

# History of KSD, current situation, new settlement system and risk management

Korea Securities Depository,  
Keukjin Choi 23 Sept, 2012  
kjchoi@ksd.or.kr

# Agenda

- History of KSD
- Current situation
- New settlement system
- Risk management system
- CPSS-IOSCO PFMI
- TC-CCP recognition

# History of KSD

37 years

(1975~2012)

23 years

(1990~2013)

History:  
25 brokerages requested separate settlement for institutional investors trade, originally traded by securities market stabilization fund

1975

July Settlement (account transfer) began for stock traded on exchange

1956 stock exchange with 12 listed companies

1994  
1990

Dec. 1990 Institutional settlement began

July, 1994 Cross-boarder Depository and settlement began  
\* July, 1993 legally permitted foreign direct investment by 3 steps Financial liberalization & Opening market plan (1993~1997)

2006

Sept. Agreement with KRX about the reformation of clearing and settlement in Korean stock market

2012

Jan. New settlement system for stock and bond began

2013

July. Implemented 'CCP risk management system' for institutional investors stock transaction

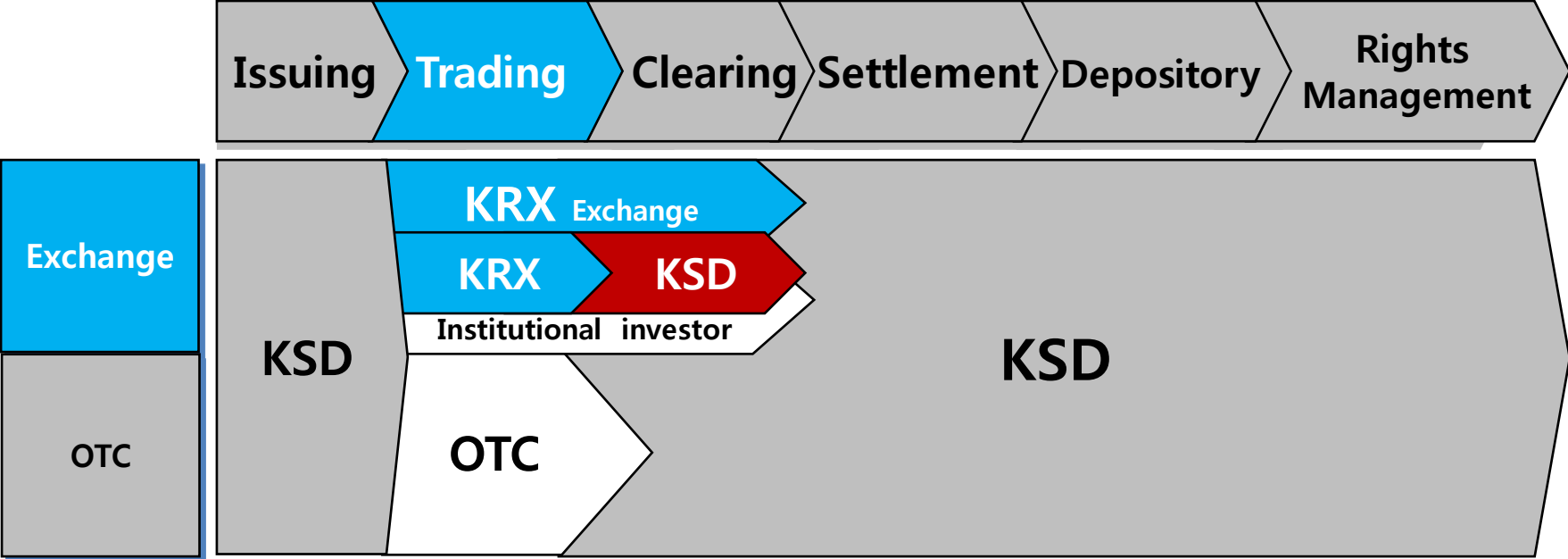
# Chronological table of KSD

- (1975.07.18) Settlement began for stock traded on exchange
- (1982.05.01) Bond settlement began
- (1990.12.01) Institutional settlement began
- (1999.11.21) OTC Bond settlement began
- (2001.07.07) Designated ECN settlement organization
- (2004.04.06) Fund settlement began
- (2006.08.30) Agreement with KRX about the reformation of clearing and settlement in Korean stock market
- (2009.02.04) According to FSCMA, KSD is the sole settlement organization
- (2009.11.30) KSD, KRX and BOK agreed to develop new settlement system in Korean securities market
- (2011.07.25) Early stock settlement began
- (2012.01.16) New settlement system for stock began
- (2012.02.20) New settlement system for bond began
- (2013.07.06) According to FSCMA, KSD is a CCP for institutional investors stock transaction
- (2013.07.22) Opened CCP risks management system for institutional investors stock transaction

