

Abstract Submitted  
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**Temporal asymmetries in Interbank Market: an empirically grounded Agent-Based Model**<sup>1</sup> VINKO ZLATIC, MARKO POPOVIC, Rudjer Boskovic Institute, Croatia, HRVOJE ABRAHAM, Artes Calculi, Croatia, GUIDO CALDARELLI, IMT Institute for Advanced Studies, Lucca, Italy, GIULIA IORI, City University, London, UK — We analyse the changes in the topology of the structure of the E-mid interbank market in the period from September 1<sup>st</sup> 1999 to September 1<sup>st</sup> 2009. We uncover a type of temporal irreversibility in the growth of the largest component of the interbank trading network, which is not common to any of the usual network growth models. Such asymmetry, which is also detected on the growth of the clustering and reciprocity coefficient, reveals that the trading mechanism is driven by different dynamics at the beginning and at the end of the day. We are able to recover the complexity of the system by means of a simple Agent Based Model in which the probability of matching between counter parties depends on a time varying vertex fitness (or attractiveness) describing banks liquidity needs. We show that temporal irreversibility is associated with heterogeneity in the banking system and emerges when the distribution of liquidity shocks across banks is broad.

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