Perfect and Partial Hedging for Multiple Exercise (Swing) Game Options

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Abstract. The paper introduces and studies hedging for game (Israeli) style extension of swing options in discrete time considered as multiple exercise derivatives. Assuming that the underlying security can be traded without restrictions we derive a formula for valuation of multiple exercise options via classical hedging arguments. Introducing the notion of the shortfall risk for such options we study also partial hedging which leads to minimization of this risk. Previous work of Carmona and Touzi and also of other authors dealt only with a multiple exercise optimal stopping problem without justifying a fair price of such options by hedging arguments. The work is joint with my PhD students Yan Dolinsky and Yonathan Iron.

Keywords hedging; multiple exercise derivatives; game options; shortfall risk