An Analysis of the Impact of Changing the Pre-margin Level on the Proportion of Individual Investors in the KOSPI200 Option Market

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Abstract

The KOSPI200 Option (an option on South Korea's blue-chip index KOSPI 200) is the most liquid exchange traded derivatives product in the world in terms of trading volume — according to Futures Industry Association. Korea Exchange (KRX) is the sole operator of the Korean financial market. This market is characterized by a high proportion of individual investors. This is an issue as individual investors are generally naive traders with high default risk, which causes price destabilization. Until the beginning of 2002, the market for KOSPI200 options consisted of more than 60% of individual investors, these days it is around 35%, which is still a high proportion in comparison with European or North American markets. KRX tries to control the proportion of individual investors in the market by changing margin requirement levels, depending on the market situation. Due to the structure of the margin system at KRX, KRX firmly believes that they can control market participation. The KRX's COMS (Composite Optimized Margin System) margin system is a mixed pre- and post-margin system, whereas the margin systems in Europe/North America usually are post-margin systems. A pre-margin, for instance the Basic Deposit at KRX, which individual investor must to pay to a KRX member company before investment, can play the role of an entry barrier to market participants so that discouraging investors from imprudent participation.

This thesis examines whether changes in the pre-margin requirements change the composition of investors, especially the proportion of individual investors in the Korean options market, in terms of trading volume and trading value. Using intervention analysis in the context of autoregressive integrated moving average (ARIMA) modeling, we analyze the development of the proportion of individual investors in the KOSPI200 option market in South Korea as pre-margin requirements change. As of mid-2010 there were 4 documented changes in pre-margin requirements in the Korea Exchange, namely two margin reductions on Feb. 28, 2000 and on Feb. 26, 2001, and two margin increases on Mar.24, 2003 and on Dec.18, 2006. We view these changes as interventions, and observe the market for 100 days before and 100 days after each intervention. The pre-intervention series is best described using an ARIMA model, as evidenced by the auto-correlation function (ACF) and partial ACF (PACF) diagrams. Modeling the intervention by setting dummy variables, detailed statements about the effect of altering the pre-margin level are obtained statistically.

Our results indicate that *reducing* the pre-margin levels has a statistically significant effect, but differences appear insufficient to achieve the desired regulatory impact. On the other hand, the intervention effect of *increasing* pre-margin levels on the proportion of individual investors is not always significant. One reason explaining these results could be the rapid expansion of the KOSPI200 option market since its inception. The bigger the market, the more profit from it and the bigger incentive for investors to participate in the options market. As the market grows new investor groups join and in doing so shift the proportion of participants, distorting the possible effect of pre-margin changes. We conclude that changing pre-margin requirements has only minor effects on the proportion of individual investors in the market, at least in the rapidly developing market under consideration. We hope that these

findings may be useful in directing financial market regulators towards more effective measures.