INDEX FUNDS DO IMPACT AGRICULTURAL PRICES

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Index Funds Do Impact Agricultural Prices

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1 Introduction

Index investors, a new type of financial player, became important during 2000s.

Fig. 1. Grains prices and commodity index positions, 2006 - 2011

Sources: Norma’s Historical Database and CFTC

Contemporaneous correlations between prices and index positions is generally positive but direction of causality is unclear.

2 Hypotheses

- Market microstructure theory suggests instantaneous impact of trading
- Academic literature mainly relies on Granger-causality tests with little evidence that index investors are causing price movements
- Granger-causality analyses rely on lagged effects and thus lack power
- Contemporaneous causality tests have more power in this context
- Effect more likely to be evident in more illiquid markets

3 Method

Contemporaneous causality tests using IVs

\[ r_{jt} = \kappa + \alpha r_{j,t-1} + \beta x_{j,t} + u_{jt} \]

\( r_{j,t} \) is a measure of agricultural prices
\( x_{j,t} \) is a measure of index investment, instrumented with a vector of lagged variables \( z_{t-1} \)
including returns and positions of related markets, logarithmic own price, a commodity price index and a volatility index.

Null Hypothesis of no causal effect

\[ H_0: \beta = 0 \] tested against \( H_1: \beta > 0 \)

4 Data

- \( x_{j,t} \) : Tuesday to Tuesday change in the net long positions held by index investors
- \( r_{j,t} \) : Logarithm of the percentage price change from Tuesday to Tuesday
- Data sources: Quandl.com, Norma’s Historical Data and Commodity Futures Trading Commission.

5 Results

Table 1. Contemporaneous causality test results (sample 3 Jan 2006 to 27 Dec 2011)

<table>
<thead>
<tr>
<th>Index positions from index positions to price returns*</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeder cattle</td>
<td>Yes (10% sig)</td>
</tr>
<tr>
<td>Wheat (Kansas)</td>
<td>Yes (1% sig)</td>
</tr>
<tr>
<td>Cocoa</td>
<td>Yes (5% sig)</td>
</tr>
<tr>
<td>Coffee</td>
<td>No</td>
</tr>
<tr>
<td>Lean hogs</td>
<td>No</td>
</tr>
<tr>
<td>Cotton</td>
<td>No</td>
</tr>
<tr>
<td>Soybean oil</td>
<td>Yes (1% sig)</td>
</tr>
<tr>
<td>Live cattle</td>
<td>Yes (5% sig)</td>
</tr>
<tr>
<td>Wheat (Chicago)</td>
<td>No</td>
</tr>
<tr>
<td>Soybeans</td>
<td>Yes (5% sig)</td>
</tr>
<tr>
<td>Sugar</td>
<td>No</td>
</tr>
<tr>
<td>Corn</td>
<td>No</td>
</tr>
</tbody>
</table>

* Markets ordered by increasing liquidity

Source: Own results

The probability of finding five rejections at the 95% when there is no effect is effectively zero.

Results are suggestive of a link to market liquidity.

6 Conclusions

- Unlike results based on Granger-causality tests, contemporaneous test results suggest that index investors do move agricultural prices
- Markets where contemporary causality is found tend to be less liquid
- Causality might be present in other markets but not detectable
- The method does not allow to quantify the effect
- Nothing can be said about whether or not the price movements are fundamentally based

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