



Market efficiency, anticipation and the formation of bubbles-crashes

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A dynamical model is introduced for the formation of a bullish or bearish trends driving an asset price in a given market. Initially, each agent decides to buy or sell according to its personal opinion, which results from the combination of its own private information, the public information and its own analysis. It then adjusts such opinion through the market as it observes sequentially the behavior of a group of random selection of other agents. Its choice is then determined by a local majority rule including itself. Whenever the selected group is at a tie, i.e., it is undecided on what to do, the choice is determined by the local group belief with respect to the anticipated trend at that time. These local adjustments create a dynamic that leads the market price formation. In case of balanced anticipations the market is found to be efficient in being successful to make the "right price" to emerge from the sequential aggregation of all the local individual informations which all together contain the fundamental value. However, when a leading optimistic belief prevails, the same efficient market mechanisms are found to produce a bullish dynamic even though most agents have bearish private informations. The market yields then a wider and wider discrepancy between the fundamental value and the market value, which in turn creates a speculative bubble. Nevertheless, there exists a limit in the growing of the bubble where private opinions take over again and at once invert the trend, originating a sudden bearish trend. Moreover, in the case of a drastic shift in the collective expectations, a huge drop in price levels may also occur extremely fast and puts the market out of control, it is a market crash.

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