

ABSTRACT

The information and communication technology development changes the way data stored and processed. Large-volume of electronic data is generated from many sectors and appropriate with mining-based processing that can be used to support the financial system stability supervision. All banks in the payment system are interconnected in various ways in large networks to form the financial architecture backbone which is essential to the overall economy. Bank Indonesia Real Time Gross Settlement is a large value electronic payment and has a major contribution in the financial system so it is important to be maintained. BI-RTGS participants perform fund transfers from a sender bank and received by other banks. These interactions form a large and complex transaction network.

Previous studies found that transaction networks changed responding to some major events. The Indonesian presidential election on July 9, 2014 is a major political event for a nation that greatly affects economic stability including the banking and financial sectors. This event impacts on community sentiment and affects financial markets. This study aims to determine the topology of inter-bank transaction networks and the impact of Indonesian presidential election activities on the transaction network topology based on BI-RTGS artificial transactions.

An inter-bank transaction network is modeled from the artificial data as a directed graph. The network components are nodes represent banks, edges represent transactions from senders to receivers, and weights represent transacted values. This method allow to provide the bank relationships complexity summary and find participants' behavior in the presidential election event 2014.

The findings are that banks are more actively connected with other banks and conduct transactions with greater value 4 days before the campaign period ends. While on the last day of the campaign period, banks are less connected to each other and make transactions with much less value. The last day of the campaign period is also the most potential time for network damage. The network has the greatest strength a day before the end of recapitulation period.

The daily interbank transactions network fluctuates in various measurements. Some topological measurements show significant changes responding to particular event. Through this research, the authorities can use topological measurement as a support to supervise the payment system stability and conduct research on how is the risk level significance can be generated by network topology changes.

Keywords: *Network Topology; Interbank Transaction Network; Real Time Gross Settlement; Presidential Election*