

Indicator prior to financial collapses

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Abstract:

Financial collapses can cause great damage to human societies and prior knowledge of potential financial collapses is very important for possible prevention or reducing damages of the collapses. However, there is still no valuable indicator for such a purpose. From time series of stocks in ten typical stock markets (SMs) in the world, time series of the correlation networks (CNs) of such SMs are constructed: A CN has ten nodes corresponding to 10 SMs, two nodes are connected by a link if they have strong correlation during the period the network is constructed: the link number is the total number of links in the network. The time series of the average link number from January 2003 to December 2012 is calculated. It is found that when the average link number decreases from a peak value, a financial collapses will appear with a probability higher than the situation that the financial collapses appear randomly. Such results indicate that the decreasing of the average link number from a peak value can be used as an indicator for financial collapses [1].

[1] Huijie Yang, Lu Qiu, Xue Pan, Chen-Ping Zhu, and Chin-Kun Hu, preprint.