# Exchange & OTC Market

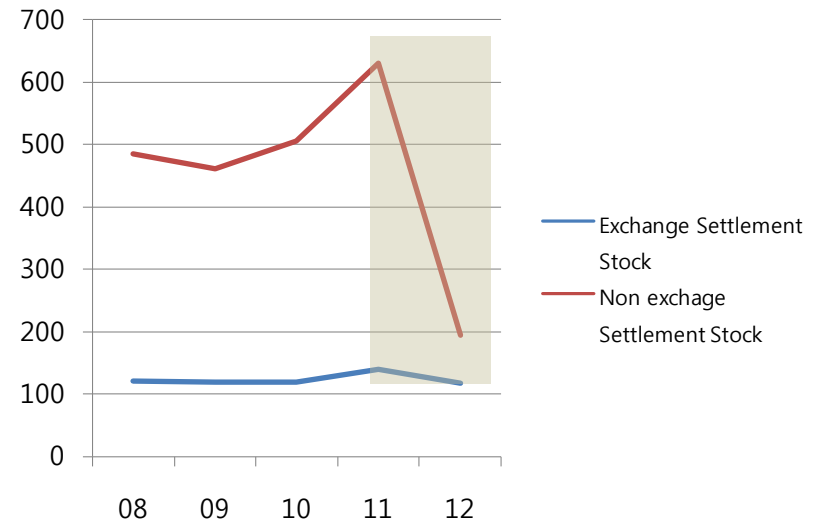
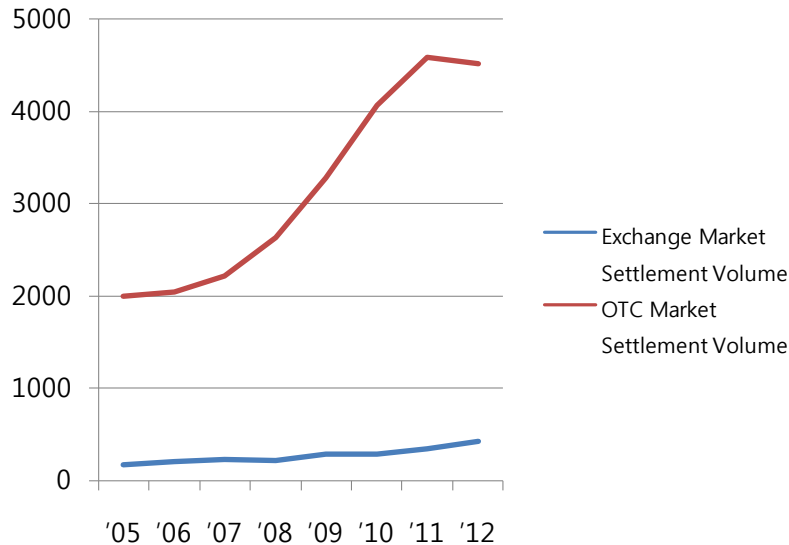
- Korea Exchange
  - ✓ KOSPI, KOSDAQ, Derivatives
  
- OTC Market
  - ✓ Free Board, Stock OTC and Bond OTC

# Securities Market Value-chain



# Securities Market Volume

## Settlement Volume of Domestic Securities Market



(Unit : KRW tril.)

Category		'05	'06	'07	'08	'09	'10	'11	'12
Exchange Market	Settlement Volume	170	207	222	219	285	287	342	421
OTC Market	Settlement Volume	1,994	2,036	2,217	2,635	3,275	4,061	4,582	4,514

# Stock Exchange Settlement

## Improved Measures

Since Jan 16, 2012

1. Changing settlement beginning time
  - 15:00 to 09:00
2. Continuous Net Settlement (CNS)
  - 09:00~16:00
  - Fail (after 16:00) and deferred payment instead of securities should be delivered
3. Change of Payment Settlement Bank
  - Commercial banks to BOK

