

Investor experience and information do not discourage asset price bubbles

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It is often believed that markets with more experienced investors exhibit fewer bubbles. The same is believed of markets where investors have additional information about fundamentals. We provide evidence that both is not necessarily true. In contrast, bubbles may rise faster in markets with more experienced investors. This is in line with a model in which naïve investors extrapolate trends, which sophisticated investors take into account when making decisions.

One might think that price bubbles are a result of investors not having enough market experience. If mainly experienced investors were making investments, price bubbles should be small, according to this argument. Indeed, there are scientific articles that suggest that bubbles appear in markets with unexperienced investors but then disappear once the investors are familiar with the market environment (e.g., Dufwenberg et al., 2005, Hussam et al., 2008).

Much of this literature consists of controlled laboratory experimentation, in which fundamental values are known. Known fundamental values make it possible that price bubbles (that is, prices considerably above the fundamental value) can be clearly identified. In actual financial markets, the true fundamental value of an asset is unknown (expectations play a key role in pricing, because future payoffs are uncertain).

We show in a recent study (Kopányi-Peuker & Weber, 2021) that the role of investor experience is much smaller than previously thought. Bubbles only disappear when investors are experienced if, at the same time, liquidity is limited, so that those who would like to buy assets at elevated prices repeatedly are not able to do so. If there is enough liquidity (that is, if there is enough money, so that cash constraints are not binding), price bubbles also occur with experienced investors.

Is information more crucial than experience for bubble formation?

If investor experience is not of crucial importance in determining bubble formation as long as there are no liquidity constraints, maybe information is a key determinant. One

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might argue that prices should closely follow fundamentals if investors have all (or most of the) necessary information to precisely estimate or calculate these fundamental values. To analyse this, we vary the degree of information that market participants in our experiment receive, from partial information to complete information. In the complete information treatment, participants are directly provided with all information in the most salient way, so that the fundamental value of the asset can easily be calculated. Yet, independently of how much information is provided, sizeable bubbles keep recurring.

This experimental finding nicely parallels the following fact in real financial markets. Despite the surge in information that has become available to investors in recent decades via modern information technology, there has been no decrease of bubbles or of market price volatility.

If experience and information do not explain bubble formation, what does?

Investor experience and the availability of information have only negligible effects on the pricing in the experiment. What explains prices very well is a combination of relatively naïve investors extrapolating trends and different types of more sophisticated investors, who try to react optimally to the trend extrapolators or to those who react optimally to trend followers (such a cascade of people reacting best to others' behaviour is called *level-k reasoning* in the academic literature).

Trend-following behaviour seems to be particularly natural in humans when forming expectations about the future (trend following has been found to play an important role already in a variety of forecasting situations including financial markets and macroeconomics, e.g., Anufriev & Hommes, 2012, Hommes et al., 2019). It is thus not surprising that less sophisticated investors follow trends. What may be more surprising is that the existence of more sophisticated investors does not correct the mispricing of these trend followers but in contrast even exacerbates it.

However, there is an intuitive explanation for this. If sophisticated investors know that some investors extrapolate trends, ignoring this and expecting prices at the fundamental would not be profitable. Instead, when prices are rising and there are trend followers in the market, sophisticated investors may expect prices to rise further, with an opportunity to make profit by investing now. These investments drive prices up even faster than if there were only naïve trend followers in the market. Indeed, the more sophisticated investors there are, and the more sophisticated they are, the faster asset price bubbles form.

What implications does this have?

If price bubbles are not driven by missing investor experience or missing information but instead by trend-following behaviour of some investors, exacerbated by the anticipation by more sophisticated investors, this has implications for market behaviour and regulatory policy. From a financial stability perspective, policies that require

investor experience or the ability to process price-relevant information to invest in certain asset classes then seem superfluous (although such policies may be warranted from a consumer protection perspective). Initiatives to broaden stock market participation, for instance to improve the retirement saving situation of middle-income families, would be seen as positive also from a macroprudential perspective – the inflow of unexperienced (and possibly rather naïve) investors would not lead to more severe bubbles. In contrast, broader participation might even lead to fewer bubbles.

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