

A STUDY ON COMMODITY FUTURES MARKET OF COTTON IN INDIA**Rajdeep Beniwal**

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Abstract:

The purpose of this study is to find out how cotton is selected by the market players in the market for trading and speculation and analysed the influencing factors with the tools as simple moving average, relativity strength index, moving average convergence and divergence, exponential moving average, rate of change. So participants could consider before investing their money into cotton. Since 2002 commodities future market in India has shown a record boom in terms of the number of commodities permitted for derivatives trading as well as the echelons of futures trading in commodities. Hence it will be valuable to study the relationship between spot markets and futures markets of cotton in India. Investment in commodity market is widespread and rewarding for investors in entirely over the world. For farmers eyeing to evade risk and for investors looking for diversification away from stock markets, commodity markets present additional useful investment options. The commodity markets movements in quantity and players have been increased in the recent past. In India although the trading in commodity spot markets and commodity exchanges are booming yet it has to face few more issues like allowing FII's, banks and other financial institutions to function in these markets. Also presence of a vibrant, active and liquid commodity market is usually reflected as a strong sign of development of a country's economy. It is therefore crucial to have active commodity markets functioning in India. This study will be very helpful for the farmers, traders, financial economists, financial consultants, brokers and analysts.

Key Words: Commodities, Simple Moving Average, Relativity Strenght Index, Moving Average Convergence and Divergence, Exponential Moving Average, Rate of change.

1.INTRODUCTION

Indian economy is on the broader side a fairy tale of successful journey over the centuries. Its performance in terms of the output growth has been remarkably and exceptionally outstanding. India stands the very first under the Sun in the production of jute, jute-like fibres, pulses and milk and is on second position in groundnut, vegetables, fruits, cotton, rice, and wheat and sugarcane production and is a leading producer of fisheries, poultry, livestock, spices and plantation crops. Crop growing is the mainstay for over 58% of India's population. It contributes to approximately one-fifth of total gross domestic product (Survey, 2012-13). Agrarian occupation accounts for about 12 per cent of the total export earnings and provides with raw material to a large number of industries. Being the third largest landmass in world, India is a top-notch producer of a hoard of agrarian merchandises. However the ironical fact remains that Indian agriculture has one of the lowest yields in most commodities; nearly 55% of farming soil sown is rain fed and the farm produce harvest is chiefly governed by the extent and amount of rainfall. Needless to mention while there are challenges there are huge potentials and opportunities as well. It is rightly said that every dark cloud has a silver lining.

Commodity futures markets mark a fractional presence in developing countries. In the times gone by the respective governments in many of these countries had disheartened futures markets. If they were not barred, their operations were tapered by regulations. Of late countries began to lax the restrictions on commodity markets. Moreover in a turnaround of earlier trends the expansion of commodity futures markets is being pursued aggressively and assiduously with support of government. Government expects collective benefits in terms of better allocation of resources, risk management and price discovery. The Indian commodity futures landscape has been evolving and the national commodity exchanges have made a big headway since inception thereof with volumes scaling newer altitudes with each passing year. According to the Forward Markets Commission the commodities market regulator the turnover on the Indian commodity has augmented by 120 times following the introduction of electronic trading in 2003 (Commission, 2014).

Indian commodity future market was fairly popular until early 80's. However its development was almost bordering on being sluggish showing a number of limiting and binding factors and regulations introduced by the Government of India. In 2003, these limitations were relaxed leading to the impulsive and almost meteoric growth of commodity market in the country. With significant and apt policy changes and liberalization of world markets, Indian commodity derivative market has attained extraordinary growth in terms of number of product on offer transparency and volume of trade. Commodity future trading is organized in such commodities as are allowed by the Government. The body that arranges the future trading in commodities through futures contract is known as commodity exchange. A futures contract is an agreement to buy or sell a particular commodity at a pre-determined price in the future. These are standardized contracts containing detail about the quality and quantity of the underlying asset. Cotton is essentially grown for its fibre, which is used the world-over in textile manufacturing. Cotton is one of the best useful textile fibres, providing for around 36% of the total textile used in the world.

