

Challenges for liquidity structure of the KOSPI200 options market

**APAD 2019 Special Symposium
Securities·Derivatives R&D Center
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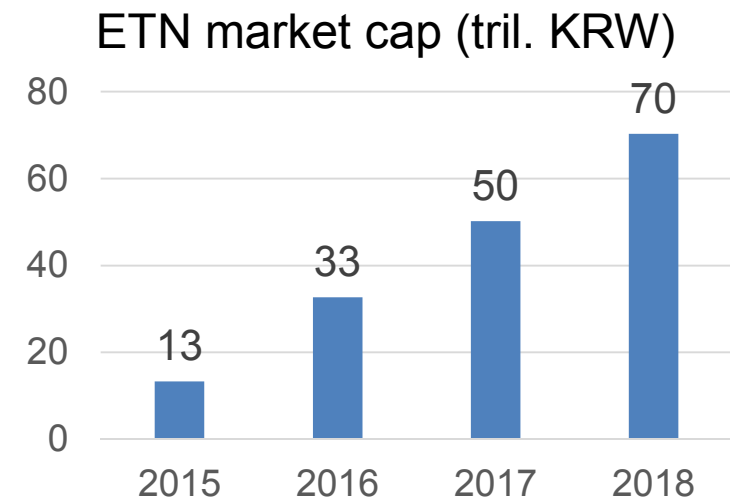
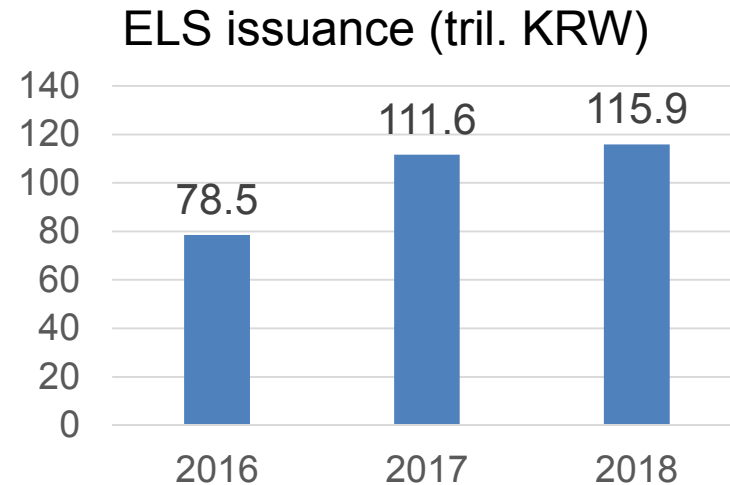
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- Growing importance of long-term options
- Liquidity of the KOSPI200 options market
- Liquidity provision and its limitation
- Challenges

1. Growing importance of long-term options

Recent trends of asset management

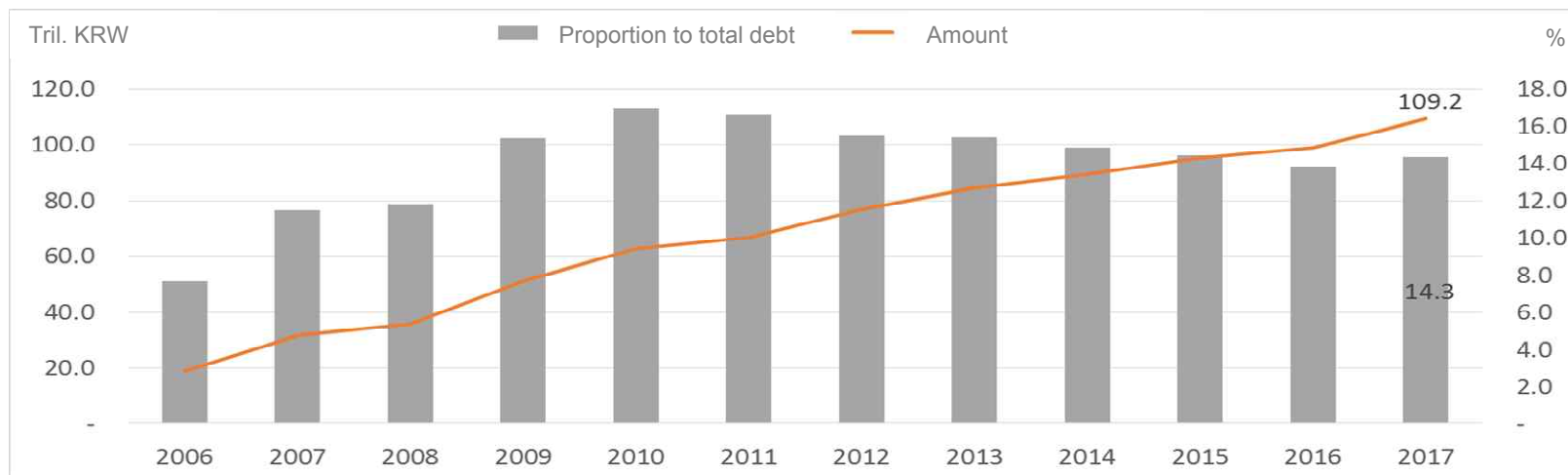
- ELS (Equity linked securities)
 - Increasing market size
 - Hedge demand of ELS issuers
- ETN (Exchange traded notes)
 - Introduction of short strangle ETNs
 - Various strategies with derivatives
 - Needs for hedge instruments



