

The changing features of the KOSDAQ derivatives market

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Securities-Derivatives R&D Center

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Contents

- Introduction
- Recent changes in the KOSDAQ-related markets
- Relation of the futures market to the spot/ETF markets
- Conclusion

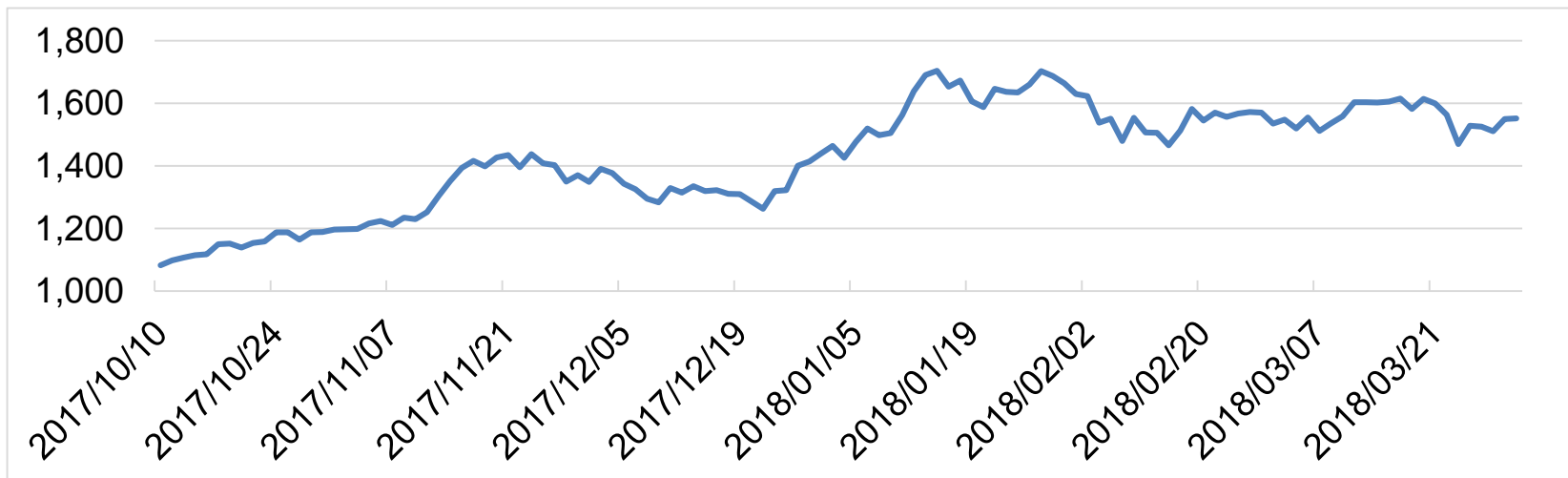
1. Introduction

- Trading activities in the spot, ETF, and derivatives markets are related to each other.
 - Creation/redemption of ETF
 - Hedge demand of market makers in the ETF market
 - ETF-futures arbitrage trading
 - Spot-futures arbitrage program trading
- We study the recent changes in the KOSDAQ 150 futures market in association with the spot and ETF markets.

