

The Impact of Jumps on the Stylised Facts of Returns and Volatility: Do Jumps Matter?

Marwan Izzeldin¹ and Shi-Peiran²

Department of Economics

^{1,2}Lancaster University Management School

Email:m.izzeldin@lancaster.ac.uk

December 2011

Abstract

Recent empirical evidence documents the presence of jumps and casts doubts on the theoretical and empirical assumptions underlying continuous time models. We investigate the impact jumps have on the observed stylised facts of returns and volatility by comparing returns and volatility stylised facts in the absence of jumps. We looked at 100 stocks, representing 10 sectors over a period of the period of 2000-2010. Our findings can be summarised as follows: Taking account of jumps had little impact on most stylised facts. Jumps in returns are rare and represents 0.06% whereas jumps in volatility are more frequent and represent 27%. Market activity variables (trading volume and number of trades) are significant for both realised variance and its continuous component but insignificant for the jump part. Volatility, leverage and feedback effects appear to work through the continuous component of realised variance. Persistence properties of the realised variance and its continuous component are similar and so is the decay pattern of the autocorrelation function. Continuity of the diffusion process is not a necessary assumption for the recovering the normality of asset returns.

Keywords: Jumps, Return normality, Realised measures of volatility, Persistence, trading volume, number of trades, leverage and feedback effects.

JEL Codes: C1 C3 C5 G1 G10 G12 G13 C19 G12