1. Growing importance of long-term options

Recent trends of asset management

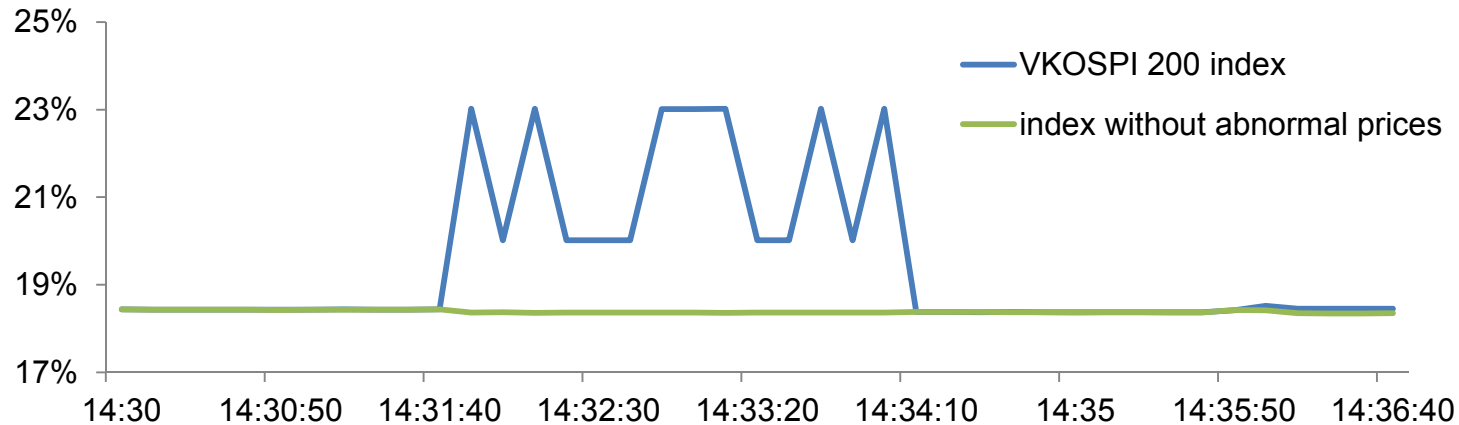
- Variable insurance
 - Insurance payoffs are linked to stock (index) prices
 - Minimum payoffs are guaranteed
 - IFRS17 requires mark-to-market valuation
 - Needs for dynamic hedge and valuation



1. Growing importance of long-term options

Reliable construction of market indicators

- Volatility index (VKOSPI index)
 - Unstable index movement due to infrequently traded options
 - Hard to launch the Korean volatility products
 - Futures on VKOSPI index is not activated (0.1 tril. KRW traded in 2018)



- Volatility surface
 - Sparse data structure makes the construction of volatility surface harder

