



Centro Interdipartimentale "L.Galvani"

Avviso di Seminario

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**Systemic instabilities in
financial markets: a Hawkes
modelling approach**

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Abstract

Instabilities in the price dynamics of a large number of financial assets are a clear sign of systemic events. By investigating high cap stocks traded in different stock exchanges, we find that there is a large number of multiple cojumps, i.e. minutes in which a sizable number of stocks displays a discontinuity of the price process. By considering the last fifteen years, which have experienced the introduction of High Frequency Trading, we show that the number of jumps has slightly declined, but the number of cojumps, especially when involving a large number of stocks, has significantly increased. This is a clear sign of an increased synchronisation in financial markets. We introduce a one factor model approach where both the factor and the idiosyncratic jump components are described by a Hawkes process. We introduce a robust calibration scheme which is able to distinguish systemic and idiosyncratic jumps. Finally, we study the exogenous (i.e. news driven) and endogenous nature of systemic price cojumps and we find that only approximately one third of systemic cojumps can be associated with a macroeconomic news.