

How to activate long-term derivatives products in the new era of Asset Management

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Index

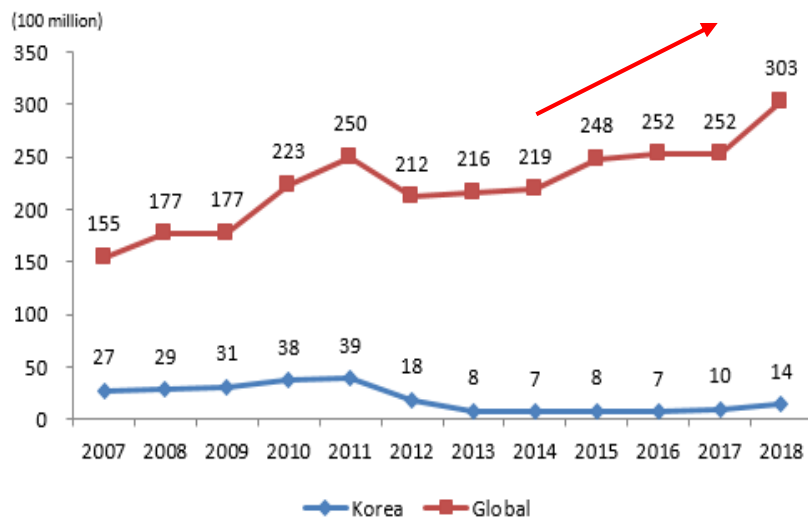
- 1. Global Trends on Derivatives Market**
- 2. Why do activate long-term derivatives products in the new era of Asset Management?**
- 3. How to activate long-term derivatives products?**

Global Trends on Derivatives Market

Why does Derivatives Market grow with low volatility?

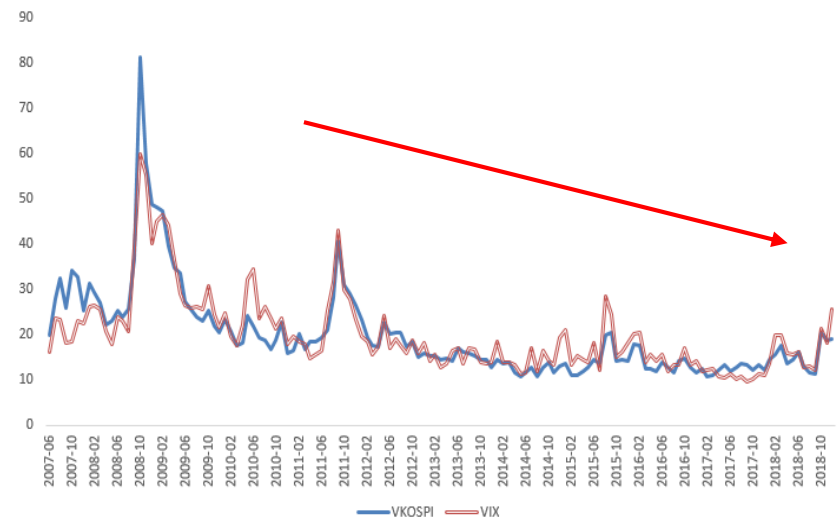
- ❖ **Global ETD volume (except Korea) has grown by 37% since 2011**
 - In 2018, global ETD volume reached 30.3 billion which was **increased by 20.2%** from 2017
 - **Korea's market share declined** from 15.6%('11) to 4.6%('18)
- ❖ **Despite the decline in volatility, ETD volume is increasing**
 - VIX and VKOSPI is in the lowest level (10~15) in history
 - It can be expected that **retail's speculative trading has decreased, institutional participation for hedging and arbitraging has increased**

Contracts of Exchange Traded Derivatives



Source: FIA

Volatility Index



Source: CBOE, KRX

ETD Overview by Asset Category & Region

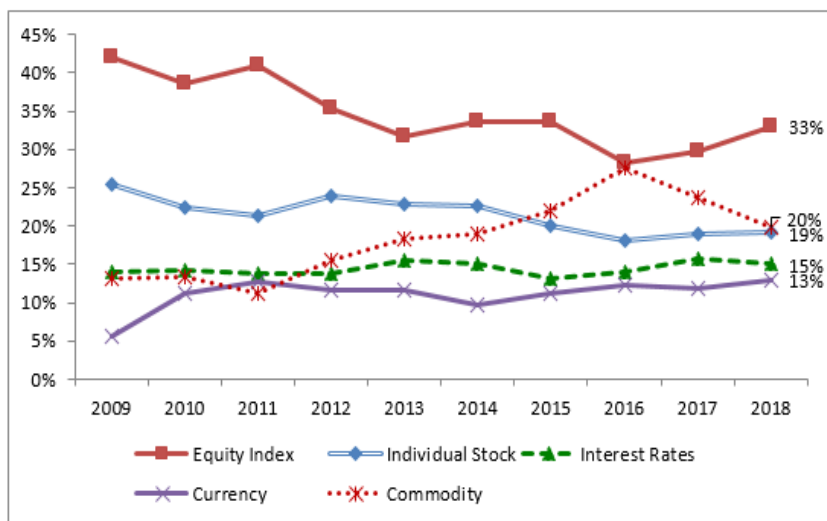
❖ Equity index, currency, interest rates' derivatives has increased

- Owing to the increase in North-America, Brazil, India, and Korea, equity index futures & options has increased by 33% to 9.9 bn
- Currency futures and options rose 31.7% to 3.9 bn, driven by exchanges in India, Brazil
- Interest rates futures and options rose 14.8% to 4.6 bn, which **hit a third consecutive year record**, driven by North-Americans and European Exchanges, related to movement from OTC
- Individual stock' derivatives, which **had a high proportion of speculative trading, has declined**

❖ Trading in Asia-Pacific and North-Latin America has increased

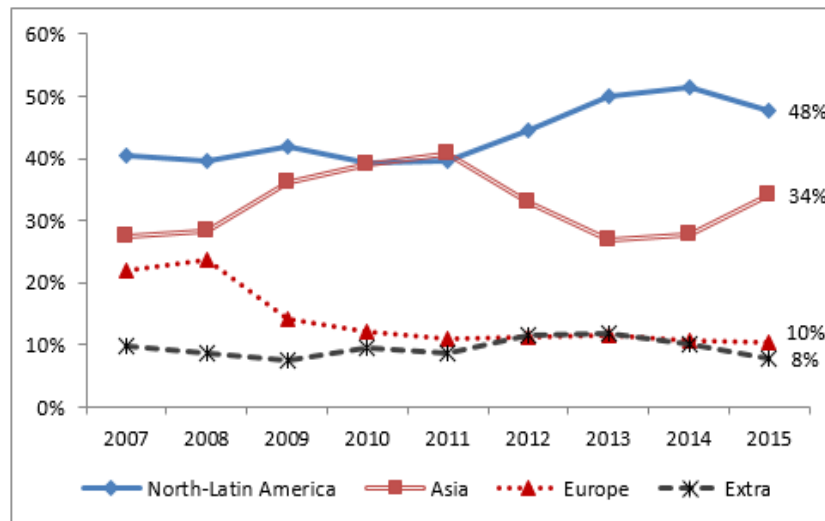
- North-Latin exchange volume rose 26.4% to 14.4 bn contract, equivalent to 48% of worldwide
- Asian-Pacific exchange volume rose 27.1% to 11.2 bn contract, equivalent to 34% of worldwide

ETD's Market Share by Underlying Asset



Source: FIA

ETD's Market Share by Region



Source: FIA

What products led to the growth of global ETD Market?