# Stock Institutional Investors Clearing & Settlement

## **Improved Measures**

Since Jan 16, 2012

1. DVP Type changes
  - Bilateral DVP 3 to DVP2
  - Due to the lack of compatibility with the stock exchanges Settlement
  
2. DVP2
  - Securities Settlement 09:00 ~ 16:10
  - Payment Settlement 16:10 ~ 16:50
  
3. KSD is CCP(Central Counter Party)
  - Fail in payment settlement
  - Source of Liquidity
    - ✓ KSD's Credit Line or depository settlement reserve
    - ✓ Default Fund

# Summary of Improved Measures

- **DVP type (market compatibility)**
- **Settlement Beginning Time (ease-concentration )**
- **Payment method & CCP**

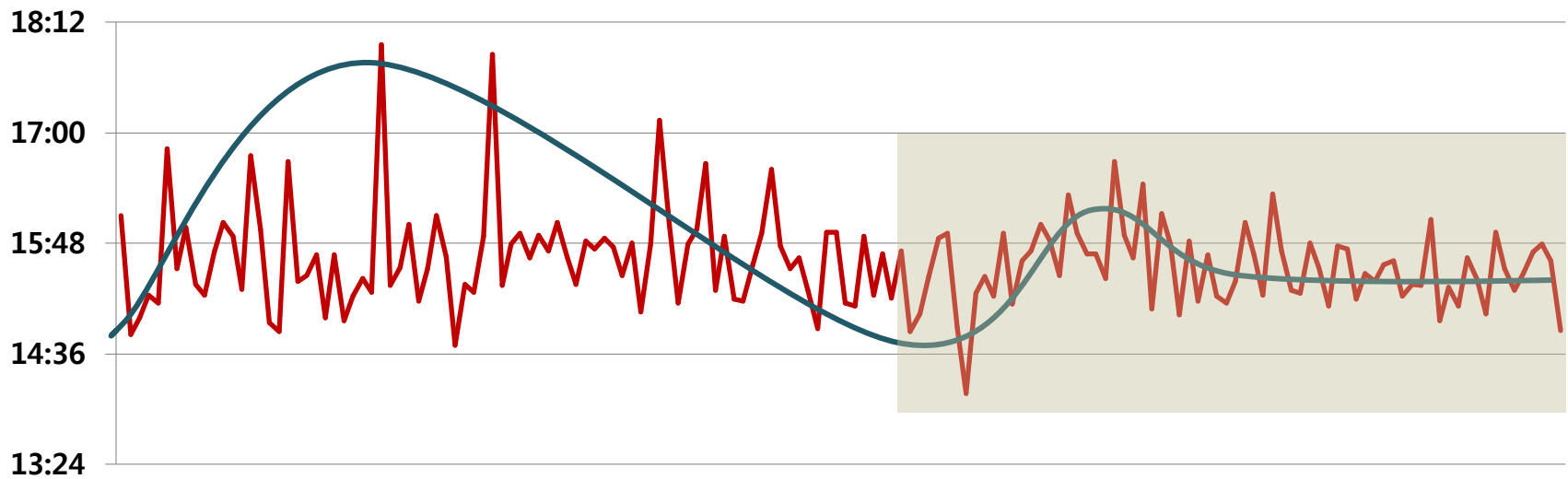
Since Jan 16, 2012

Market Type		DVP		Settlement Beginning Time		Payment		CCP	Settlement
		Before	After	Before	After	Before	After		
Stock	Exchange	DVP3 (DNS)	DVP3 (CNS)	15:00	09:00	CB	BOK	KRX	KSD
	Institution	DVP3	DVP2	11:00	09:00	BOK	BOK	KSD	KSD
Bond	Exchange	DVP3	DVP1	15:00	09:00	BOK	BOK (RP)	KRX	KSD
	Institution	DVP1	DVP1	09:00	09:00	BOK	BOK	-	KSD

