A Theoretical Framework to Evaluate Different Margin-Setting Methodologies

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Abstract

The margin system is the clearinghouse's first line of defense against default risk. From the perspectives of a clearinghouse, the utmost concern is the default exposure, or the *prudentiality*, of a margin setting. Once the level of prudentiality is set the next concern of the clearinghouse is *overcharge*. It is because higher is the overcharge, greater is the investor's opportunity cost of investing in the futures market. In this paper, we first develop different measures of prudentiality and overcharge and formulate a theoretical framework to evaluate different margin setting methodologies. Secondly, three margin-setting methodologies, namely, one using simple moving averages, one using exponentially weighted moving averages, and the other using a GARCH approach, are applied to the Hang Seng Index Futures. Keeping the same prudentiality level, it is shown that the one using a GARCH approach by and large gives the lowest average overcharge.

KEYWORDS Coverage probability, margin-setting methodology, opportunity cost, overcharge, prudentiality, shortfall.

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