Risk, Jumps, and Diversification

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Abstract

We use a panel of high frequency returns on 40 large-cap stocks and an equiweighted index to test for intra-day jumps. Analogous to a factor model, jumps can be classified into two types: common and idiosyncratic. Common jumps affect all stocks, albeit with different loadings determined by the β's, while idiosyncratic jumps are stock-specific. Using standard tests, we find that only common jumps are detected in the equiweighted index due to the effects of diversification. On the other hand, despite the fact that each stock has a β of about unity on the index, common jumps are virtually never detected in the individual stocks. The jump test statistics applied to the individual stocks are essentially uncorrelated with the same statistic computed for the index. This finding is truly puzzling, because an index can jump only if one or more of its components jump. To resolve the puzzle, we develop a new cojump test applicable to a large panel of high frequency stock returns. We find strong evidence for many modest-sized common cojumps that pass through the standard jump detector but are highly detectable in the cross section using the new cojump test.