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Impact of trading in the commodity futures market on inflation

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ABSTRACT

Trading volumes in commodity exchanges have spurred in recent years. This has raised concerns among many that while there is a virtual stagnation in Indian agriculture with low investment flowing in this sector, there is a lot of enthusiasm in the derivatives markets. It is argued that futures market benefit neither producers nor ultimate consumers but only help speculators gain at the expense of these two groups. This rise in inflation was generally attributed to price rise in agricultural commodities; one of the causes for this was in turn attributed to greater price volatility following the opening up of futures trading in a large number of such commodities. The present paper analyses the impact of Commodity Trading on Inflation. The paper is based on Abhijit Sen Committee report and RBI report on Commodity Prices and Inflation.

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Introduction

History of Commodity Trade

The history of futures trading in commodities in India dates back to the later part of 19th century when the first commodity exchange, viz... The Bombay Cotton Trade Association Ltd was set up for organizing futures trading. The early 20th century saw the mushrooming of a number of commodity Exchanges. The principal commodity markets functioning in pre-independence era were the cotton markets of Bombay, Karachi, Ahmedabad and Indore, the wheat markets of Bombay, Hapur, Karachi, Lyallpur, Amritsar, Okara and Calcutta; the groundnut markets of Madras and Bombay; the linseed markets of Bombay and Calcutta; Jute and Hessian markets of Calcutta; Bullion markets of Bombay, Calcutta, Delhi and Amritsar and sugar markets of Bombay, Calcutta, Kanpur and Muzaffarnagar. There were no uniform guidelines or regulations. These were essentially outcomes of needs of particular trade communities and were based on mutual trust and faith. They were regulated by social control of close-knit groups and whenever such control failed, there would be a crisis.

In order to provide constant vigil to prevent crisis, rather than combat these after they occurred, a comprehensive legislation was enacted by the Bombay State in 1947 in the form of the Bombay Forward Contracts Control Act. On adoption of the Constitution of the Republic, the subject, "Stock Exchanges and Futures Markets" was included in the Union List and a central legislation called Forward Contract (Regulation) Act 1952 was enacted which provided the legal framework for organizing forward trading in the country and provided, inter alia, for recognition of Exchanges. This framework continues to exist even today. One of the important features of this Act is to notify a commodity for prohibition or regulation of forward contract. Under these provisions, a large number of commodities were notified for prohibition during the 1960s which left only a handful of insignificant commodities open for forward trade.

This scenario continued for about four decades although the Dantawala Committee (1966) and Khusro Committee (1980) had recommended steps to revive futures trading in more agriculture commodities. Subsequent to liberalization of Indian

economy in 1991, a series of steps were taken to liberalise the commodity forward markets. This found expression in many reports and studies of committees and groups to recommend reforms in commodity futures market. The Kabra Committee (1994), the earliest post-1991, recommended opening up of futures trading in 17 selected commodities, although it was not unanimous regarding some of these. Importantly, this committee was unanimous in recommending that futures trading not be resumed in case of wheat, pulses, non-basmati rice, tea, coffee, dry chilli, maize, vanaspati and sugar. For most of these, it recommended that case by case reviews of suitability of each commodity be carried out in light of developments in the future. UNCTAD and World Bank joint Mission Report "India: Managing Price Risk in India's Liberalized Agriculture: Can Futures Market Help?" (1996) highlighted the role of futures markets as market based instruments for managing risks and suggested the strengthening of institutional capacity of the Regulator and the exchanges for efficient performance of these markets. This report also noted that government intervention was pervasive in some sensitive major commodities like wheat, rice and sugar and was of the view that future markets in these commodities were unlikely to be viable because of this. Another major policy statement, the National Agricultural Policy, 2000, also expressed support for commodity futures. The Expert Committee on Strengthening and Developing Agricultural Marketing (Guru Committee: 2001) emphasized the need for and role of futures trading in price risk management and in marketing of agricultural produce. This Committee's Group on Forward and Futures Markets recommended that it should be left to interested exchanges to decide the appropriateness/usefulness of commencing futures trading in products (not necessarily of just commodities) based on concrete studies of feasibility on a case-to-case basis

