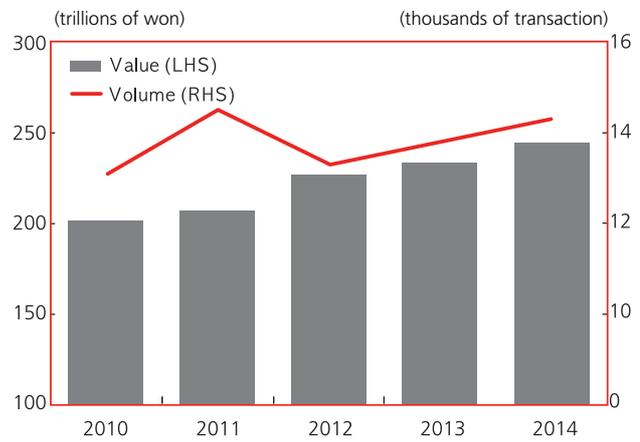


### III. Large-value Payment Trends

Large-value payment and settlement transactions are processed over BOK-Wire+ and include transfers of call funds between financial institutions, large-value funds transfers by general customers, net settlement between participants of retail payment systems and transfers of funds between the participants of BOK-Wire+ and BOK such as Treasury payments and receipts.

In 2014, in spite of a decrease in the volume of call funds transferred, Korean won funds transferred over BOK-Wire+ increased 4.7% to KRW 244 trillion in daily average value, surpassing the rate of increase in the previous year (2.9%), on the back of a massive growth in securities funds transfers.

〈Figure 10〉 Payment via BOK-Wire+ (daily average)



〈Table 7〉 Payments via BOK - Wire+ (daily average)

	(trillions of won)			
	2012	2013	2014	
			Yearly	changes
Funds transfers among participants	213.5	220.0	230.3	4.7
Call funds	48.2	50.8	43.9	-13.6
Securities funds	69.9	79.8	93.5	17.1
FX funds	15.9	15.7	14.9	-5.5
Customer funds Transfer <sup>1)</sup>	30.2	30.8	35.1	13.9
Net settlements	18.8	13.3	14.2	6.6
Others	30.4	29.5	28.7	-2.7
Fund transfers between BOK and participants <sup>2)</sup>	12.6	12.7	13.6	7.5
Domestic currency funds transfers total	226.1	232.7	243.9	4.8

Notes: (1) Large value funds that corporate send to receiver institute by using BOK - Wire+ participants

(2) Transactions including government and public bonds, Treasury funds transfers, and BOK loans

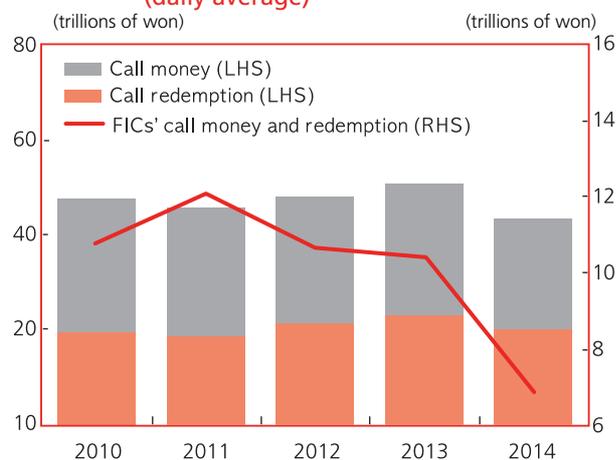
Source: Bank of Korea

The volume of call funds transferred over BOK-Wire+ shrank by 13.6% from a year earlier, due to a decrease in call transactions as a result of new restrictions imposed on the amounts of call borrowing by financial investment companies.<sup>4)</sup>

3) Korea Culture and Tourism Institute, 'Number of Koreans Traveling Overseas'; 13.74 million in 2012 →14.85 million in 2013 → 16.08 million in 2014.

4) In accordance with 'improvement Measures for Short-term Monet markets', a series of measures implemented by the government, together with BOK, to tackle imbalances in call markets, the maximum limit on call money that may be borrowed by a financial investment company is reduced from 25% of the equity capital to 5% of the equity capital, effective as of 2014, and financial investment companies other than primary dealers and the companies that are selected to participated in open market operations by BOK are excluded from participation in call markets, effective as of 2015.