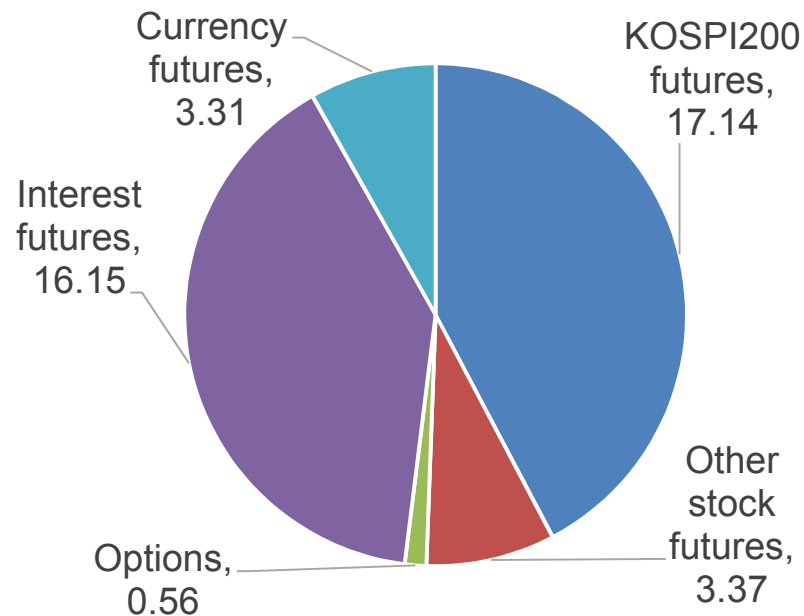
2. Liquidity of the KOSPI200 options market

KRX provides various derivatives with a global level of liquidity. However, long-term options are rarely traded.

'19 average daily traded amount

FICC 17.6 tril. KRW (48%),

Stock 21.1 tril. KRW (52%)



	FICC (10)		Commodity(2)
	Interest/Bond(3)	Currency(7)	
Futures	3-year Gov. Bond 5-year Gov. Bond 10-year Gov. Bond	Dollar Dollar Flex Night Dollar Yen/Euro/Yuan	Gold Pork
Options	-	Dollar	-

	Stock derivatives (25)		
	Index(9)	Sector index(13)	Ind. stocks(3)
Futures	KOSPI200 Night KOSPI200 Mini KOSPI200 KOSDAQ150 Eurostoxx50 KRX300	Sector(10) Dividend(2) V-KOSPI	Ind. stocks (131) ETF(3)
Options	KOSPI200 Mini KOSPI200 KOSDAQ150	-	Ind. stocks (30)

2. Liquidity of the KOSPI200 options market

KRX provides various derivatives with a global level of liquidity. However, long-term options are rarely traded.

- Concentration of liquidity to short-term securities
- Trading volume
 - Front month options consist most of trading volume

Average daily trading volume of the KOSPI200 options (contracts)

maturity	1M	2M	3~6M	7M~18M	18M~
volume per listed options					
OTM	41,081.60	2,134.90	62.3	73.7	56.4
ATM	96,354.30	1,058.60	51.1	64	43.7
ITM	559.7	19.7	3.4	4.7	3.7
volume per traded options					
OTM	53,790.90	2,225.30	103.5	128.3	102
ATM	96,354.30	1,059.30	137.2	202.1	99.9
ITM	940.6	54.8	48.4	42	11.8

2. Liquidity of the KOSPI200 options market

- About 1/3 of listed options are traded on a day

strike	maturity										
	7	42	70	98	133	161	189	280	371	560	924
207.5	1	0	0	0	0	0	.	.	.	.	.
210	3	0	0	0	0	0	0	0	0	0	0
212.5	1	0	0	0	0	0	.	.	.	.	.
215	1	0	0	0	0	0	0	0	.	.	.
217.5	1	0	0	0	0	0	.	.	.	.	.
220	1	0	0	0	0	0	0	0	0	0	0
222.5	1	0	0	0	0	0	.	.	.	.	.
225	4	0	0	0	0	0	0	0	.	.	.
227.5	1	0	0	0	0	0	.	.	.	.	.
230	7	0	0	0	0	0	0	0	0	0	0
232.5	5	0	0	0	0	0	.	.	.	.	.
235	38	7	0	0	0	0	0	0	.	.	.
237.5	206	10	0	0	0	0	.	.	.	.	.
240	4008	146	5	353	0	0	313	0	0	0	0
242.5	59718	393	0	12	0	0	.	.	.	.	.
245	113837	542	3	1	0	0	0	0	.	.	.
247.5	161848	3361	2	1	0	0	.	.	.	.	.
250	167676	6276	48	200	0	0	2	0	0	0	0
252.5	57394	4604	59	2	0	0	.	.	.	.	.
255	16640	3015	102	509	0	0	2	0	.	.	.
257.5	274	1756	32	18	0	0	.	.	.	.	.
260	2	1296	144	0	0	0	24	0	0	0	0
262.5	1	417	108	45	0	0	.	.	.	.	.
265	1	163	31	34	0	0	10	0	.	.	.
267.5	2	140	13	6	0	3	.	.	.	.	.
270	2	22	46	47	5	0	47	0	0	600	1
272.5	0	112	0	35	20	3	.	.	.	.	.
275	5	80	9	7	0	.	45	0	.	.	.
277.5	8	7	1	0	0	.	.	.	.	.	.
280	2	60	15	13	5	.	107	0	0	80	31
282.5	5	.	.	.	.	.	.	.	.	.	.
285	0	.	.	.	.	.	33	.	.	.	.
287.5	0	.	.	.	.	.	.	.	.	.	.
290	0	.	.	.	.	.	60	.	1007	0	.

