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Speculation and destabilisation

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Abstract

In the context of flexible exchange rates, Milton Friedman proposed that speculation must exert a stabilising influence on prices to remain profitable. This generated a substantial amount of predominantly theoretical research into the behaviour of speculators, for which the results seem to depend critically upon the assumptions. Such theoretical models need to be tested against empirical evidence to determine whether speculators behave in a destabilising manner. Using recent theoretical developments in the literature on modelling financial volatility, this paper tests the significance of speculators and their contributions to describing weekly volatilities across a series of currency, metals and commodity markets. As the time-varying conditional volatility GARCH model and its variants have been criticised for lacking economic content, incorporating speculators into such models contributes to an accommodation of this criticism. The economic implications from establishing the importance of speculators are far-reaching. Policymakers often discuss the imposition of a Tobin tax to curb speculation, so it must be established that speculators behave in economically destructive ways. The inclusion of speculators is also likely to yield superior forecasting models of volatility, and hence more efficient pricing of derivative instruments.

Keywords: Volatility; Speculation; Destabilisation; Tobin tax; GARCH models

1. Introduction

Whether speculators cause financial markets to be more volatile than warranted by fundamentals has long been a topic of intense intellectual debate. The matter has important consequences for regulators of the international capital market framework. Capital can now travel great distances very rapidly, facilitated

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by advances in communications and the relaxation of capital account controls. However, whether such rapid redeployment of capital is in the best interests of world economic prosperity has been queried. For example, Tobin [15] proposed taxing foreign exchange transactions, or 'sand in the wheels', to reduce the level of noise in currency markets. In his case for floating exchange rates, Friedman [7] argued that speculators must exert a stabilising influence upon markets. This generated a substantial number of counter-examples, most of which were viewed with scepticism, see [9]. Subsequently, major advancements in financial market and information theory have led to the development of models that show speculators need not act to stabilise prices, and indeed may even survive, which is contrary to Friedman's assertion.

An array of market models exists, deviating in different ways from the perfect competition, representative agent paradigm that has been the foundation of economic analysis. For example, De Long et al. [6] present a model whereby speculators may trade profitably by anticipating the direction in which a category of traders, referred to as noise traders, will trade. The actions of speculators will pre-empt noise trader demand and serves to push prices further away from their fundamental values. Other models, such as in [14,8], rely upon dispersion of beliefs among agents. These models lead to greater trading than is predicted by a simple model, and differences in beliefs cause prices to fluctuate more heavily before settling at the equilibrium price.

By comparison, the amount of empirical research into how speculation affects asset markets is relatively sparse. The major reason for such an absence is that researchers are limited by data availability, as traders typically do not have to disclose their motivation for trading. Moreover, it is not entirely clear as to what constitutes speculation. As observed by Hart and Kreps [9], a satisfactory definition is unlikely to become available. Thus, the concept of speculation used is that it is associated with traders who have no underlying business interest in the commodity and are simply trading to beat the market estimate of its future value. Such a definition is similar to that used by the Commodity and Futures Trading Commission (CFTC), which is responsible for regulating the US futures and options markets, and which requires a large number of traders to register their purpose for trading futures and options. The number of outstanding speculative contracts is published weekly in the Commitment of Trader (COT) reports, and these data are used to measure speculation, albeit imperfectly. Chang et al. [5] and Wang [16] use such speculative data, and conclude that speculation destabilises market prices.

The distinction between hedging and speculation is not absolute. In assessing how much to hedge, hedgers will base their decisions upon forecasts of future prices, thereby effectively 'speculating' upon the future price. Such characteristics cannot be captured quantitatively. Moreover, models such as in [14] use speculation solely to draw a distinction between the information available to traders. In this model, hedgers are assumed to be informed privately about the market conditions, whereas speculators are ill informed. In this instance, the speculator/hedger distinction seems to be appropriate.

This paper highlights the fact that the models used in the literature cannot capture the phenomenon of destabilising behaviour. The purpose of the paper is to correct for this oversight, employ different techniques to capture the volatility process, and contribute to the literature on volume and volatility (for a review, see [10]). Typically, researchers find a positive contemporaneous relationship between volume and volatility (see, for example, [11,2]). It is believed that volatility arises from information arriving on the market, and this information is impounded into prices via trades, as measured by volume. Hence, there appear to be strong theoretical reasons for supposing that such a relationship exists, as supported by the data. However, few papers have decomposed volume into speculative and non-speculative components, which the theoretical research, as outlined above, indicates is an important consideration.