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# Asset prices and wealth dynamics in a financial market with random demand shocks\*

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#### Abstract

We study a financial market where some of the investors' demands for a risky asset are exposed to random shocks. These shocks encompass a source of return variability whenever the wealth of traders subject to them is large, due to their transmission onto market clearing prices. By analytically investigating the underlying price and wealth dynamics, we provide conditions on agents' portfolios under which such pass-through is either maximal, when the traders subject to demand shocks dominate, minimal, when the traders subject to demand shocks vanish, or endogenously determined, when all traders survive and their relative wealth dynamics is a mean reverting process. In particular, the pass-through emerges only when the average position in the risky asset of the traders subject to demand shocks is large enough to compensate from the losses they incur from buying at a high price (selling at a low price) whenever a positive (negative) demand shock occurs.

#### JEL classification: G11, G12, C62.

**Keywords:** Random Demand Shocks, Asset Pricing, Evolutionary Finance, Heterogeneous Agents, Noise Traders, Random Dynamical Systems.

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