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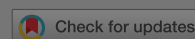
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# An ecological/evolutionary perspective on high-frequency trading

Bogdan Dragos✉ & Inigo Wilkins

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entropy, information and noise, can be useful in opening up the world of finance from

its traditional economic milieu. Although the following text is confined to the discursive realm of humanities/social sciences, it echoes the analytical approaches of econophysics and experimental economics and particularly the ongoing research around 'computational evolutionary economics' [Mirowski, P. 2007. "Markets Come to Bits: Evolution, Computation and Markomata in Economic Science." *Journal of Economic Behavior & Organization* 63: 209-242; Mirowski, P. 2010. "Inherent Vice: Minsky, Markomata, and the Tendency of Markets to Undermine Themselves." *Journal of Institutional Economics* 6: 415-443]. This becomes particularly relevant in the context of the so-called robot phase transition from human-dominated trading to the more automatic electronic trading. The current microstructure of automatic market-making can be understood as an 'ecological niche' developed by ultra-fast trading algorithms which 'feed' on the asymmetries and disparities of the wider 'financial ecology'. They do this by dissipating noise and adding to the complexity of market microstructure a behaviour that can push the whole ecology to critical thresholds, sometimes referred to as flash crashes. This whole process can ultimately be described by Philip Mirowski's notion of 'inherent vice', as well as by Sir Robert May's concept of instability 'which develops in ecosystems upon increasing bio-diversity' [Caccioli, F., M. Marsili, and P. Vivo. 2007. "Eroding Market Stability by Proliferation of Financial Instruments." *The European Physical Journal B - Condensed Matter and Complex Systems* 71: 467-479 ; Haldane, A. and R. May. 2011. "Systemic Risk in Banking Ecosystems." *Nature* 469: 351-355].

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