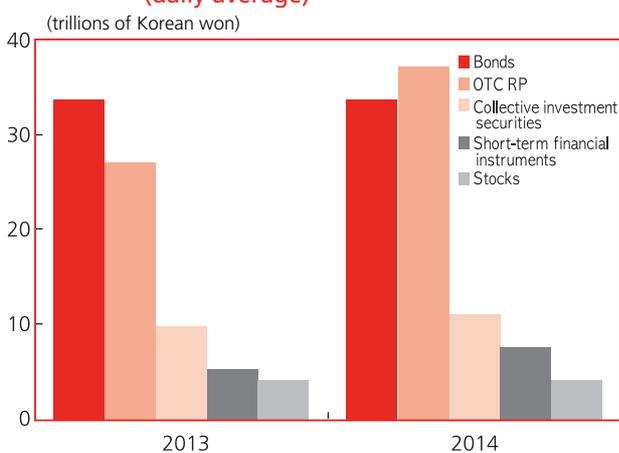
〈Figure 11〉 Call Funds Transfers<sup>1)</sup>  
(daily average)



Note: (1) Based on settlement data of the BOK-Wire+ call settlement system.  
Source: Bank of Korea.

The volume of securities funds transferred over BOK-Wire+ increased 17.1% from a year earlier, boosted by a strong growth in inter-institution RP trading and short-term financial product transactions.

〈Figure 12〉 Major Securities Funds Transfers  
(daily average)

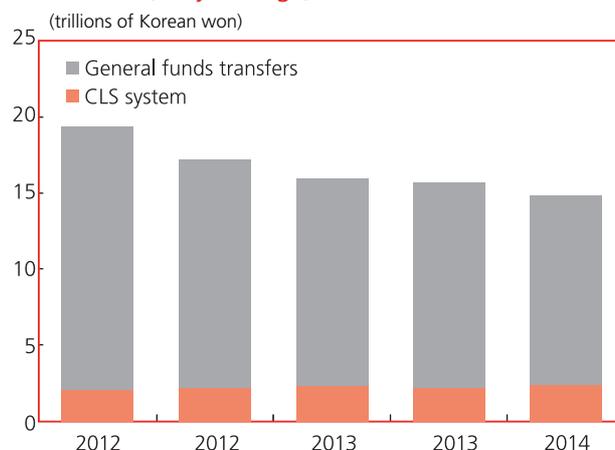


Source: Bank of Korea

The volume of foreign exchange funds<sup>5)</sup> transferred via BOK-Wire+ fell 5.5% from the previous year, in spite of an increase in funds transferred through the CLS system (7.1%), as this

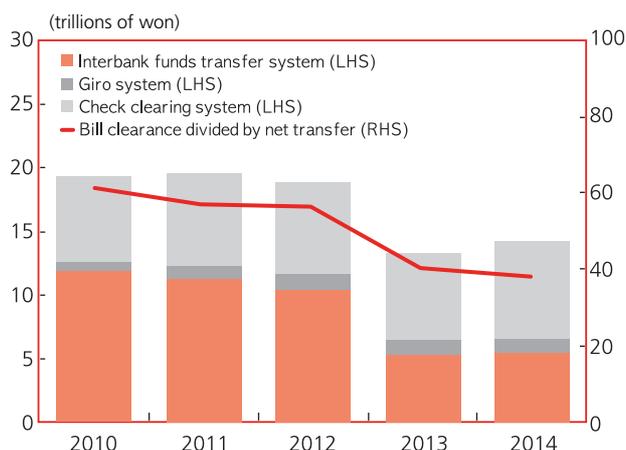
increase was eroded by the decrease in the volume of general funds transfers ( $\Delta$ 7.6%).

〈Figure 13〉 Foreign Exchange Funds Transfers  
(daily average)



Credits and debits between financial institutions, arising from consumers' transactions using noncash payment instruments,<sup>6)</sup> are netted and settled over BOK-Wire+ during the following business day. In 2014, the volume of net settlement between participants of retail payment systems increased 6.6% from one year earlier, with the electronic banking system driving the increase.

〈Figure 14〉 Net Funds Transfers (daily average)



5) When a settlement transaction is made in a foreign currency through a foreign exchange bank, using the CLS system, the transfer of Korean-won funds is processed over BOK-Wire+. The CLS system, as it is inter-linked to the systems of central banks across the world, handles the payment of sold currencies and receipt of bought currencies in real time.