❖ ETD of ETF, long-term rates, EM currency, China's AG products grows fast

- Those products are related to the growth of Asset Management

Equity Index			Interest Rates			FX			Commodity		
RN	Products	Volume (* 10 ⁸)	RN	Products	Volume (* 10 ⁸)	RN	Products	Volume (* 10 ⁸)	RN	Products	Volume (* 10 ⁸)
1	Nifty Index options, NSE	15.8 (98%)	1	Eurodollar Futures, CME	7.6 (20%)	1	US dollar/Rupee Options, BS	5.6 (67%)	1	Steel Reba Futures, SFE	5.3 (-24%)
2	SPDR 500 ETF options, *	8.3 (32%)	2	10y T-note futures, CBT	4.5 (22%)	2	US dollar/Rupee futures, NSE	5.4 (72%)	2	Brent Oil Futures, Moscow	4.4 (-2.3%)
4	KOSPI200 options, KRX	6.6 (22%)	3	1d interbank deposit futures, B3	3.7 (5%)	4	US dollar/Rupee Options, NSE	4.8 (30%)	3	WTI futures, NYME	3.1 (-1.1%)
6	E-mini S&P500 futures, CME	4.5 (22%)	15	30y T-bond futures, CBT	0.9 (26%)	5	US dollar/Ruppe Futures, BSE	4.5 (73%)	4	Soybean Meal Futures, Dalian	2.4 (46%)
11	Powershares QQQ ETF options, *	2.5 (56%)	22	Iboxx High Yield Cbond ETF options, *	0.4 (14%)	6	Mini US dollar futures, Be	2.7 (82%)	5	Iron Ore Futures, Dalian	2.4 (-2.8%)
16	iShares Russel2000 ETF options, *	1.2 (-9%)	27	30y T-bond options, CBT	0.4 (30%)	10	US dollar futures, KRX	0.7 (23%)	6	Brent Oil Futures, ICE	2.4 (-2.7%)
17	iShares MSCI Emerging ETF options, *	1.1 (53%)	33	3yr KTB bond futures, KRX	0.2 (4%)	11	Euro FX futures, CME	6.8 (22%)	10	Apple Futures, Zhengzhou	1.0 (12490%)

Hedgers & Arbitragers grow, Speculators shrink (1)

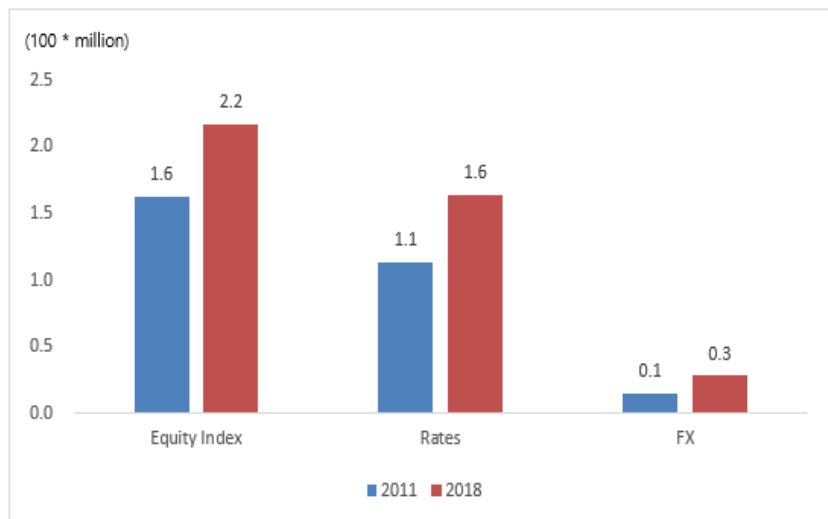
❖ Long-term investors seem to have increased

- The increase in open interest implies that **the increase in the proportion of long-term investors**
- Open interests in equity index, interest rates, FX has increased by 33%, 45%, 193% respectively

❖ Speculative trading seem to have declined

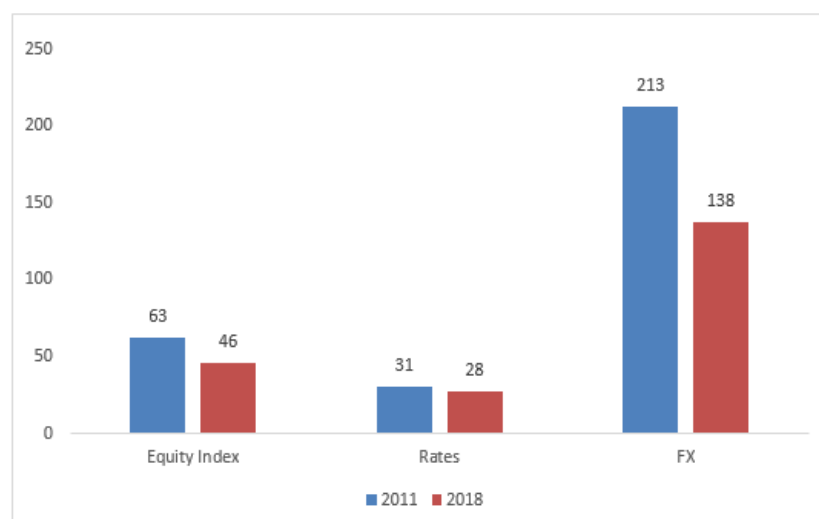
- The ratio of trading volume and open interest, which is used by measuring speculative trading has declined
- The ratio of VOI/OI in equity index, interest rates, FX has declined 27%, 9%, 35% respectively

Open Interest of Global ETD



Source: FIA

Speculative Measure (Vol / OI) of Global ETD



Source: FIA

Hedgers & Arbitragers grow, Speculators shrink (2)

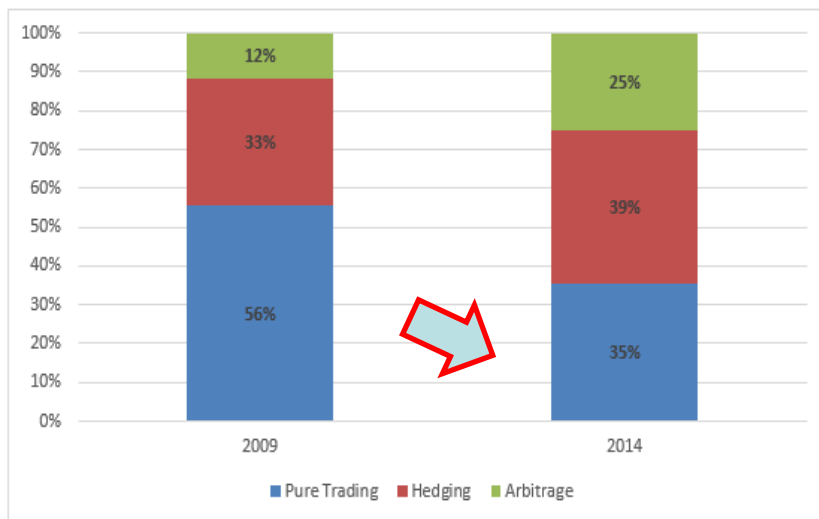
❖ In Hong Kong, It is reported that speculative trading has shrunk

- Investor survey of HSI futures reported that proportion of speculative trading has declined, the proportion of hedge and arbitrage trading has increased
- It's because that the volatility has declined and long-term institutional investors to conduct asset management portfolios (like ELS) has increased