3. Liquidity provision and its limitation

Market making system for newly listed and less liquid products

- Products with market makers

Futures	Options
Mini KOSPI200	Mini KOSPI200
KOSDAQ150	KOSDAQ150
KRX300	Single stock (31)
Dividend	
Sector	
Eurostoxx50	
V-KOSPI200	
Single stock (134)	
ETF (4)	

- Obligations

- Continuous quotes for front-month securities
- Max spread, min depth requirements

- Incentives

- Exemption of trading fees
- Incentives proportional to fees
- Tax exemption from trading stocks for hedge purpose

3. Liquidity provision and its limitation

Difficulties of market making in the KRX market

- Few hedge instruments
 - Costly hedging, difficult risk management
- Design of incentives
 - Low trading fees – Fee exemption is not a big incentive
- High proportion of algorithmic trading in the KRX market
 - Adverse selection to market makers

KOSPI200 futures/options markets do *not* have market makers

- Although front month securities are highly liquid, consideration for liquidity provision of long-term securities is needed.

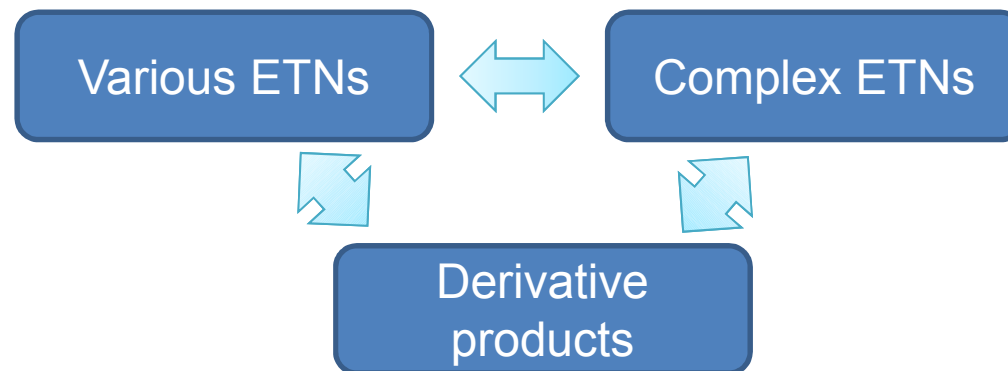
4. Challenges

Development of related products

- More diverse hedge instruments are needed
- Individual stock options are still illiquid
- ETF options are not introduced in the KRX market

More options-related financial products

- ETNs use derivatives for hedge
- Liquid derivative markets can promote diverse ETNs
- Liquid ETN and derivatives markets can facilitate complex ETNs



4. Challenges

Market maker for the KOSPI200 long-term options

- Second month options:
 - important for V-KOSPI index calculation
- Long-term options:
 - hedge instruments, risk management with volatility surface
- Introduction of weekly options in near future:
 - Concerns about more concentration of liquidity on very short-term products
- Reduction of margin for long-term options could be expected:
 - High margin due to high illiquidity risk

4. Challenges

Induce high-frequency traders *AS* market makers

- Strength of HF traders as market makers
 - Fast and high-tech strategies
 - Market making is one of the main strategies of HF traders
- Proper design of obligation and incentives
 - Incentives proportional to market contribution
 - Consideration about maker/taker scheme
- Refinement of irrelevant regulations to market makers
 - Order modification/cancellation

Thank you