# Effect after Improvement

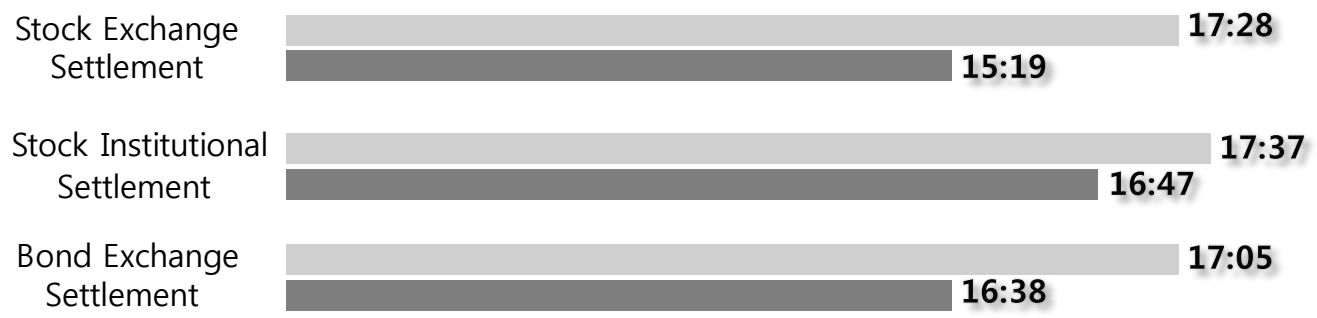
Stock Exchange Settlement

Daily Average 15:36 (16 Jan,2012 ~ 29 Aug,2013)

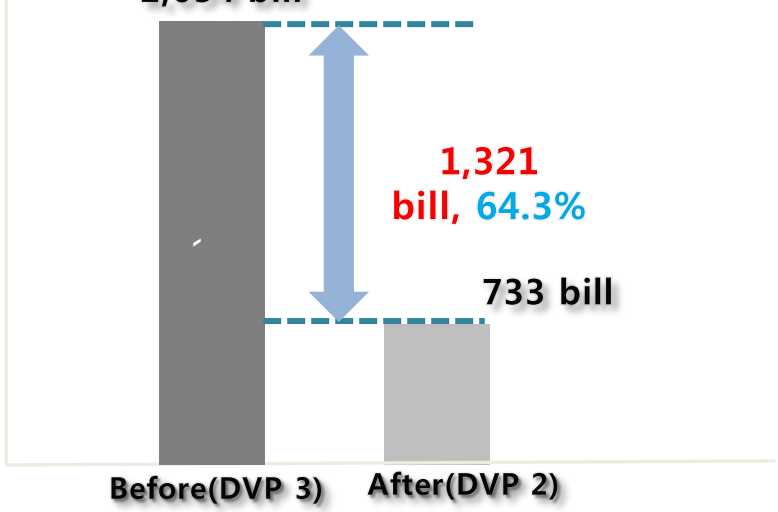


# 1. Dramatic reduction of settlement finish time

- Stock Exchange Settlement : 2hr 9mts ↓
- Stock Institutional Settlement : 50mts ↓
- Bond Exchange Settlement : 27mts ↓



# 2. Settlement payment reduction daily Ave. KRW 2,504 bill as of Dec. 2012



# 3. The lowest fail rate in the world

- Since Jan, 2012, fails occurred 24 business days 66 items 888,847 shares Fail occurred
- Mostly foreign institutional investors

# Stock Institutional Investors Settlement

## Improved Risk Management

Since Jan 16, 2012

1. Settlement member monitoring
  - Monitoring **Credit rating** and **Financial status**
2. Net Debit Cap (improved July, 2013)
  - Set net payment limit to KRW **among 4 groups**
  - Maximum Net debit cap is KRW 100 bill
3. Collateral Management
  - Qualified and eligible Asset and **Hair-cut** applied
  - Margin surplus value
4. Other Source of Liquidity
  - **Increased** depository & settlement reserves
    - ✓ KRW 100 bill to KRW 300 bill (March, 2013)
  - Credit line : KRW 200 bill
  - Default fund : KRW 50 bill