❖ Hedgers and Arbitragers have grown in Interest Rates ETD market

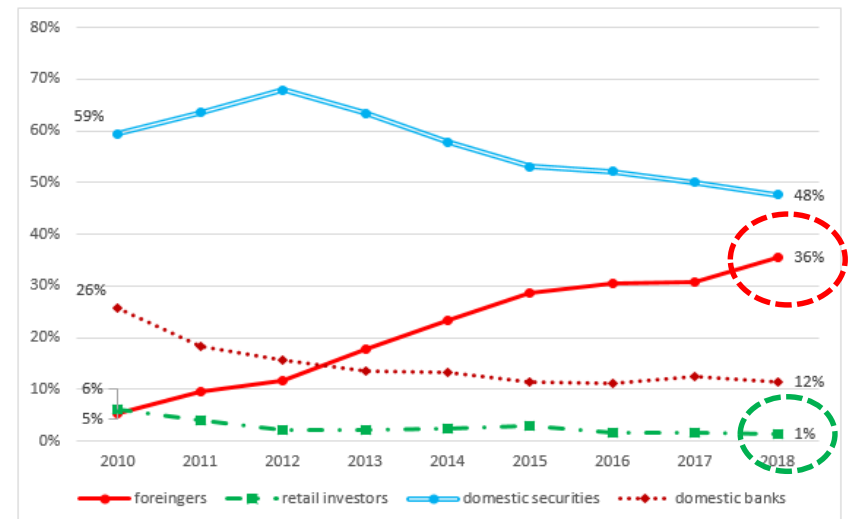
- In Korea's KTB bond futures market, the ratio of foreigners has increased, but retail investors has declined

Investor Survey for HSI futures



Source: HKEx

KTB futures(3y,10)'s Investor Type



Long-term products' demand is increasing

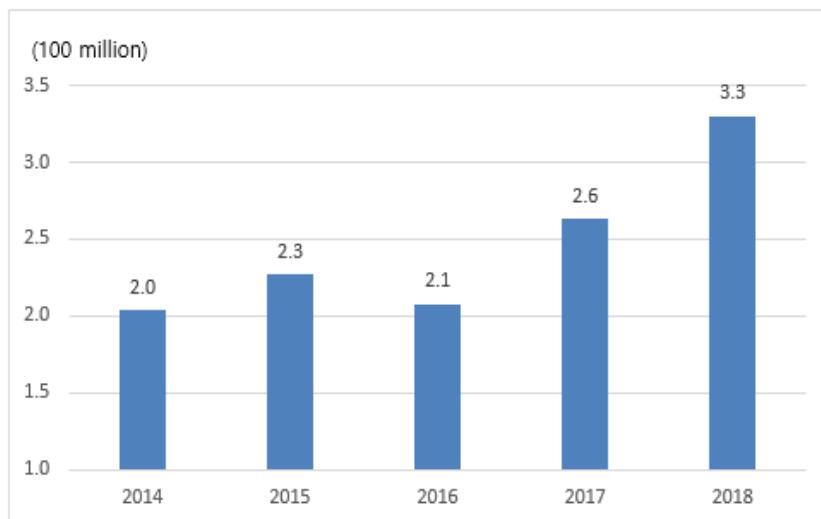
❖ OTC products move to the exchange

- In 2018, trading volume of long-term rates' ETD options was 3.3 bn, increased by 60% from 2011
- The increase in interest rates' ETD derivatives is because the **OTC products move to the exchange platform due to the strengthen regulation**

❖ Hedging demand for long-term bonds is increasing

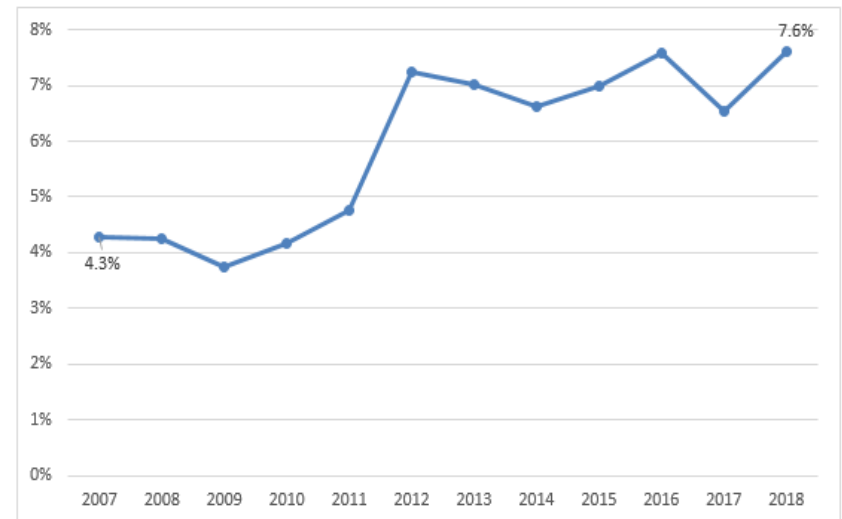
- Turnover ratio of long-term rates options has increased from 4.3% ('07) to 7.6%('18)
- As the institutional investor's holding maturity increases, **hedging demand for long-term bonds also increases**

Long-Term Rates' ETD Options



Source: WFE

Turnover Ratio of Long-Term Rates' Options



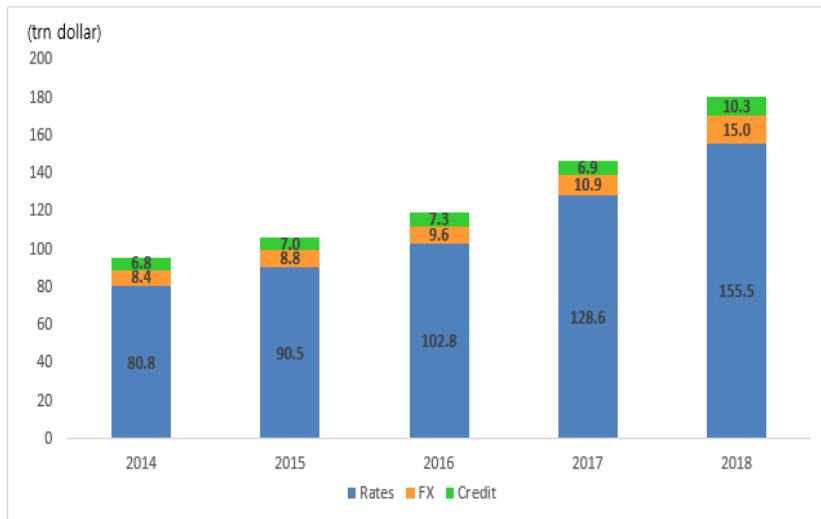
Source: BIS

Long-term OTC Derivatives moves to the Exchange

- ❖ **SEF(Swap Execution Facility)'s trading volume has increased by regulatory effect**
 - After GFS, G20 agreed to adopt central clearing, trading reporting, electronic platform trading(SEF), margin requirement in some OTC products
 - In 2018, SEF's trading volume rose to \$181 trn, increased by 88% from 2014

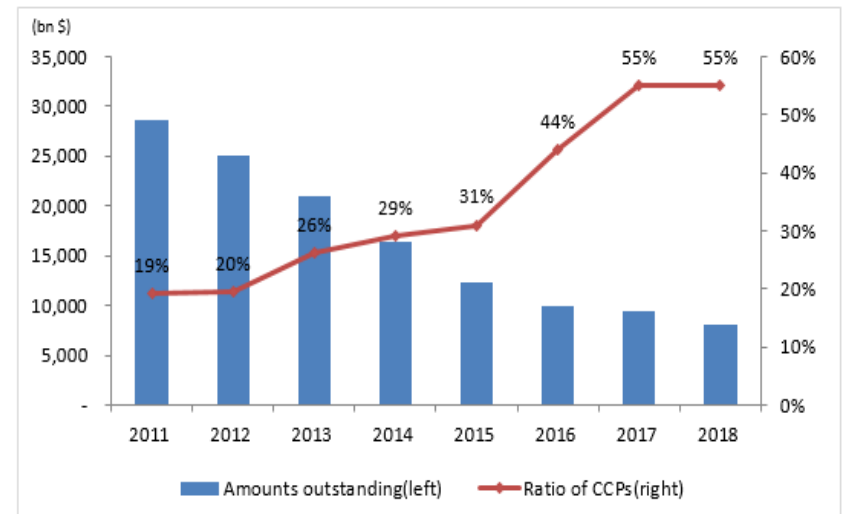
- ❖ **The increase of CCP mandatory clearing will give an opportunity to the Exchange**
 - For example, CCP clearing ratio for CDS was 55%, which increased by 39%p from 2011
 - In Korea, the introduction of **ETP(Electronic Trading Platform)** is expected to increase the trading for long-term derivatives such as interest rates, currency, and CDS

