The effect of trade network structure on bankruptcy

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Abstract

The analysis of bankruptcy has been an active field of research due to its practical importance, and it has been done from many perspectives. In terms of variables, various indicators have been used so far[1],[2], such as financial indicators from BS/PL[3], stock market indicators, and macroeconomic indicators. However, so far, none of the empirical analysis has taken into account of the structure of the interfirm trade network of the companies. Since the network structure is quite important in analyzing chain bankruptcy, it would be natural to add the indicators on network robustness in the model.[4]

Here we first briefly introduce various indicators which quantify the risks arising from the network structure. Among them, "survival probability" characterizes the robustness of the company in a simple way, by quantifying the probability that the company will be connected to the biggest network cluster even after taking out some linkns from the network.

We will further show how much the network structure indicators are important in predicting the bankruptcy probability of the companies. By considering mutual information, we will identify the most important parameters in the prediction, and the form of the bankruptcy probability function will be discussed.

Finally, we will further discuss the importance of liquidity (short term asset) on bankruptcy and analyze the financial strategy of the companies to avoid default risks. The importance of this financial strategy on macroeconomy and future research direction will be discussed briefly.

References

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