# Stock Institutional investors Settlement

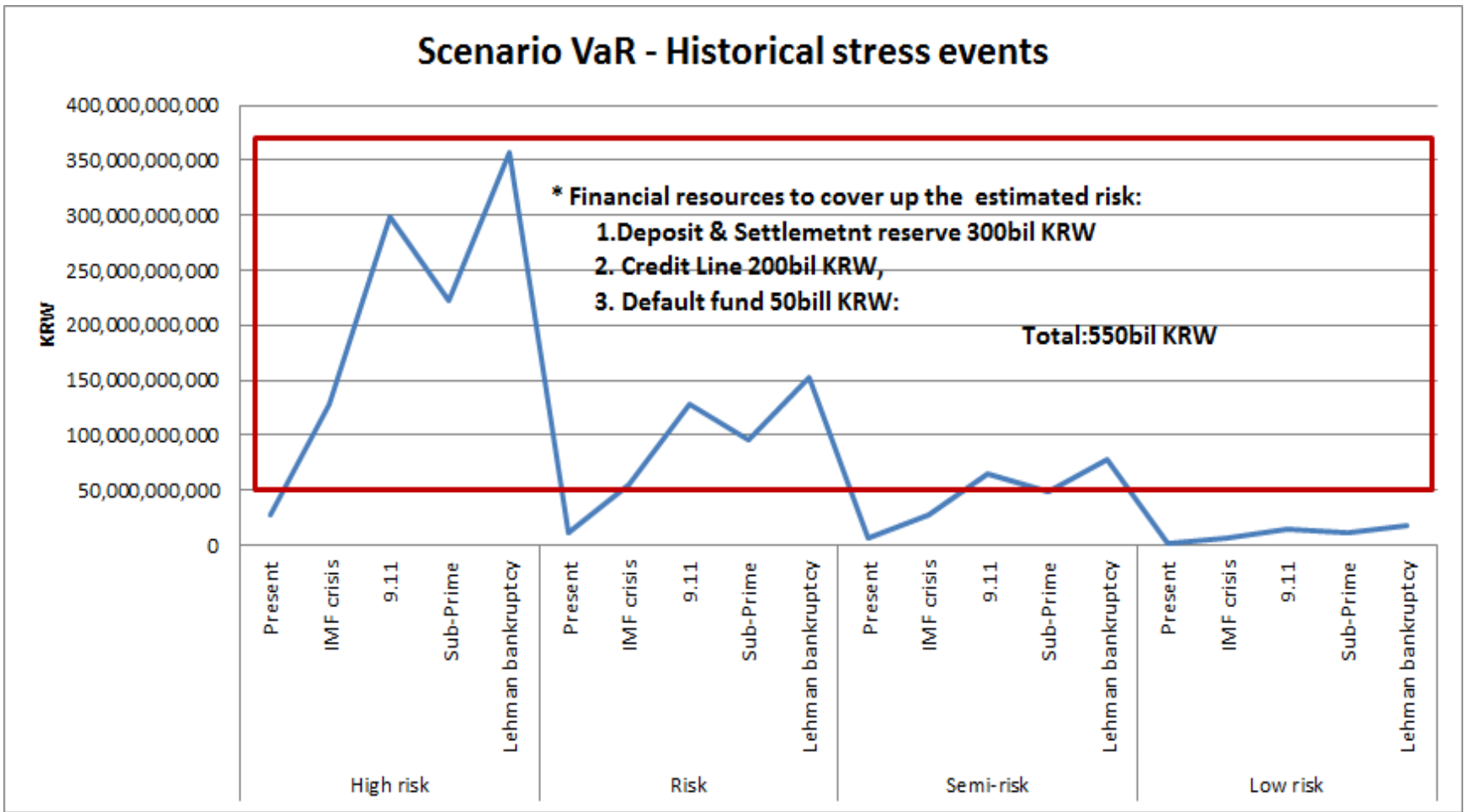
## **Newly implemented CCP Risk Measurement system**