SEF's Trading Volume



Source: FIA

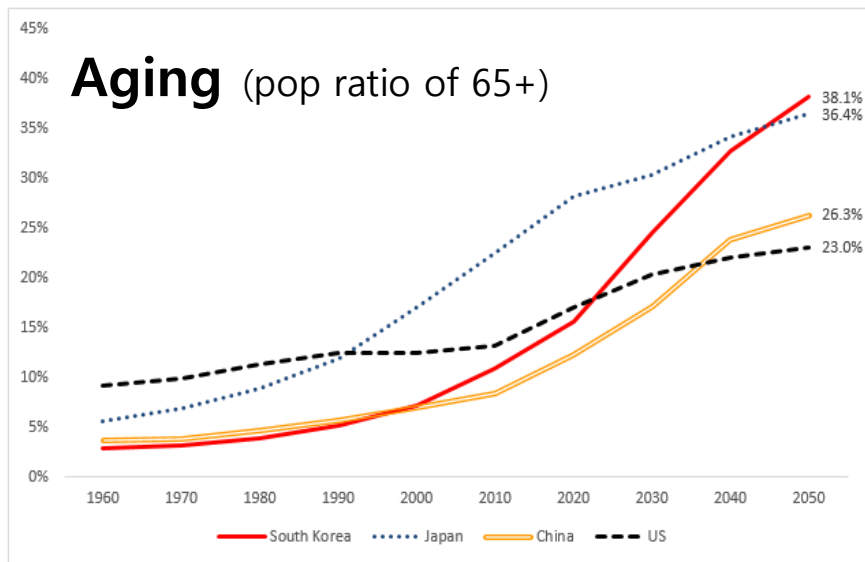
CCP clearing ratio for CDS



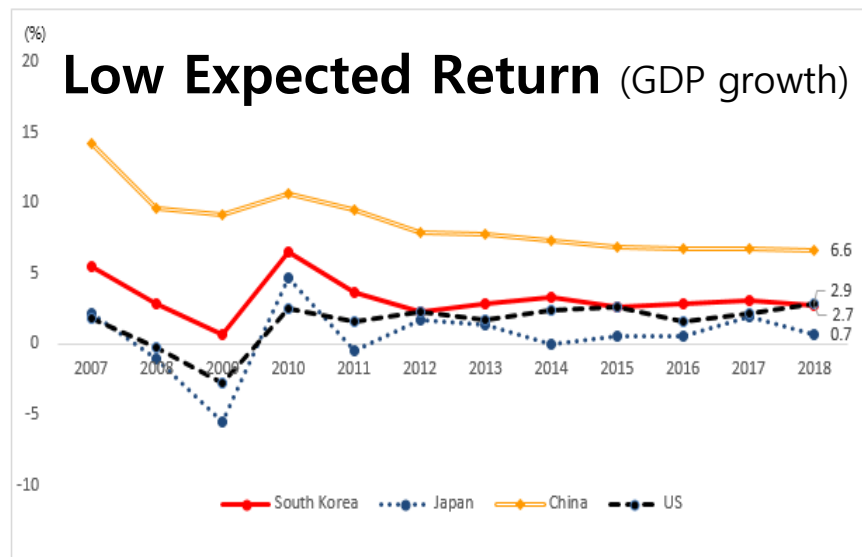
Source: bis

**Why do activate long-term derivatives products
in the new era of Asset Management?**

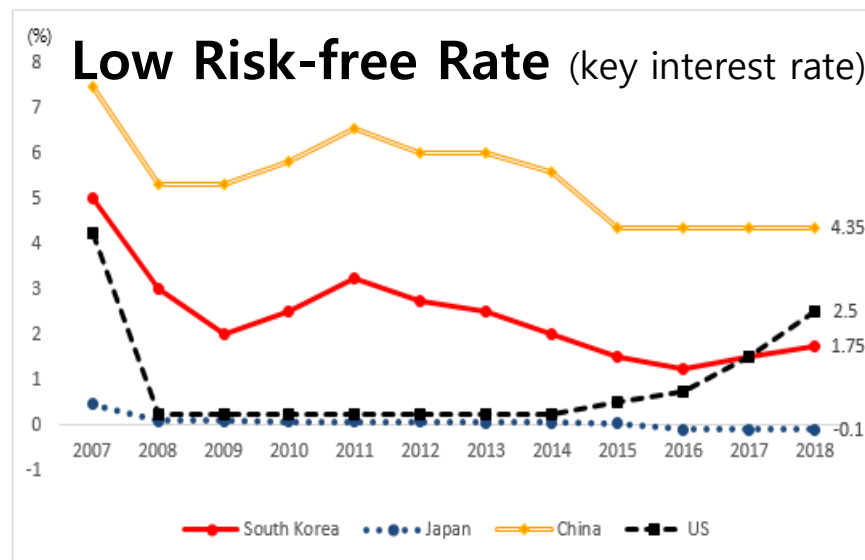
Why Asset Management is becoming important?



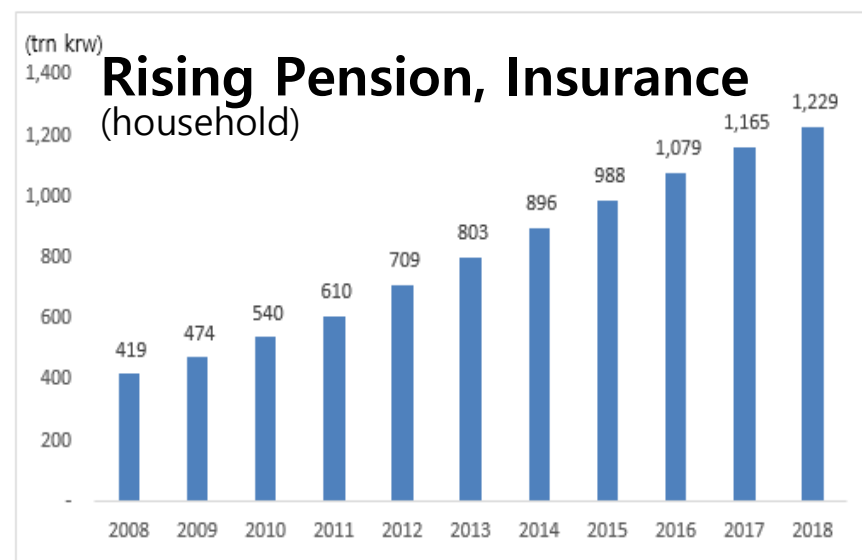
Source: worldbank, each nation's census bureau



Source: Bloomberg



Source: Bloomberg



Source: Bank of Korea

Derivatives' role – Hedging Demand for Bond Portfolios

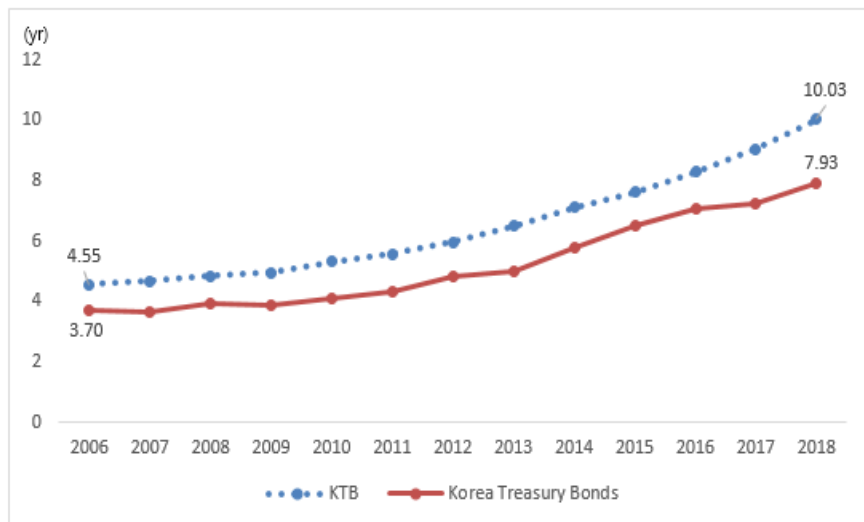
❖ The maturity of Government Bonds will steadily increase

