

Twitter Ego Networks and the Capital Markets: A Social Network Analysis Perspective of Market Reactions to Earnings Announcement Events

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Abstract : Networks are everywhere: lunch ties among co-workers, golfing partnerships among employees, interlocking board-of-director connections, Facebook friendship ties, etc. Each network varies in terms of its structure -its size, how inter-connected network members are, and the prevalence of sub-groups and cliques. At the same time, within any given network, some network members will have a more important, more central position on account of their greater number of connections or their capacity as "bridges" connecting members of different network cliques. The logic of network structure and position is at the heart of what is known as social network analysis, and this paper applies this logic to the study of the stock market. Using an array of data analytics and machine learning tools, this study will examine 17 million Twitter messages discussing the stocks of the firms in the S&P 1,500 index in 2018. Each of these 1,500 stocks has a distinct Twitter discussion network that varies in terms of core network characteristics such as size, density, influence, norms and values, level of activity, and embedded resources. The study's core proposition is that the ultimate effect of any market-relevant information is contingent on the characteristics of the network through which it flows. To test this proposition, this study operationalizes each of the core network characteristics and examines their influence on market reactions to 2018 quarterly earnings announcement events.

Keywords : data analytics, investor-to-investor communication, social network analysis, Twitter

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