Since 22 July, 2013

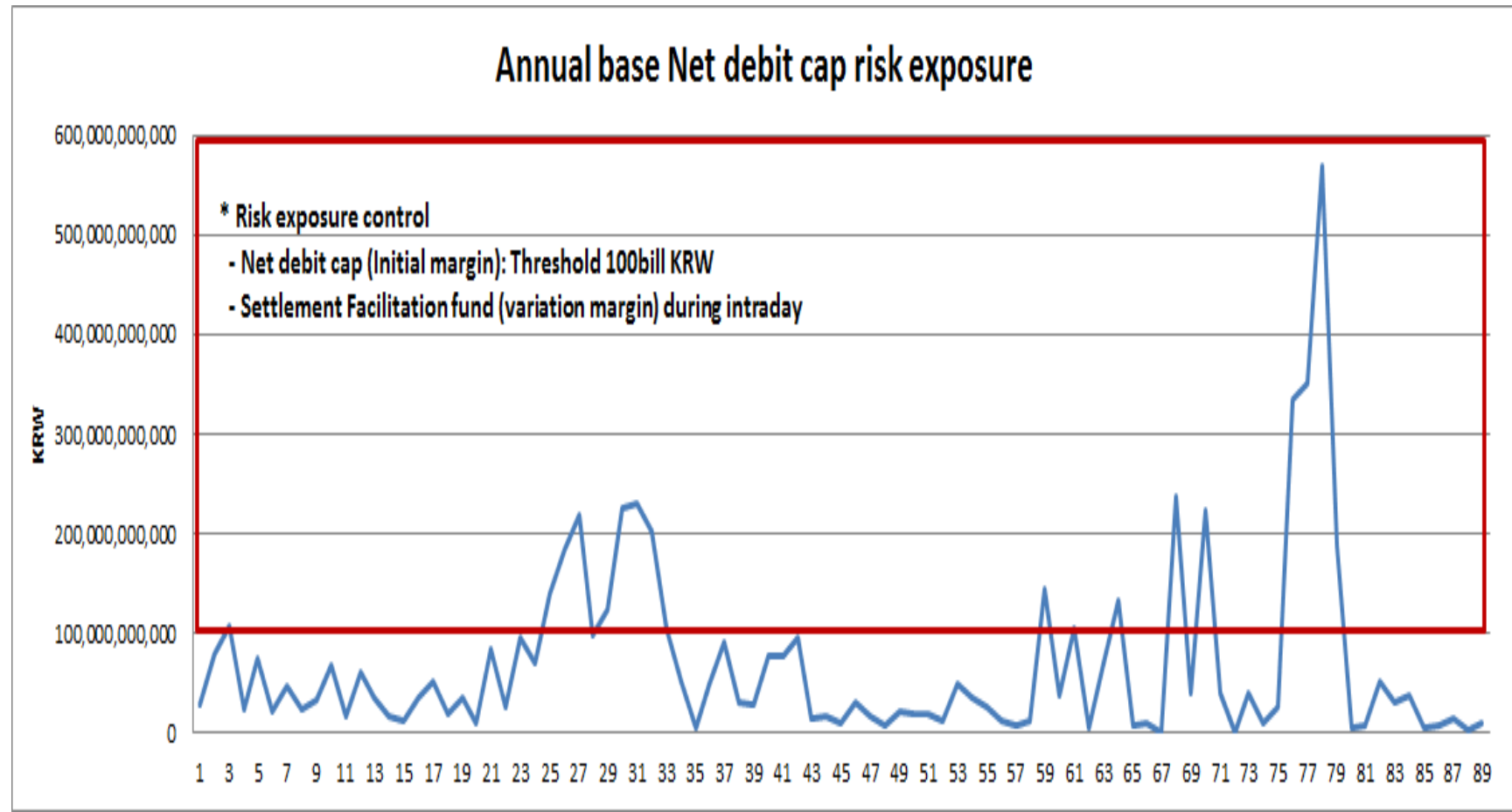
1. Credit VaR and Market VaR
  - Historical Stress Test
  - Synthesized 62 default rates
  - Scenario VaR
  
2. Measuring estimated risk exposure
  - Monitoring daily risk exposure of net settlement fund
  
3. Monitoring net debit cap

"Practical Development of CCP Risk Management System for Institutional Investors Settlement in the Korean stock market",  
Journal of Securities Operations & Custody, 2013. Vol 6