- Along the line of expansionary fiscal policy, **Korea government will increase the issuance of long-term government bonds** such as 20y, 30y, 50y KTB bond
- However, **we don't have enough hedging tools** for long-term government bonds over 10-year maturity

❖ The maturity of Financial Institutions' holding portfolios is getting longer

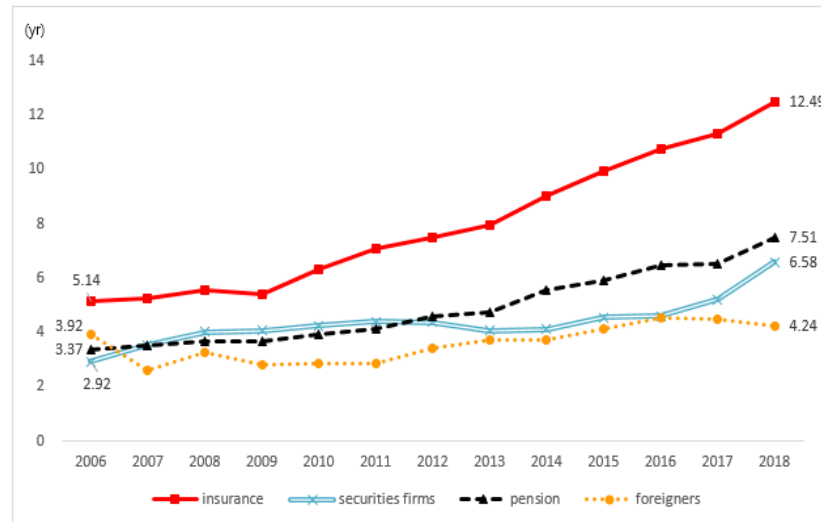
- Insurance companies' holding maturity: 5.14('06) → 12.49('18)
- Pensions' holding maturity: 3.37('06) → 7.51('18)
- Securities firms' holding maturity: 2.92('06) → 6.58('18)

Korea GOV Bond's Duration



Source: Koscom(Check)

Bond Investor's Duration in Korea Bond Market



Source: Koscom(Check)

Making Efficiency for Bond Markets

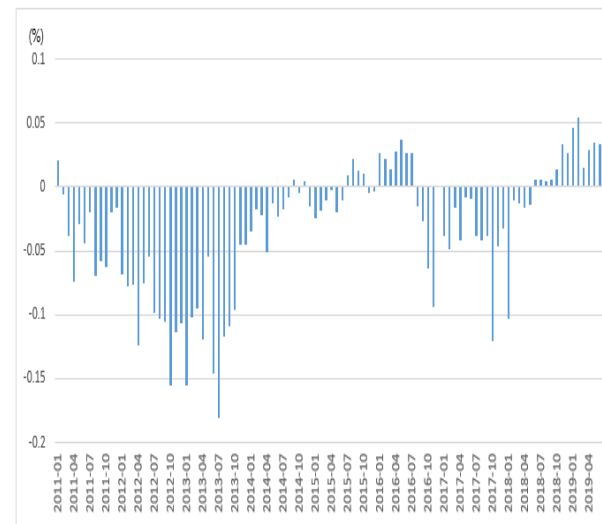
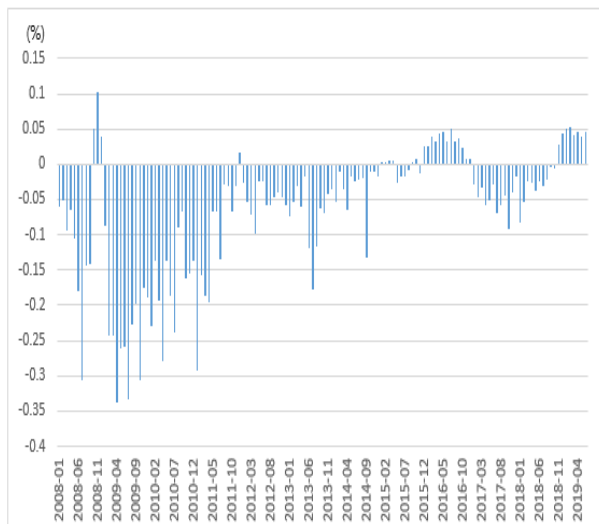
❖ We can observe some inefficiencies in Korean Bond markets

- 3y, 10y KTB bond futures had been undervalued relative to theoretical price, driven by an imbalance between demand and supply
- The introduction of **long-term bond options** will help to **reduce market inefficiency**

❖ The influence of foreign investors is increasing

- Foreigners' net-buy in futures can predict the net-buy in bond spot markets, which indirectly FX rate as well as the level of interest rates
- **Attracting domestic intuitional investors** and the **introduction of short-term bond futures as well as ultra long-term bond futures** (30y bond futures) to reduce related market inefficiency

Theoretical Basis of 3y KTB Futures Theoretical Basis of 10y KTB Futures



Foreign Net-Buy's Impact

	Past Foreign Fut NBuy(FF)	Past Foreign Spot NBuy(FS)
FF	0.2413*** (12.6369)	2.0099 (0.8774)
FS	0.0004* (1.7580)	0.0321* (1.7580)
10Y	0.0006 (0.4571)	-1.8052 (-1.1074)
FX	-0.0367 (-1.5828)	-7.2661*** (-2.6070)
Stock	0.0178 (0.4770)	3.5805 (0.7976)

Hedging Demand for Equity Structured Products

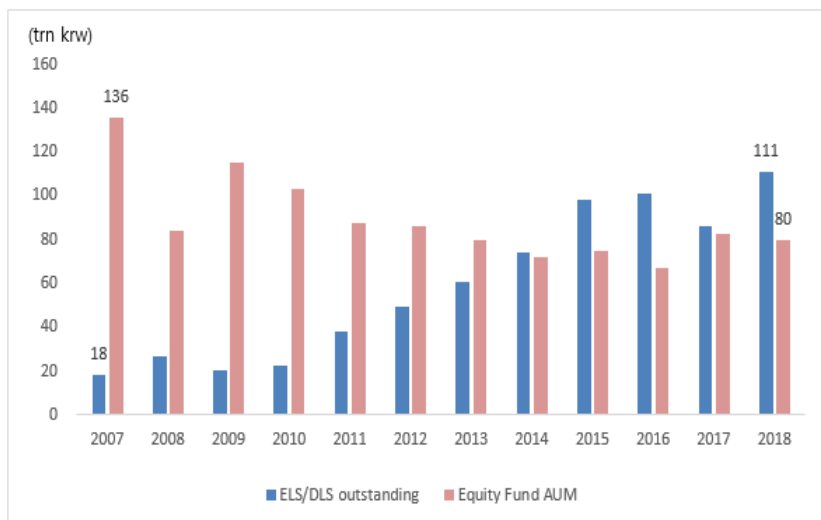
❖ The demand for medium risk-return profiles' is increasing

- ELS/DLS, which represent medium risk-return profiles, are fast growing
- It's because that ELS/DLS realized return is about 2 times than bank-deposit rate, and retail investors are easy to buy ELS/DLS at a bank