Growth of the market

The year 2003 is a watershed in the history of commodity futures market. The last group of 54 prohibited commodities was opened up for forward trading, along with establishment and recognition of three new national exchanges with on-line trading and professional management. Not only was prohibition on

forward trading completely withdrawn, including in sensitive commodities such as wheat, rice, sugar and pulses which earlier committees had reservations about, the new exchanges brought capital, technology and innovation to the market. These markets notched up phenomenal growth in terms of number of products on offer, participants, spatial distribution and volume of trade. Starting with trade in 7 commodities till 1999, futures trading is now available in 95 commodities. There are more than 3000 members registered with the exchanges. More than 20,000 terminals spread over more than 800 towns/cities of the country provide access to trading platforms. The volume of trade has increased exponentially since 2003-04 to reach Rs. 36.77 lakh crore in 2006-07. Almost all of this (97.2%) of this is now accounted for by the three national exchanges. The other 21 Exchanges have a miniscule share in the total volume.

Objectives:

The paper establishes the causal relation between spot and future prices of agriculture commodities with an aim to establish relation between commodity trading and inflation in India.

Methodology

The paper establishes the causal relation between spot and future prices of agriculture prices by using The Granger causality test. The test is a statistical hypothesis test for determining whether one time series is useful in forecasting another. A time series X is said to Granger-cause Y if it can be shown, usually through a series of t-tests and F-tests on lagged values of X (and with lagged values of Y also included), that those X values provide statistically significant information about future values of Y.

Let y_t (spot prices) and x_t (Future price) be stationary time series. To test the null hypothesis that x does not Granger-cause y , one first finds the proper lagged values of y to include in a univariate autoregression of y :

$$y_t = a_0 + a_1 y_{t-1} + a_2 y_{t-2} + \dots + a_m y_{t-m} + \text{residual } t.$$

Here y_{t-j} is retained in the regression if and only if it has a significant t-statistic; m is the greatest lag length for which the lagged dependent variable is significant.

Next, the autoregression is augmented by including lagged values of x :

$$y_t = a_0 + a_1 y_{t-1} + a_2 y_{t-2} + \dots + a_m y_{t-m} + b_1 x_{t-p} + b_2 x_{t-p+1} + \dots + b_q x_{t-q} + \text{residual } t.$$

One retains in this regression all lagged values of x that are individually significant according to their t-statistics, provided that collectively they add explanatory power to the regression according to an F-test (whose null hypothesis is no explanatory power jointly added by the x 's). In the notation of the above augmented regression, p is the shortest, and q is the longest, lag length for which the lagged value of x is significant. The null hypothesis that x does not Granger-cause y is accepted if and only if no lagged values of x are retained in the regression.

Literature Review

In developed countries, many studies have been conducted to analyze the efficiency of commodity markets. In 1970, Fama and in 1988, Flam and Dixon have proved the invalidity of conventional F tests for market efficiency estimation for non-stationary time series model. Wang and Ke. Engle and Granger in 1987 and Johnsen and Juselius in 1990 have developed econometric technique which allows a co-integration for a Vector Auto Regression model. With the help of the model, they tested market efficiency.

Social loss due to inefficiency of the future markets was estimated by the Stem in 1991. In 2002, the similar study for futures market in China was conducted by Boswijk and Frances in 2002 showed that the commodity markets affect inflation. In

2006, world economic review, Martin Sommer and Others maintained that the non fuel commodity prices increased considerably and these prices have considerable consequences for trade balances and growth in many countries. In 2008, Abhijit Sen Committee report was published.

