

# THE FUNDAMENTAL THEOREM OF ASSET PRICING FOR CONTINUOUS PROCESSES UNDER SMALL TRANSACTION COSTS

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## ABSTRACT

A version of the fundamental theorem of asset pricing is proved for continuous asset prices with small proportional transaction costs. Equivalence is established between: (a) the absence of arbitrage with general strategies for arbitrarily small transaction costs  $\varepsilon > 0$ , (b) the absence of free lunches with bounded risk for arbitrarily small transaction costs  $\varepsilon > 0$ , and (c) the existence of  $\varepsilon$ -consistent price systems – the analogue of martingale measures under transaction costs – for arbitrarily small  $\varepsilon > 0$ .

The proof proceeds through an explicit construction, as opposed to the usual separation arguments. The paper concludes comparing numéraire-free and numéraire-based notions of admissibility, and the corresponding martingale and local martingale properties for consistent price systems.

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