2. OVERVIEW OF INDIAN COMMODITY MARKET

Commodity markets play an essential role in the economies like India where the contribution of agricultural production to GDP is mammoth. India is one of the largest producers of agricultural products wherein farmers have to face yield risk as also the price risk. Farmers need security against the price risk for their crops. Farmers face imminent threat right from the time of sowing to the time of harvest. They can shift their price risk with the employ of the simple derivative product by freezing in the asset prices. There were simple contracts developed to reduce the risk and to meet the needs of farmers. Commodity futures market performs two significant economic functions such as price risk management and price discovery (Commission, 2014). A futures trading in commodities is beneficial across the entire cross section and to the deepest layer of the fabric of the economy inclusive of farmers and consumers. The commodity derivative market in India has achieved significant development in term of transparency, technology, and trading activities.

Soft commodities are grown on farms. Corn, wheat, soybean, soybean oil, sugar are examples of soft commodities. Many soft commodities are subject to spoilage which can cause colossal precariousness in the short term. Environmental Conditions plays a major role in the soft market which makes predicting supply rather a daunting task. Interestingly the obvert side of the coin reveals that commodities are typically mined from the soil or are derived from other natural resources such as gold, oil, aluminium. In most cases, initial products are refined into further commodities as oil is refined into gasoline because hard commodities are easier to handle than the soft ones and they are more integrated into the industrial process, but obviously, most investors tend to be tempted to be inclined these products. Although India has to cover a long distance to be able to harness the potential in many commodities, it has significant prospects to improve consumer demand and find dormant consumption. In spite of having major benefits commodities trading has been generally limited to large corporates houses, big trading houses and high net worth individuals. The main reason that depresses retail or common investors from aggressively joining in commodities trading is a lack of understanding.

3. COTTON MARKETS OF INDIA

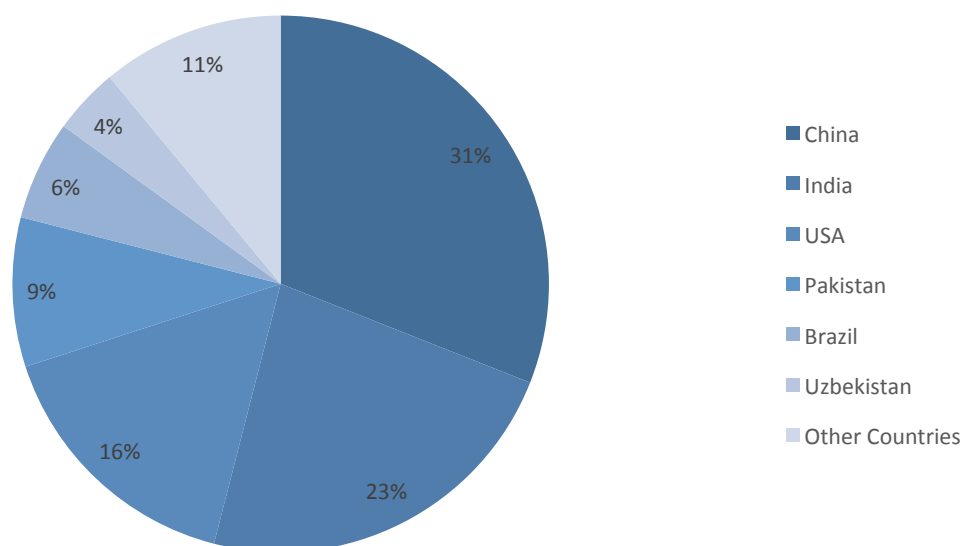
India has the largest acreage under cotton in the world. About 1/3rd of the world's total cotton acreage is in India. In 2013-14, the acreage under cotton in India was 11.9 million hectares. It went up by about 8% to 12.8 million hectares during 2014-15. However, during 2015-16, the acreage under cotton in India dipped to 11.9 million hectares on account of lower realisation of value by cotton farmers during 2014-15 compared to other competing crops. However, with the focus now shifting on producing more and more food crops, there is hardly any scope for further expansion of acreage of cotton in India. Naturally, therefore, the thrust has to be on increasing productivity. Though India has made significant progress in terms of productivity, the level is well below the world average. India has tremendous potential and the need of the hour is to exploit the same to optimise productivity. One of the main reasons behind this sub-optimal productivity of cotton in India is the slow pace at which the country embraces new technology. Globally, the demand for cotton compared to polyester and other man-made

fibres is shrinking day by day. Several countries have embarked on demand enhancement programmes. India surpassed China to become the world's largest producer of cotton during last year. However, this occasion was somewhat marred by the situation of a supply glut emerging globally. Prices witnessed a depressing trend. Our country went through a massive support price operation. The Government agencies procured about 9.3 million bales under the Minimum Support Price operations. There was a sharp decline in India's performance on the cotton export front and it could only export about 6 million bales during 2014- 15 as against 12.6 million bales exported during the previous cotton season. Eventually, India witnessed one of the largest closing stocks in its history at the close of the 2014-15 cotton season. The current 2015- 16 cotton season has also witnessed a depressing international price trend thus far.

