



Arthur Imperatore School of Sciences and Arts

Department of Mathematical Sciences
Stevens Institute of Technology

Dr. Mikhail Smirnov

Department of Mathematics
Columbia University

Dynamic Leverage: A Contingent Claims Approach

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Abstract:

We introduce a concept of dynamic leverage for a fund or a leveraged institution that we believe has certain advantages over traditional notions of leverage that are static. Dynamic leverage depends on the level of fund volatility, time horizon and distance in terms of NAV to a defined critical liquidation level for a fund. That allows to formalize leverage very generally as a barrier option. We present a variety of barrier option models for dynamic leverage to illustrate some of the differing structural features of hedge funds. We give examples of historical critical liquidation levels for hedge funds following different strategies. We investigate a variety of derivatives of dynamic leverage with respect to parameters and demonstrate the existence of a critical NAV below which the efficacy of de-leveraging is compromised. In this spirit we also define a control variable that describes the approach to critical liquidation. Finally we introduce a Constant Dynamic Leverage Portfolio insurance that is a modification of the more traditional classical portfolio insurance of Black-Jones-Perold.

Refreshments will be provided.

For more information contact Darinka Dentcheva, Michael Zabarankin, or call 201-216-5449.