❖ However, hedging tools for ELS are not enough

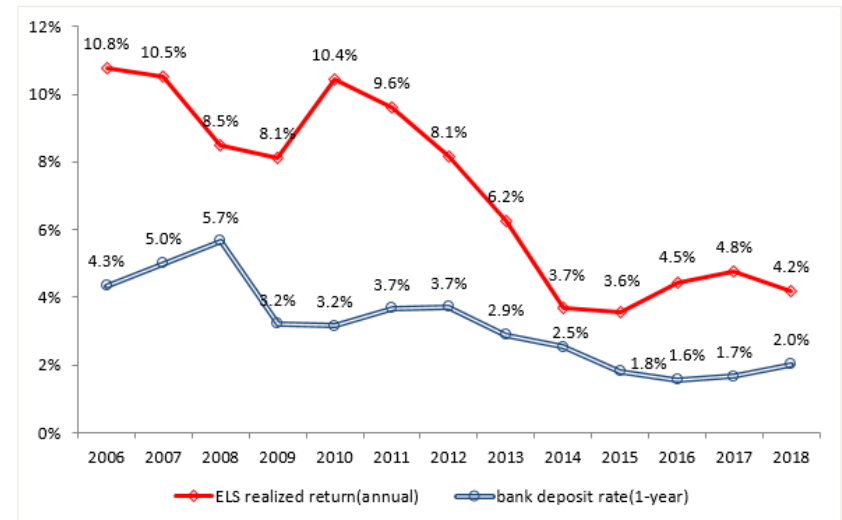
- The maturity of ELS is usually 3-years, but **equity index options over 90-day maturity is not active** in the exchange
- Hence, Korean securities firms to conduct dynamic hedging of ELS uses OTC equity index option, **which is less liquid and higher cost**

ELS/DLS Outstanding & Equity Fund AUM



Source: KOFIA

ELS realized return



Source: KSD, Bank of Korea

Reducing Herding Behavior of ELS/DLS Markets

- ❖ **We can observe heading behavior of ELS among investment vehicles**
 - The past month's increase of ELS market share tend to increase present market share of ELS

- ❖ **We can observe heading behavior of underlying equity index such as HSCEI**
 - The increase of an underlying equity index influences on the decline of its volatility, but when the underlying equity index sharply drops, the volatility can surge
 - The introduction of **long-term ETD equity option or VKOSPI futures** can **reduce the related tail risk of volatility**

Herding Behavior of Securities Firms' Selling Products

	ELS · DLS MS	Fund MS	Trust MS	Wrap MS
Past MS	0.1222*** (3.8103)	-0.0077 (-0.2383)	-0.2375*** (-7.5388)	0.1084*** (3.4709)
KOSPI return	-0.0146 (-0.7268)	-0.0751 (-1.0887)	0.0737 (0.8621)	0.0455 (0.9440)
KOSPI volatility	-0.0633*** (-2.8494)	-0.0831 (-1.0943)	0.0786 (0.8346)	0.0359 (0.6757)
Coefficient	0.0125 (1.4165)	0.0928*** (3.0385)	-0.0385 (-1.0209)	0.0025 (0.1174)
R ²	0.0424	0.0239	0.0608	0.0249

Herding Behavior of Underlying Equity-Index

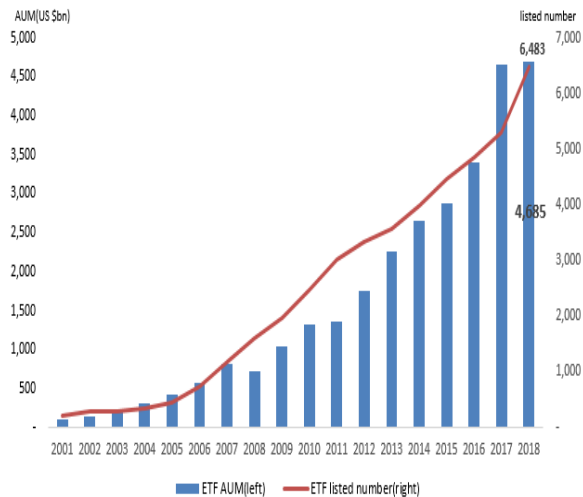
Year	KOSPI200	HSCEI	EURO STOXX 50	S&P 500	Total ELS Issuance
2013	36.8 (80.5%)	19.4 (42.5%)	3.3 (7.2%)	12.7 (27.8%)	45.7 (100.0%)
2014	47.5 (66.2%)	40.9 (57.0%)	32.2 (44.8%)	11.4 (15.9%)	71.8 (100.0%)
2015	30.0 (39.0%)	46.3 (60.2%)	48.8 (63.5%)	22.9 (29.8%)	76.9 (100.0%)
2016	27.5 (55.7%)	5.4 (10.9%)	27.5 (55.7%)	17.2 (34.8%)	49.4 (100.0%)
2017	45.1 (55.6%)	16.8 (20.7%)	55.3 (68.2%)	27.5 (33.9%)	81.1 (100.0%)
2018	35.2 (40.6%)	49.8 (57.5%)	57.9 (66.9%)	40.3 (46.5%)	86.6 (100.0%)

Source: KSD (trn krw)

Hedging & Arbitrage Demand for ETF Portfolios

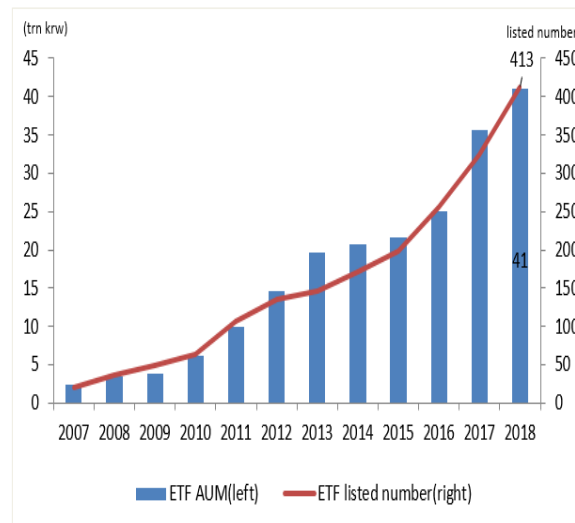
- ❖ **ETF industry is fast growing owing to its advantages of cost and efficient allocation**
 - Global ETF market has grown rapidly with CAGR of 25% since 2001
 - At the end of 2018, AUM of global ETF market is \$4.7 trillion and number of listed ETFs is 6,483
- ❖ **With strong demands of hedging and arbitrages, ETF derivatives are fast growing**
 - Global institutional investors hold ETFs and conduct ETF options to hedge the risks
 - In 2018, ETF futures & options' trading volume reached 1.9 billion contracts, which is increased by 30% from 2013(1.5 billion contracts)

Global ETF AUM



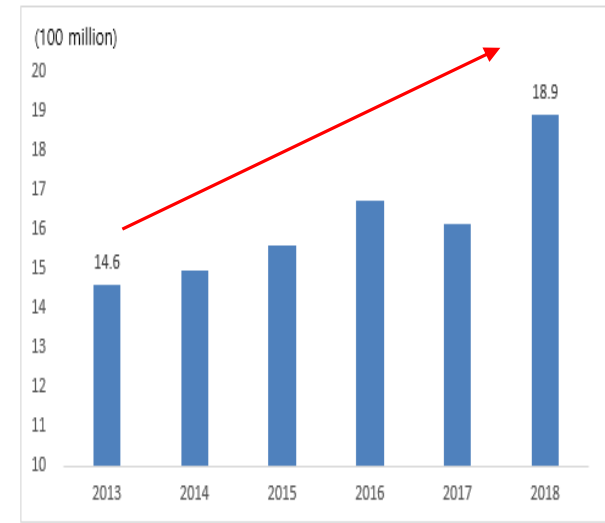
Source: ETFGI

Korean ETF AUM



Source: KOSCOM(CHECK)