2. Recent changes in the KOSDAQ-related markets

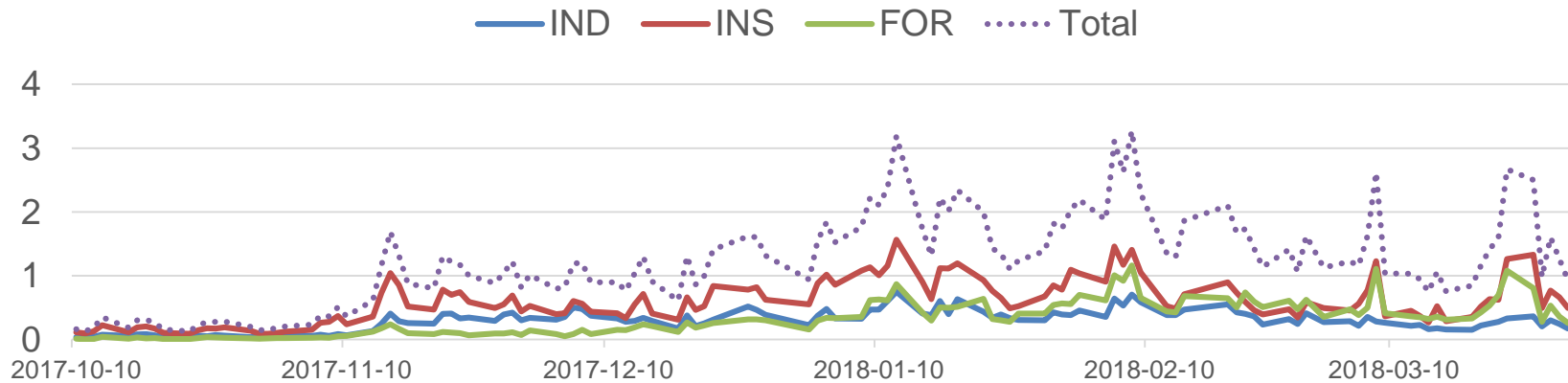
- The KOSDAQ market: The Korean stock market for SMEs
- Recent Korean government policy to activate the KOSDAQ market
 - Encourage participation of institutions and foreigners
 - For easier capital procurement of SMEs
- Rapid growth of the KOSDAQ market
 - The KOSDAQ 150 index has increased from 1,082 to 1,551 during 2017Q4~2018Q1

Level of the KOSDAQ 150 index

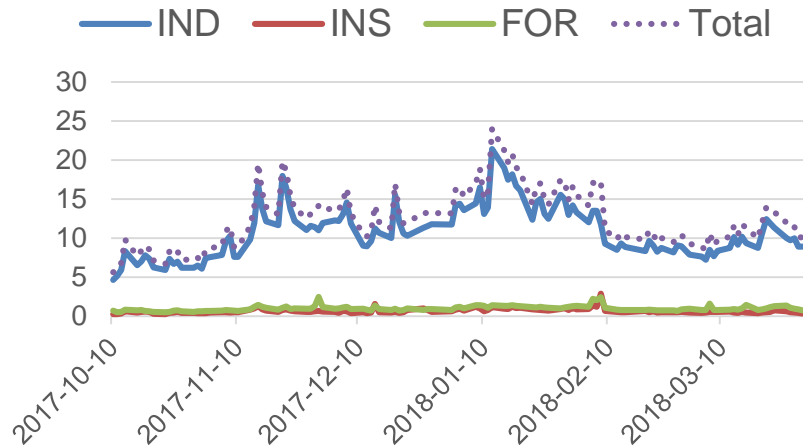


2. Recent changes in the KOSDAQ-related markets

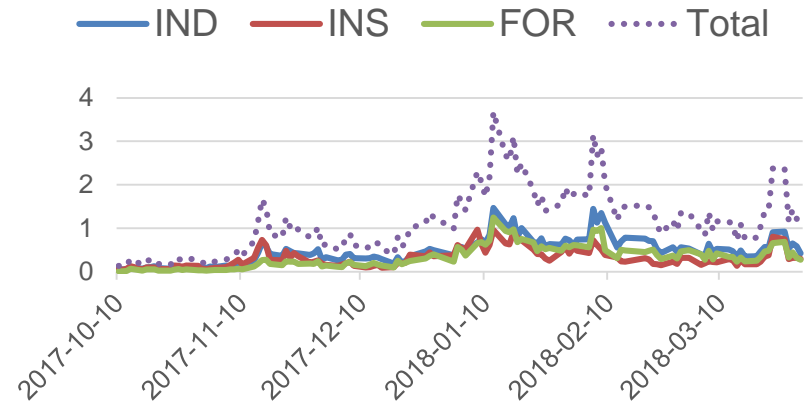
- Time-series of dollar trading volume
KOSDAQ 150 futures market (Tril. Won)



KOSDAQ spot market (Tril. Won)



KOSDAQ 150 ETF market (Tril. Won)



2. Recent changes in the KOSDAQ-related markets

- Expansion of the KOSDAQ-related markets
 - During the market expansion, we observe dramatic increase of trading volume in futures and ETF markets.

