This study proposes an efficient clustering method in a stock market based on short term risk indexes. The cross-lag time dependencies in volatility between two financial time series are investigated in order to identify lagging stocks to a set of leading stocks. Also, the arc length of log return on the weighted time line is used as another measure of risk in a stock market to cluster stocks based on risk or variability. The concept of the target lag allows a stock investor to have more flexible clustering output based on one’s trading strategy. (Received September 13, 2017)