3.1 Global Scenario

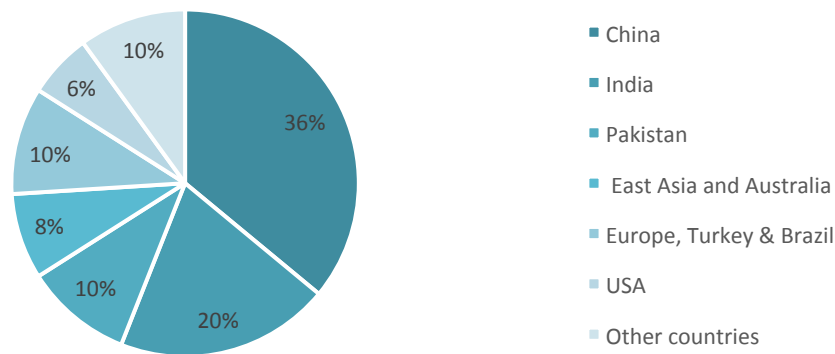
Cotton cultivation and trade is broadly range through the world, with more than 82 nations are producing and cultivating the crop. However, its manufacturing, consumption and trade are controlled by some major countries. The total production of world 2012-13 marketing year (July – August) is predicted to be 25.95 million metric tonnes (155.41 million bales of 170 kg respectively) as compared with 27.45 MMT in the 2011-12. The world's four major cotton-producing nations are India, USA, China and Pakistan. They contribute for nearly 78.5% of the total production in world. The other key producers comprise Uzbekistan and Brazil. The topmost three consumers of cotton are Pakistan, China and India, which together produce two-thirds of the world's consumption, which is projected around 22.2 MMT. USA, Brazil and Turkey are the other main consumers. In these years, the total trade of the world has been about 7-8 MMT. While the USA is the chief exporter of cotton, sharing for over one-third of the world trade in raw cotton and the largest importer of world is China. These days the demand of cotton is continuously rising due to diversified uses of this fiber. Major producing countries of world are unable to fulfill requirement of world consumption. All key producer is focusing on large amount of production. But due to uncontrollable diseases it is impossible to fulfill world consumption. In world largest producing countries of the world are not able to increase the production of cotton.

Figure 1.1: Share of the Major Countries in World Cotton Production during 2012-13



Source: International Cotton Advisory Committee, Washington, DC. Retrieved from <https://www.icac.org/>

Figure 1.2: Share of the Major Countries in World Cotton Consumption during 2012-13



Source: International Cotton Advisory Committee, Washington, DC. Retrieved from <https://www.icac.org/>