The committee was of the opinion that both monthly and weekly data show that the annual trend growth rate in prices was higher in the post-futures period in 14 commodities and revealed a feature of the data which shows that of the 14 commodities in which acceleration took place in post-futures period, 10 had suffered negative inflation during the pre-futures period. In 2010, United Nations Conference was held in Geneva. They held that the "financialization" of commodity markets has aggravated the impact of weather conditions on the prices of agricultural commodities, but also on the prices of hard commodities. This is because commodities index funds "bundle" (or combine) futures contracts for different types of commodities, ranging from farm produce to crude oil, minerals and metals.

Impact of Trading in the Commodity Futures Market on Inflation

With growing financialisation of commodities, the role of speculative activities in commodity exchanges as a determinant of inflation has often been highlighted as an issue of policy relevance, particularly during episodes of high inflation driven by supply shocks involving commodities such as oil and metals as well as agricultural output.

The financialisation channel is often perceived to have magnified the impact of disequilibrium between demand and supply in specific commodities on prices, weakening thereby the role of fundamentals in the price formation process. More importantly, speculation that affects futures prices has been argued to affect spot prices through the channel of arbitrage. The sharp volatility in international commodity prices since 2008 has increased the analytical focus on studying the interactions between prices in spot and futures markets for commodities.

According to the UNCTAD (2010) "...extraordinary increases in the volume of commodity derivatives as asset classes attracted swings of short-term portfolio investments, causing prices to deviate further from their trend levels. This increasing interest in commodities as an asset class has been termed the financialisation of commodity markets, which is a relatively new factor in price formation in commodity futures markets..."

According to the IMF (2006), perceptions are often driven by observation of correlation rather than assessment of causality. The IMF's assessment based on causality suggested "...little support for the hypothesis that speculative activity (as measured by net long non-commercial positions)affects either price levels over the long run or price swings in the short run. In contrast, there is evidence (both across commodities and over time) that speculative positions follow price movements."

Increases in food and essential commodity prices in India in 2009-10 brought to the fore the debate on the role of commodity futures market in influencing price trends. The share of agricultural commodities in overall futures trading has declined in recent years reflecting imposition of bans on trading of several commodities (Chart). Against the backdrop of growing perception that manipulative activity was causing distortions in the futures market and stoking inflation, the Government of India had constituted an Expert Committee on Futures Trading (ECFT) in 2007 with Prof. Abhijit Sen as the Chairman to study

the effects of futures trading on prices of agricultural commodities in the country.

Chart 1



Source: Annual Report RBI

The Committee viewed that no strong conclusion can be drawn on whether introduction of futures trade is associated with decrease or increase in spot price volatility. While many other studies have examined the relationship between spot and futures prices, empirical evidence remains mixed.

The standard approach to study the impact of futures trading in commodities on their spot prices is through Granger causality tests. The empirical analysis for India is often constrained by the breaks in data on account of imposition of frequent bans and subsequent permission for relisting of certain essential commodities in the commodities exchange. Causality test results relating to the sample period for which data are available indicate that futures prices have causal impact on spot prices in the case of sugar and urad (Table). It is also observed that spot prices Granger cause futures prices in case of urad, chana, wheat and sugar. Sugar and urad seem to exhibit two way causality between the spot and futures prices.

Table 1 :Granger Casualty Tests of the Relationship Between Spot and Futures Prices of Agricultural Commodities

Hypothesis on the Direction of Casualty*				
Commodity	Future Prices Do Not Cause Spot Prices		Spot Prices Do Not Cause Future Prices	
	Significant	P Value	Significant	P Value
Sugar	Yes	0.00	Yes	0.00
Urad	Yes	0.00	Yes	0.00
Tur	No	0.21	No	0.42
Wheat	No	0.42	Yes	0.04
Chana	No	0.74	Yes	0.07
Potatoes	No	0.14	No	0.81

*If significant, the null hypothesis is rejected.