Global ETF Derivatives' Contracts



Source: WFE

Making Efficiency for ETF markets

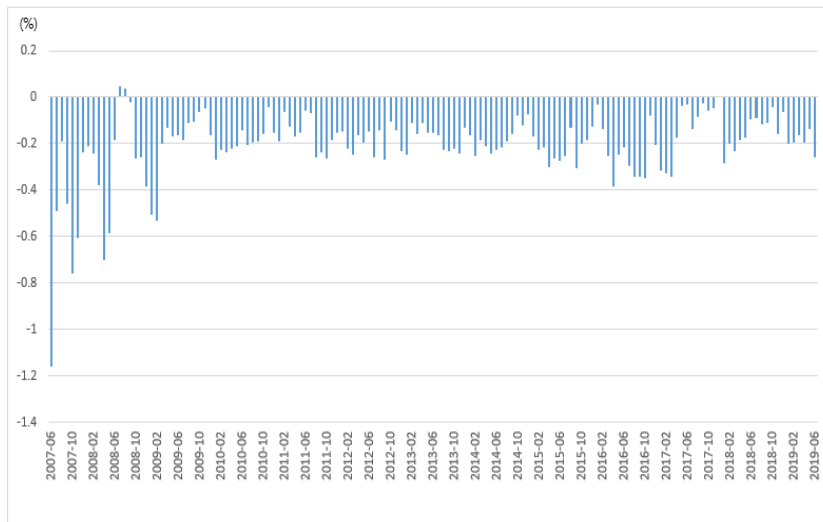
❖ We can observe some inefficiencies in Korean ETF markets

- With **asymmetry of tax benefits** between KOSPI200 ETF and KOSPI200 stocks, many KOSPI200 ETFs are undervalued by 0.21% relative to NAVs
- **Retail investor's herding behaviors** lead to an underpricing of 2X inverse-ETFs by 0.25% relative to NAVs

❖ ETF options are expected to reduce inefficiencies in ETF markets

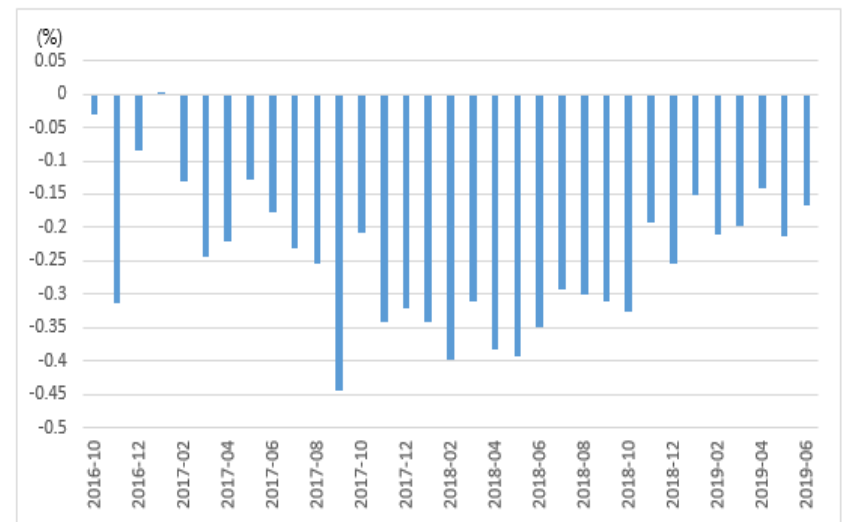
- **KRX300 ETF options, KOSDAQ50 ETF options** are expected to boost-up ETF markets as well as underlying stock markets
- **MSCI-Korea ETF options** will help institutional investors manage risks

Price Difference between KOSPI200 ETF & NAV



Source: KOSCOM(CHECK)

Price Difference between Inverse-ETF & NAV



Source: KOSCOM(CHECK)

Hedging demand for Insurance Companies

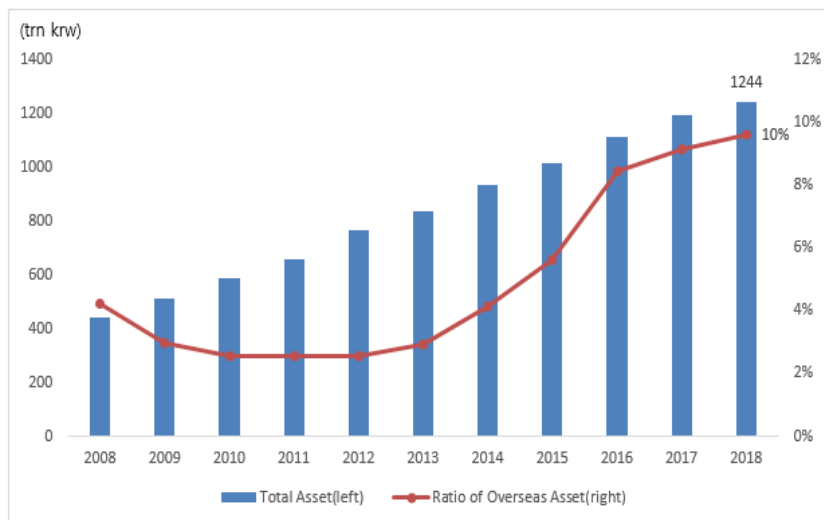
❖ Strong hedging demand for Insurance Companies

- Insurance companies need to hold long-term assets to meet the debt's maturity, which is getting longer due to aging and low interest rates
- To prepare the new standards of IFRS9, insurance companies have to reduce risky assets and increase safety assets

❖ Hedging demand for overseas assets

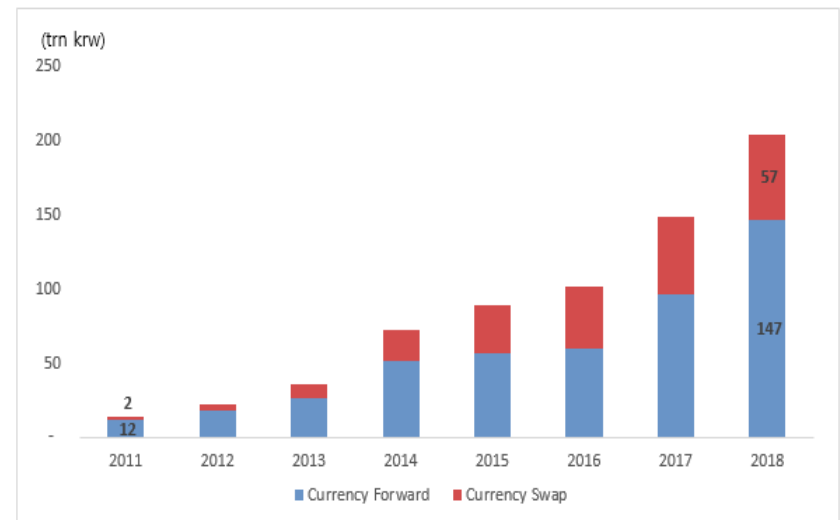
- Insurance companies have increased overseas investments for more profitability. To manage FX risks, insurance companies have increased OTC trading, **which is less liquid and higher cost**
- **The introduction of long-term currency futures and options** helps insurance companies to manage the risk

Insurance Company's Asset (Overseas)



Source: Bank of Korea

Insurance Company's OTC turnover (currency)



Source: FSS

**How to activate long-term derivatives
products?**

Boost Up Korea Derivatives Market

Supports
Asset Management Industry

Listing more products

- Long-term bond derivatives
- Long-term equity-index options
- Long-term currency options
- ETF futures & options

Inducing Institutional Investors

- Incentive for Liquidity Providers
- Inducing Insurance Companies
- Inducing Pensions

Innovation of Infrastructures

- Expanding CCP clearing products
- Introducing ETP(Electronic Trading Platform)