Average daily trading volume of the KOSDAQ-related markets (Tril. Won)

	Ind	Sec	Ins	For	Total
Before 2017/11/13					
Spot	6.71	0.12	0.37	0.67	7.87
Futures	0.06	0.13	0.04	0.03	0.25
ETF	0.10	0.05	0.06	0.04	0.26
After 2017/11/13					
Spot	11.45	0.25	0.56	1.12	13.38
Futures	0.35	0.52	0.19	0.40	1.46
ETF	0.58	0.22	0.15	0.41	1.36
% Increase					
Spot	171%	204%	153%	166%	170%
Futures	613%	399%	516%	1576%	585%
ETF	567%	413%	252%	980%	531%

- Ind: individuals
- Sec: security companies
- Ins: other institutions
- For: foreigners

3. Relation of the futures market to the spot/ETF markets

3.1 Creation/redemption of ETF

- Authorized participants create/redeem the ETFs in the primary market.
- They can use futures as a tool of creation/redemption of index ETFs instead of stock baskets.
- If we assume that traders use only futures,
- Increase in creation/redemption (0.15 Tril. Won per day) accounts for 12% of the increase in trading activity in the futures market.

Amount of creation/redemption (Tril. Won)

Normal	Inverse	Leverage	Total
Before 2017/11/13			
0.025	0.004	0.013	0.04
After 2017/11/13			
0.111	0.011	0.068	0.19

3. Relation of the futures market to the spot/ETF markets

3.2. Hedge demand of market makers in the ETF market

- About 70% of trades done by security companies in the ETF market are for market making.
- Security companies use futures to hedge their market-making trades.
- The increased hedge demand in the futures market accounts for 10% of the growth in the futures market.

Increase in market-making trades in the KOSDAQ ETF market

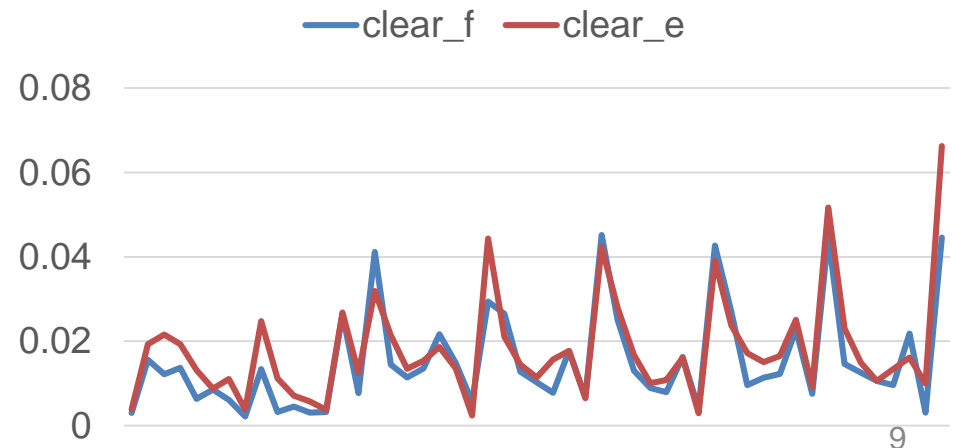
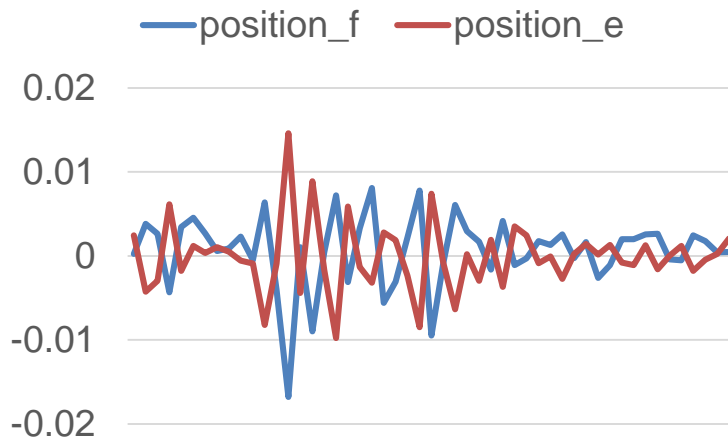
Non-MM	MM	Sec	Futures
Before 2017/11/13			
0.016	0.037	0.053	0.25
After 2017/11/13			
0.069	0.152	0.221	1.46
Increase			
0.053	0.115	0.167	1.21