(Source: RBI Annual Report, 2009-10, p 32)

The empirical analysis, thus, does not provide any conclusive evidence in support of the relationship between spot and future prices. Commodity prices in India seem to be influenced more by other drivers of price changes, particularly demand-supply gap in specific commodities, the degree of dependence on imports and international price movements in these commodities. Today, commodity exchanges are purely speculative in nature. Before discovering the price, they reach to the producers, end-users, and even the retail investors, at a grassroots level.

It brings a price transparency and risk management in the vital market. A big difference between a typical auction, where a single auctioneer announces the bids and the Exchange is that people are not only competing to buy but also to sell. By Exchange rules and by law, no one can bid under a higher bid, and no one can offer to sell higher than someone else's lower offer. That keeps the market as efficient as possible, and keeps the traders on their toes to make sure no one gets the purchase or sale before they do.

The "Futures Market" intensified the speculative activity in the food market in India, which is novel for India. Speculators

see much gain in betting for the future prices of various commodities, including rice and wheat. The Economist (September 6, 2007) reported: "Trading in agricultural futures, once a backwater, has boomed in recent years.

In addition to agri-businesses, more institutional investors, ranging from hedge funds to pension funds-are investing. Last year nearly \$3 trillion in grain futures was traded on the Chicago Board of Trade (now part of CME Group), the world's largest such market." The Food and Agricultural Organization also reports an increase in speculative activity in agricultural commodity markets. In a recent assessment, the FAO argued that market-oriented policies are creating financial opportunities in agricultural markets at a time when financial markets are awash with liquidity.

This abundance of liquidity has, in its view, "paved the way for massive amounts of cash becoming available for investment (by equity investors, funds, etc.) in markets that use financial instruments linked to the functioning of agricultural commodity markets (e.g. future and option markets)." Speculators are looking to such markets, "as a way of spreading their risk and pursuing of more lucrative returns. Such influx of liquidity is likely to influence the underlying spot markets to the extent that they affect the decisions of farmers, traders and processorsofagriculturalcommodities".

India was until recently insulated from the effects of these global trends. However, the government's decision to allow private multinational firms to speculate in the Indian "Future Markets" has created havoc in the Indian food prices. These private companies like ITC, Cargill, AWB India, Britannia, Agricore, Delhi Flour Mills and Adani Enterprises, procured about 20 lakh tonnes of wheat during the recent Rabi marketing season (April-July) in 2007. That affected the ability of the government to procure supplies to refurbish its reserves to supply the public distribution system, when the "Future Market" has pushed up the prices. Even though production of commodities in India has increased but the possibility that buffer stocks of the government could fall below comfort levels, "Future Market" pushed up the market.

Thus, price increases have nothing to do with increasing demand due to increasing affluence of the Indian people. The data from the National Sample Survey Rounds on consumption expenditure tells us that per capita calorie consumption, far from rising, has actually decreased, even for the poorest groups. Per capita food grain consumption declined from 476 grams per day in 1990 to only 418 grams per day in 2001, and even aggregate calorific consumption per capita declined from just over 2200 calories per day in 1987-88 to around 2150 in 1999-2000. The latest NSS survey suggests further declines in calorie consumption.

Thus, the inflation in India is the direct results of flows of money through short-term borrowings and speculative activities that is being sustained by these flows of money. Introduction of multinational companies in the commodities market has increased the speculative activity and reduced the ability of the government to procure enough essential food-grains to sustain the public distribution system. It was certainly a mistake for the government to run down the public distribution system where the majority of the population are poor and cannot afford the increasing market price. Short-term borrowings are highly volatile element and normally create a speculative bubble, which can be burst soon creating serious recession in the economy even bankruptcy. The experience of Thailand and South Korea in 1978 showed very well the damage these short term flows of foreign money can cause. It normally pushes up domestic prices

so that exports prices will go up causing increased balance of payments deficits.

As a result Rupee would start falling causing an outflow of this short-term money. That will lead to further fall of Rupee and very soon the government will be unable to repay the foreign debt. Situation like this has ruined Thailand and South Korea for many years. India may be heading for such a catastrophe.

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