6) Retail payments are processed through the bill clearing system, Giro system and the electronic banking system, operated by KFTC, and the card settlement systems of individual card companies. The bill clearing system clears checks and bills of exchange, and the Giro systems Giro bills, while the electronic banking system handles debit transfers via the interbank funds transfer system and CD/CMS networks.

The volume of funds transferred between BOK-Wire+ participants and BOK, including transfers of settlement funds for government and public bond transactions, Treasury payments and receipts and BOK loans, rose by 7.5% from the previous year to KRW 13.6 trillion in daily average value.

**<Table 8> Funds Transfers between Participants and BOK (daily average value)**

(trillions of won, %)

	2012	2013	2014	
			Yearly	changes
Government and public bond trading <sup>1)</sup>	7.6	7.8	8.0	2.0
Treasury payments and receipts	4.3	4.1	4.7	14.6
BOK loans	0.7	0.7	0.9	26.2
Total	12.6	12.7	13.6	7.5

Note: (1) Includes funds related to the issuance and redemption of Treasury and Monetary Stabilization bonds, RPs and interest payments.

Source: Bank of Korea.

#### IV. Actions Taken for Payment and Settlement Systems

In 2014, as part of its oversight role for the payment and settlement systems, BOK conducted assessments on systemically important payment systems, including on-site inspections and joint audits.

BOK assessed BOK-Wire+ and three retail payment systems operated by KFTC against the new international infrastructure standards Principles for Financial Market Infrastructures (PFMIs).<sup>7)</sup> The assessment found that although BOK-Wire+ was mostly in compliance with the PFMIs, some changes were, nevertheless, needed to improve the collateral management system and strengthen the operational risk management, as well as

efforts to establish more systematic procedures for performance disclosure. Meanwhile, the bill clearing system, interbank funds transfer system and the electronic banking system, three of the retail payment systems operated by KFTC that are designated as systemically important payment systems, were evaluated as part of a regular assessment. The assessment found that although the three systems were in compliance with the PFMIs in most areas, improvements were necessary with regard to the risk management system, collateral management system, criteria for participation and the disclosure of performance.

In light of the fraudulent attempts at withdrawing funds using the CMS system, reported in January 2014, BOK audited related systems and issued recommendations to KFTC, the service provider, advising that the approval process for service suitability be improved, and that the structure of accountability be clearly defined to protect customers should an accident occur. Further, to establish the causes of settlement delays occurred in the yuan clearing system,<sup>8)</sup> BOK conducted an onsite audit of the clearing bank. The audit found that technical issues pertaining to the system were not the main cause of the delays, but that the delays were due to the fact that the clearing bank and participating institutions were caught unprepared by the unusually massive volumes of transactions. To ensure the reliability of the clearing system, BOK recommended that the clearing bank develop and establish an alternative method of settlement for transactions, processed via the China National Advanced Payment System (CNAPS), which could not be settled before the closing time of this system, and undertake other measures to prevent settlement delays such as making use of daylight overdraft facilities.<sup>9)</sup>

Finally, joint audits were conducted by BOK

7) These new international payment and settlement standards, issued in April 2012, were established by the BIS Committee on Payments and Market Infrastructures and IOSCO, by consolidating three existing international standards related to payment and settlement systems. The new standards were created to address the need to expand OTC derivative market infrastructures and revise international standards related to the operation of financial market infrastructures, which arose in the aftermath of the global financial crisis.

8) The Seoul branch of the Bank of Communications, designated by the People's Bank of China as the yuan clearing bank in Korea, started the operation of its clearing system on November 6, 2014.

9) In accordance with BOK's recommendations, the clearing bank developed an alternative method of settlement that bypasses CNAPS (Jan. 2015) and established an overdraft (OD) limit (Dec. 2014). The new measures, which also include a plan to increase staff assigned to related duties and the creation of documented business procedures, are to be implemented sometime in 2015.

and the Financial Supervisory Service on four commercial banks and four financial investment companies. The audits checked the compliance with funds transfer-related standards, the way settlement risks were managed, the status of the intraday liquidity management and whether a business continuity plan (BCP) was in place and implemented, and appropriate recommendations for improvement were issued.

---

CNAPS (Jan. 2015) and established an overdraft (OD) limit (Dec. 2014). The new measures, which also include a plan to increase staff assigned to related duties and the creation of documented business procedures, are to be implemented sometime in 2015.