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The impact of speculation on commodity futures markets – A review of the findings of 100 empirical studies ☆

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ABSTRACT

There are numerous empirical studies on the impact of speculation on commodity futures markets. The papers strongly differ in terms of the focus variable (e.g. price, volatility, spill-over effects) of speculative effects, the speculation measure used, and broad quality. We review and evaluate the methodology and results of 100 papers which have been published (or are at least frequently cited) on this subject over the past decade. While the overall picture indicates that the number of studies which support and contradict the criticized effects of speculation is about the same, the results shift against the criticized effects if the studies use direct measures of speculation, except for price. Applying different paper quality standards does not fundamentally change our findings.

Contents

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1. Introduction

The number of empirical studies analyzing the relationship between financial speculation and price formation in commodity futures markets has increased dramatically over the past decade. This research interest was triggered by the speculation debate, which was primarily headed by non-governmental organizations (NGOs) and has been associated with food product price increases during the years 2006–2008 as well as the growing prevalence of index-focused investment products. Index investors were blamed for pushing up commodity prices from their indirect holdings of long positions in commodity futures used by the providers of index products for hedging purposes. In other time periods, short positions of investors and financial speculators are made responsible for declining commodity prices. Irrespective of its sign, speculation is often regarded as a major cause of increasing price volatility, as well as price and volatility spillovers from financial markets to commodity markets (called "financialization") with adverse effects on the real economy. Such a negative impact would be particularly fatal in the case of food prices and less developed economies. It is thus not surprising that the public concern of NGOs about commodity futures speculation is mainly about food security and hunger in third world countries. In November 2014, Pope Francis said that it "is also painful to see that the struggle against hunger and malnutrition is hindered by market priorities, the primacy of profit, which have reduced foodstuffs to a commodity like any other, subject to speculation, also of a financial nature". This public debate is in no way new; as shortly addressed in the Conclusions of this paper, essentially the same debate took place a century ago, in the US as well as in Europe.

The consequences of this public debate are very real: Most European banks have stopped selling commodity related products, and regulators impose tighter constraints in trading commodity futures if they are not explicitly used for commercial or non-financial hedging purposes, or by end-users of commodities. In the US, the Dodd-Frank act being released after the recent financial crisis, explicitly requires "strong measures to limit speculation in agricultural commodities", which materialized in tighter and more elaborate position limits on exchange-traded contracts of 28 commodities, implemented by the Commodity Futures Trading Commission (CFTC). In Europe, the second Markets in Financial Instruments Directive (MIFID II) mandates the European Securities and Markets Authority (ESMA) to implement position limits for commodity derivatives which, in contrast to the US, will explicitly include all commodity contracts including OTC positions. This strict regulation is consistent with the European Parliament's presumption that "financial speculation in commodity derivatives markets has been seen as one of the drivers of the peaks in agricultural prices in 2007/2008 and 2010/11″ (EP 2013).[1]

The unanimity of the public concern about the harmful and therefore criticized effects of speculation (or excess speculation) contrasts the academic literature on this subject. The sheer number of studies – past and present, theoretical and empirical – challenges the existence of a well-accepted view among economists and prompts a detailed analysis of these findings. This paper reviews 100 empirical papers.

The theoretical literature is not covered in this review. However, the impact of speculation on financial markets in general, and on futures markets specifically, has long been of interest to economists, as early as in the 19th century,[2] was later elaborated by eminent economists like Kaldor, Keynes, Hicks, Working, Friedman, Telser and others, and became subject of rigorous theoretical analysis in the second part of the 20th century. While the early papers emphasized the risk-sharing aspect of futures markets and speculation, the more recent research focusses on the informational role of futures prices. The classical papers[3] conclude that futures prices, while not perfectly, aggregate valuable information and help coordinating investment and production decisions, thereby stabilizing the economy. Other papers have argued rational speculation may have, or always has, destabilizing price effects, depending on the economic setting used in the model: examples include specific institutional constraints, behavioral patterns, and collective (i.e. general equilibrium and herding) effects of speculative activity.[4] Therefore, the predictions of the theoretical literature are far from unambiguous.

Given the enormous output of empirical research

[1] Research on Regulating Agricultural Derivatives Markets, November 2013, Directorate-General for Internal Policies, Policy Department B, Structural and Cohesion Policies.

[2] The debate among economists was particularly heated in German speaking Europe in the 1890 s in view of the new Stock Exchange Law and the regulation of the Berlin produce exchange. A few remarks can be found in the Conclusions.

[3] The seminal papers include Grossman (1977) and Danthine (1978).

[4] Representative papers are by Hart and Kreps (1986), De Long et al. (1990), Froot et al. (1992), or Kyle and Xiong (2001) among many others.