Cobreaking of stock prices. An example of the use of canonical correlations in finance

Niklas Ahlgren
Swedish School of Economics,
PO Box 479 (Arkadiagatan 22),
00101 Helsingfors, Finland
Email: niklas.ahlgren@shh.fi

Jan Antell
Swedish School of Economics,
PO Box 479 (Arkadiagatan 22),
00101 Helsingfors, Finland
Email: jan.antell@hanken.fi

Financial crises since the 1980s have shown that dramatic movements in one financial market can have a powerful impact on other financial markets. The phenomenon of financial markets being more closely linked during times of crisis is termed contagion. In this paper we propose to use the concept of cobreaking to test for comovements between financial markets during crises. A vector of time series that contain breaks is said to be cobreaking if a linear combination of the series cancels the breaks. The test for cobreaking in vector autoregressive models is based on canonical correlations. Some simulations to investigate the properties of the test show that the test is oversized and may have low power, so it should be applied with caution. We apply the test to data on international stock prices. We find cobreaking between large developed stock markets, but not between emerging markets. The latter result casts doubt on the contagion hypothesis.