3. Relation of the futures market to the spot/ETF markets

3.3 ETF/futures arbitrage trading

- Trading activities in the ETF and futures markets can be related in a form of arbitrage trading.
- Some largest foreign traders show symmetric patterns in the futures and ETF markets.
 - They leave similar net amount in opposite positions in an interval.
 - They clear similar amount in an interval.
- These patterns suggest that their trades are ETF/futures arbitrage trades, not speculation.

Examples of intraday trading patterns of large foreign investors



3. Relation of the futures market to the spot/ETF markets

3.3 ETF/futures arbitrage trading

- For those we suspect as futures-ETF arbitrage traders, we estimate the amount of arbitrage trading as follows:
- $Arb = \min(|position_f|, |position_e|) + 2 \times \min(clear_f, clear_e)$
- About 40% of foreigners' trades in the ETF market seem to be associated with the futures market.
- This accounts for 14% of the increase in the trading volume of the futures market.

Estimated trading amount of ETF-futures arbitrage

Arb	For	Total
Before 2017/11/13		
0.008	0.03	0.25
After 2017/11/13		
0.18	0.40	1.46
Increase		
0.17	0.37	1.21

3. Relation of the futures market to the spot/ETF markets

3.4 Spot/futures arbitrage trading

- Domestic institutions (including the postal office of Korea) have advantage in arbitrage trading in the spot and futures markets.
 - Exemption of trading taxes
- The growth of spot-futures arbitrage trading accounts for 3.3% of increase in futures trading volume.
- Expectations for future growth of arbitrage program trading
 - more tax-exemption for domestic institutions

Trading volume of arbitrage program trading

	Sec	Ins	For	Sum	Total
Before 2017/11/13					
Value	0.0026	0.0078	0.0037	0.0121	
Spot	2.0%	2.1%	0.6%	1.0%	0.2%
Futures	2.0%	21.1%	14.8%	6.3%	1.0%
After 2017/11/13					
Value	0.0076	0.0395	0.0042	0.0475	
Spot	3.0%	7.0%	0.4%	2.5%	0.4%
Futures	1.5%	20.7%	1.1%	4.3%	3.3%

4. Conclusion

- Trading activities in the futures market are closely related to those in the spot and ETF markets in the following channels.
 - Creation/redemption of ETF
 - Hedge demand of market makers in the ETF market
 - ETF-futures arbitrage trading
 - Spot-futures arbitrage program trading
- About 40% of the increase of trading volume in the futures market could be related to the ETF and spot markets.

Contribution of the spot/ETF-related trading to the futures market

C/R	MM	Arb	Prog	Total	Futures
Before 2017/11/13					
0.04	0.04	0.01	0.01	0.10	0.25
After 2017/11/13					
0.19	0.15	0.18	0.05	0.57	1.46
Increase					
0.15	0.11	0.17	0.04	0.47	1.21

4. Conclusion

- Stable liquidity provision in the futures market is important for the growth of the spot and ETF markets.
 - For example, futures play an essential role in creation/redemption and market making of the ETF market.
- Domestic individual investors could participate in more spot-derivative related trading.
 - The capital gain tax in the derivative market could block the individuals from the spot-derivative related trading.

Thank you