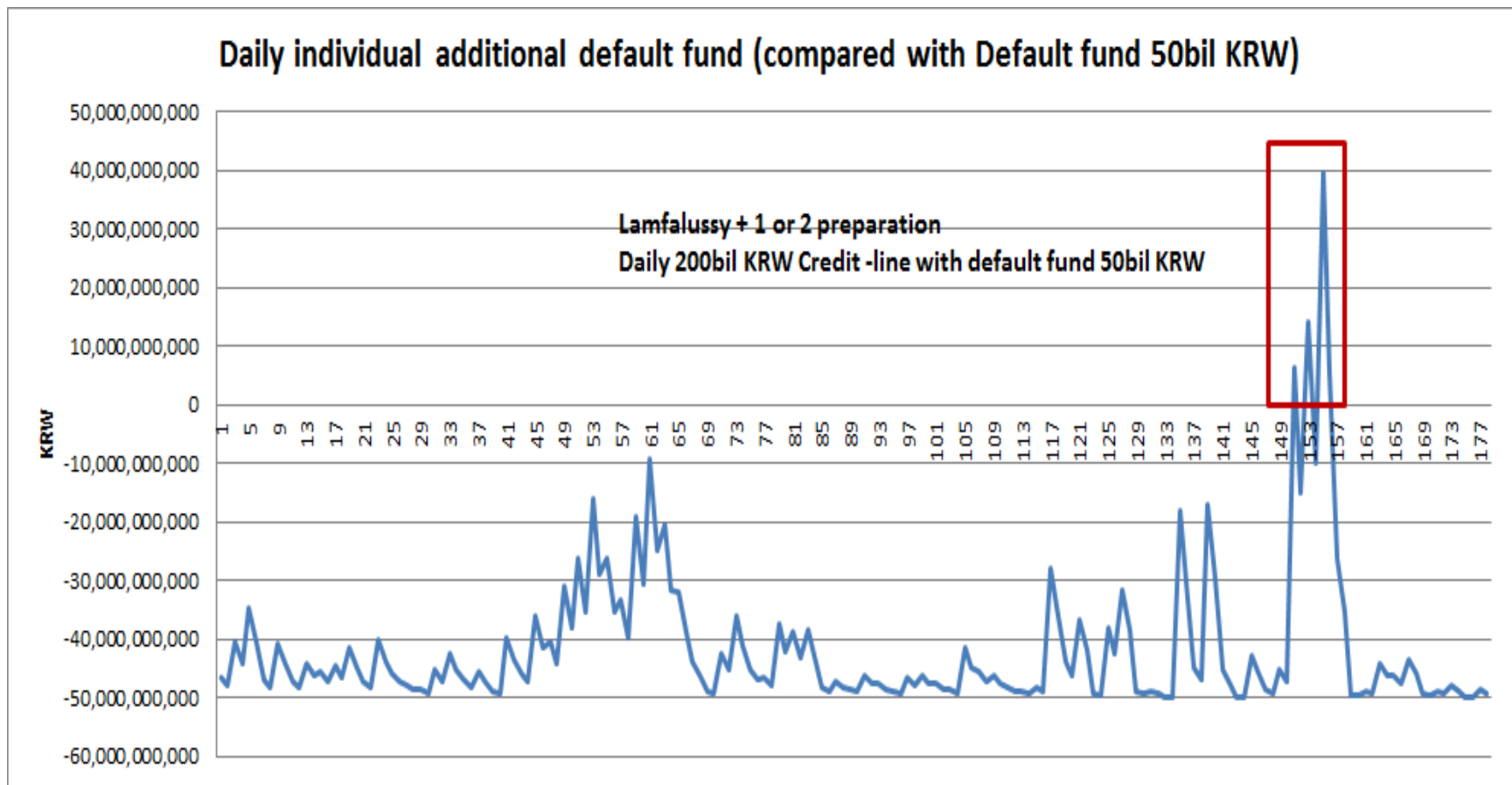
# Stress Test



# Measuring Risk Exposure



# Daily individual additional default fund



## Legal framework of settlement & CCP

### ■ **Sole Settlement Institution**

『Financial Investment Services and Capital Market Act』

#### ➤ **Article 296(Business)**

☞ Centralized deposit of securities and account transfer , etc.

#### ➤ **Article 297(Securities Market Settlement Institution)**

☞ KSD settles the business of securities and payment

#### ➤ **Article 298(Prohibition on securities depository business)**

☞ Any person other than KSD cannot settle

### ■ **CCP for institutional investors stock transaction**

『Enforcement rule of the Financial Investment Services and Capital Market Act』

#### ☞ **Article 2 of the supplementary provisions**

(Interim measure on clearing of institutional investor transaction of KSD)

## Details of Legal framework

### 『 Financial Investment Services and Capital Market Act 』

#### ➤ Article 296(Business)

1. Transfer of securities, etc. between accounts;
2. Delivery and payment of securities, etc. subsequent to transactions on the securities market, and notification to the Exchange of the result of settlement execution;
3. Delivery and payment of securities, etc. subsequent to transactions outside the securities market;

#### ➤ Article 297(Securities Market Settlement Institution)

The Securities Depository shall only conduct the delivery and payment of securities subsequent to transactions on the securities market.

#### ➤ Article 298(Prohibition on securities depository business)

Any person other than the Securities Depository shall not run any business receiving securities, etc. and executing settlements by means of transfer between accounts instead of giving and receiving such securities, etc.

# The Act for Settlement Finality

## 『Debtor Rehabilitation and Bankruptcy Act』

### ☞ Article 120(Special Rules and Governing Payment and Settlement System, etc.)

1. Where rehabilitation procedures commence for any participant in the payment and settlement system that is designated by the Governor of the Bank of Korea after consulting with regard thereto with the Financial Services Commission in order to ensure the completes of the payment and settlement system (hereafter in this paragraph refers to the payment and settlement system ), the effects of transfer instructions or payment, execution thereof, settlement, deductions, deposit funds, the furnishing of security, disposition, appropriation and settlement involving the participant shall accrue under the conditions as prescribed by the person who operates the payment and settlement system, **notwithstanding the provisions of this Act and they shall not be subject to cancellation, termination, revocation or setting aside.** Specific matters concerning the payment and settlement system shall be prescribed by the Presidential Decree.
2. Where the rehabilitation procedures commence for any participant in the liquidation and settlement system that is operated by an person in charge of the liquidation and settlement of securities and derivatives financial transactions provided for in the Capital Market and Financial Investment Business Act, and persons who are prescribed by the Presidential Decree, the effects of the assumption of obligations, adjustment, deduction, deposit money, the furnishing of security, disposition, appropriation and settlement involving the participant shall occur under the conditions as prescribed by the person who operates the liquidation and settlement system, **notwithstanding the provisions of this Act and they shall not be subject to such cancellation, termination, revocation and negation**