Listing more long-term products

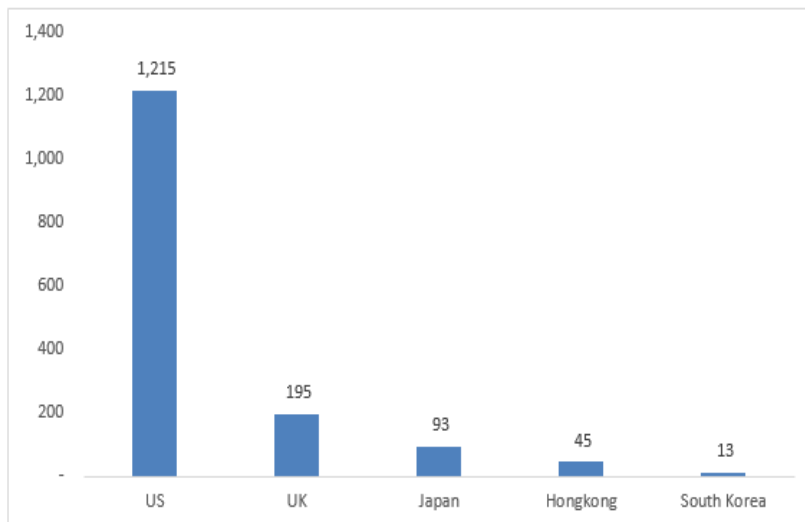
❖ Listing more long-term products

- (Rates) 30yr KTB Bond futures, 3yr & 10yr Bond options
- (FX) 0.5yr, 1yr US dollar option at each month
- (Equity) 1yr, 1.5yr, 2y, 3y KOSPI200 options at each month
- (ETF) ETF futures and options

❖ Streamline listing procedures

- De-regulation of listing rules
- Composition of listing committee
 - Obtain opinions from market participants, analyze on global ETD products

Number of Exchange Traded Derivatives



Source: FIA

Characteristics of Listed ETD products in KRX

	Equity	Rates	FX	Commodity	Customized
Short-Term	KOSPI 200	1-day 3y KTB	US dollar	X	X
Long-Term	X	10y KTB 30y KTB	X	X	ETF options

Inducing Institutional Investors

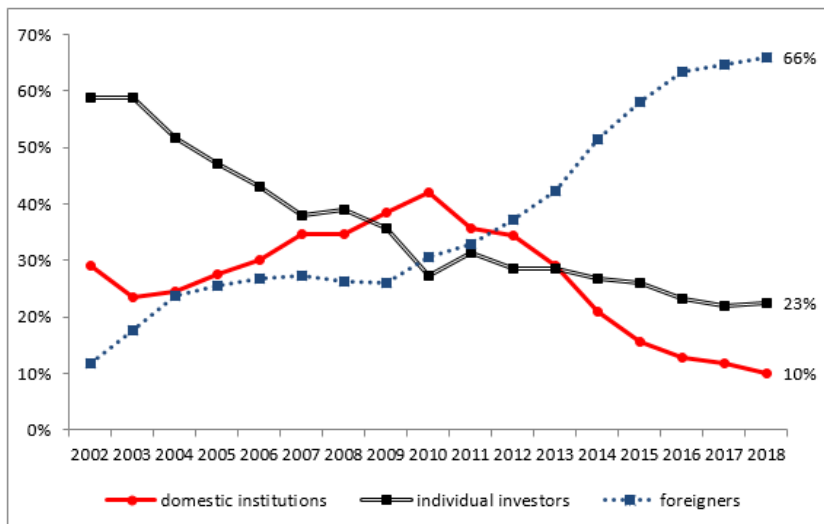
❖ Giving more incentives to liquidity providers

- Giving more incentives for LPs to provide more liquidity in longer-maturity products
- Reducing transaction fees of all stocks, which are related to liquidity providing

❖ Relaxing derivatives' trading limits for insurance companies and pensions

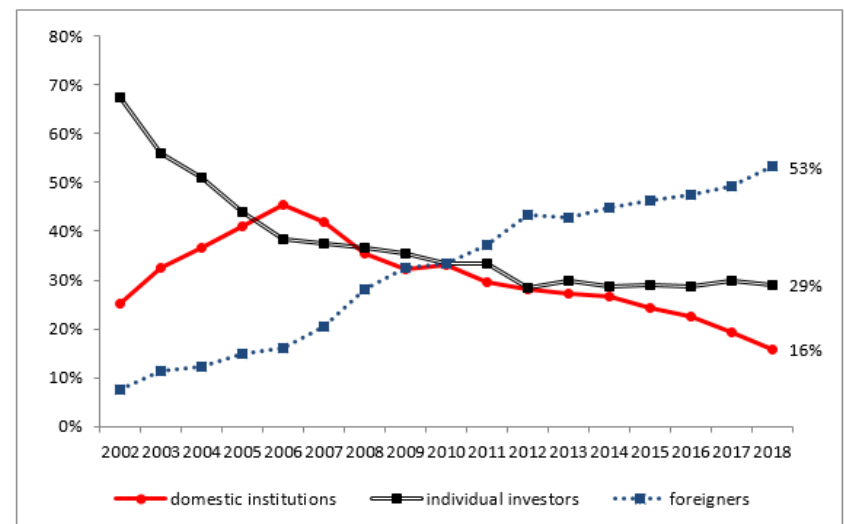
- Insurance companies' ETD(OTC) trading amount can't exceed 6%(3%) of total assets
 - Trading for hedging purpose is allowed, but hedging requirements are strict
- Pensions can't trade derivatives unless it is a hedging purpose

Investor ratios of KOSPI200 futures



Source: KOSCOM(CHECK)

Investor ratios of KOSPI200 options



Source: KOSCOM(CHECK)

Innovation of Infrastructures

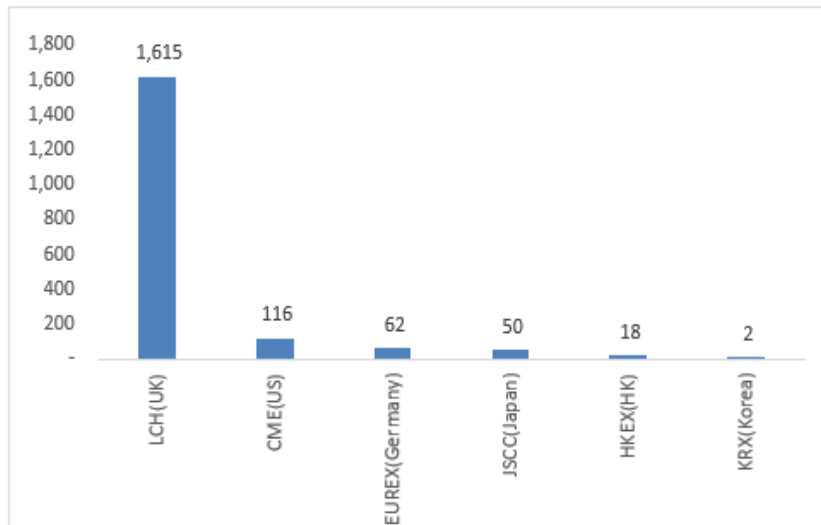
❖ Expanding CCP clearing products

- KRX provides only KRW-IRS and US-IRS clearing services, but LCH, CME, EUREX provide 1615, 116, 62 kinds of products for CCP clearing
- We need to expand more OTC products for CCP clearing service
 - Ex) NDF, CRS, CDS

❖ Introducing ETP(Electronic Trading Platform) for OTC products

- Most countries except Korea adopt electronic trading platform for OTC products
- Before mandatory use of electronic trading platform, we need to prepare electronic trading platform to activate long-term derivatives

Number of CCP clearing products



Source: FSC

ETP determination by country

US	Credit: CDX, iTraxx Indices Rates: Basis Swap, IRS, FRAs, OIS in EUR, BGP, JPY, USD
Europe	Credit: CDS derivatives Rates: IRS, CRS in EUR, USD, GBP
Japan	IRS in JPY
China	Bond Forward, FX Forward, FX Swap
India	Overnight Index Swap
Mexico	IRS in MXN

Source: FSB

Thank you very much