

The Effect of Extended trading on emergence and collapse of the financial bubbles

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Abstract

Unlike the foreign exchange markets which are open 24 hours, we have restricted trading time in the stock markets. In the case of NASDAQ, the regular trading session opens at 9:30 AM and closes at 4:00 PM. In addition, traders can also trade in a few hours before and after this regular time. The trading from 8:00 AM to 9:30 AM is called "Pre-market trading" and the trading from 4:00 PM to 6:30 PM is called "After-Hours trading". Such transactions are called "Extended Trading". It is pointed out that such extended trading has less activity, wider spread between bid and ask prices and greater price volatility than regular trading. Here, we show that the price changes in the extended trading is playing a critical role in emergence of the bubbles in the stock markets. Particularly we analyze the high-frequency NASDAQ data including so-called the Internet bubble period which appeared at the end of 20th century. Firstly, we clarify the differences of statistical properties of price changes, shared volumes and the transaction intervals between the regular trading and the extended trading. Secondly, we analyze the relationships among these market characterization quantities for each trading sessions. Then we subdivide the session into shorter time intervals and search more precisely about their contribution to bubbles and crashes. At last we introduce quantitative characterization method of market instability using the market potential force formulation and observe the dependence on the type of trading sessions.

Keywords: Financial market;Bubble;Crash;Extended Trading

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