# CPSS-IOSCO PFMI

## Background

- The PFMI contains new and more demanding international standards for payment, clearing and settlement system(FMI), including CCP replacing the three existing sets of international standards, issued by CPSS & IOSCO
  - **Financial Market Infrastructure : Systemically important payment system**, Central Securities Depository (**CSD**), Securities Settlement System (**SSS**), Central Counterparty (**CCP**), Trade Repository (**TR**)
- The PFMI is designed to ensure the safety and soundness of Key FMIs for supporting the resilience of the global financial system

“the Core Principles for Systemically Important Payment Systems”  
(CPSIPS, '01.1)

“the Recommendations for Securities Settlement Systems”  
(RSSS, '01.11)

“the Recommendations for Central CounterParties”  
(RCCP, '04.11)



“The Principles for financial market infrastructures”  
(PFMI, '12.4)

# PFMI settlement Assessment

## New Securities Settlement System (Principle 21. Efficiency & Effectiveness)

- Launched in Jan 2012 for stock markets and in Feb 2012 for bond market
- Introduced new standards to securities settlement system
- Enhanced the **efficiency, safety and compatibility** with international standards

Description	Before	Now	Notes
On-exchange stock settlement	DNS	<b>CNS</b>	Re-try deferred settlement in the previous day
Settlement beginning time	3 pm	<b>9 am</b>	On-exchange stocks and bonds
Stock institutional settlement	DVP3	<b>DVP2</b>	Higher efficiency
Government bond settlement	DVP3	<b>DVP1</b>	Advanced processing
Settlement liquidity supply	-	<b>Intra-day RP</b>	Bond settlement

# PFMI Risk management Assessment

## Enhancement of CCP Risk Management System (Principle 4 & 7 : Credit risk & Liquidity risk)

- ❑ **Redesigned** the logic for setting the **net debit cap** depending on the level of net amount.
- ☞ Newly improved logic shows a 52% reduction of the guarantee amount for net settlement funds, also **diversifying the risk** among **four different group levels**
- ❑ **Built the new system architecture** for a **credit and market VaR measurement** for risk mitigation on Institutional Investors Settlement in the Korea stock market
- ☞ To strengthen the CCP's risk management system for dealing with various credit and market crunches, we **produced 62 default rates** by categorizing domestic and international default rates, also **built the Stress-Test architecture** by using historical events such as the IMF crisis, 9/11 and Sub-Prime crisis etc.

※ The article related to above enhancement of risk management system was published in the latest issue of 「Journal of Securities Operations & Custody」 in Sep 2013 Vol. 6.

# PFMI Assessment

## Assessment Methodology

- Self assessment by the person in charge
- Comprehensive assessment by the settlement management team
- ☞ Analyzed relevant laws & regulations, interviewed with the persons in charge
- ☞ Checked separate systems, conducted customer satisfaction survey, etc.

## Assessment Result

Assessment Category	Principles	Sum
Observed	Principles 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 21, 22, 23, 24	<b>21</b>
Broadly observed	Principles 2, 17, 20	<b>3</b>
Partly observed	-	0
Not observed	-	0
Not applicable	-	0

※ Based on the final report of KSD’s PFMI observance self assessment (Aug. 2013)

## ESMA –TC CCP under EMIR

### TC-CCP (Non EU Third country CCP) recognized by ESMA (European Securities and Markets Authority)

- The Commission must **determine whether the legal and supervisory** arrangement of the Non-EU state “ensure the CCPs authorized in that... Country comply with **legally binding arrangements** which are equivalent to the requirements laid down in Title IV EMIR
- Non-EU CCP which have any foreign investors deemed to be established on EU EMIR was adopted on 4 July and entered into force on 16 August 2012. Application deadline was 15 September 2013
- CCP provides financial instruments to **the branches of the EU** financial institutions whose headquarters are located in EU

T H E  
E N D  
T H A N K Y O U