3.2 Indian Scenario

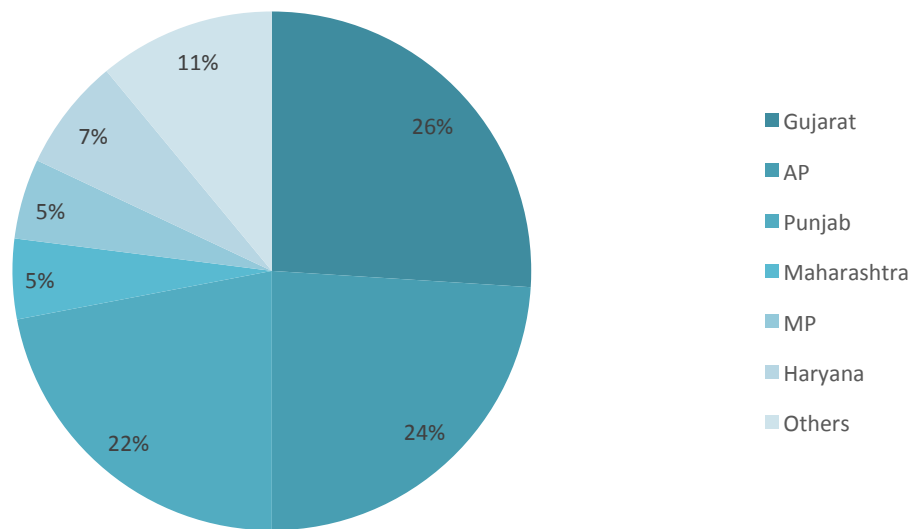
India's yearly cultivation of cotton has been gradually increasing in the last years sustained by a growth in acreage, healthier genetically improved seeds and enhanced practices. India is anticipated to produce 33.6 million bales of cotton from an acreage of 11.63 million hectares in 2012-13. In India, the yield of cotton is projected to be at 490 kg per acer against the world average of 765 kg per hectare. In India, cotton is implanted from the end of April to September, and harvested from October to January, depend on the time of seeding. India's cotton consumption rised by 15% from 22 million bales in 2005-06 to 25.4 million bales in 2011-12. This additional increased to 27.0 million bales in 2012-13. The major producing states are Maharashtra, Gujarat and Andhra Pradesh are contributed mainly in production of cotton, contributed for about 76% of the total production. India has been a key exporter of cotton, since 2005-06 and currently, the world's largest exporter. It is about to export 7.1 million bales of cotton in 2012- 13. India regularly imports Long and Extra Long Staple cotton from the West Africa, US, Egypt.

Table 1.1: Share of the Cotton Supply and Demand during 2012-13

Cotton Supply and demand		(Quantity in lakh bales of 170kgs)	
ITEM	2011-12	2012-13	
SUPPLY	45.77	40	
Opening Stock	353	340	
Crop Size	12	25	
Imports	12	25	
Total Availability	410.77	405	
DEMAND			
Mill Consumption	217.68	245	
Small Mill Consumption	24.63	22	
Non-Mill Consumption	16	20	
Total consumption	255.31	287	
Export	127	81	
Total disappearance	382.31	368	
Carry forward	28.56	37	

Source: Multi Commodity Exchange of India Ltd, Mumbai, India. Retrieved from <http://www.mcxindia.com/>

Figure 1.3: Share of the Major States in India's Cotton Production during 2012-13



Source: Multi Commodity Exchange of India Ltd, Mumbai, India. Retrieved from <http://www.mcxindia.com/>

4. OBJECTIVES OF THE STUDY

1. To Study and analyse the commodity market of cotton.
2. To study the price volatility among cotton commodity futures markets in India.
3. To study and analyse the cotton futures market trends using past data in Indian commodity markets.
4. To find out the factors influencing the cotton markets in India.

5. RESEARCH METHODOLOGY

Secondary data is collected from commodity exchange websites, publications, e-books, e-journals, company reports, previous studies, magazines etc. The period of the study is two years. Secondary data is utilized in the study and following tools used for the data analysis in the study:

Simple Moving Average (SMA)

Relativity Strength Index (RSI)

Moving Average Convergence and Divergence (MACD)

Exponential Moving Average (EMA)

Rate of Change (ROC)

6. DATA ANALYSIS AND INTERPRETATION OF COTTON

6.1 Simple Moving Average

A simple moving average is formed by computing the average price of a future over a specific interval of periods. Most moving averages are based on closing prices. A 30-day simple moving average is the thirty-day sum of closing prices divided by thirty. As its name implies, a moving average is an average that travels. Past data is released as new data comes available. This causes the average to move along the time scale. Below is a thirty day moving average evolving over two years.



Inference

The Simple Moving Average is plotted using last three-year data of cotton. Here monthly moving average has been taken to construct the SMA. The three-year chart of SMA shows on many occasions, the daily price line is above the monthly moving average which shows bullish signal. If price line is below SMA line which shows bearish signal.

6.2 Relative Strength Index

Relative Strength Index innovated by J.Welles Wilder. It is a momentum oscillator that calculates the speed and change of price movements. RSI oscillates between 0 to 100.

$$RSI = 100 - \frac{100}{1 + RS}$$

RS = Average Gain / Average Loss



Inference

The RSI is plotted using last three years data of cotton. Here the RSI chart shows the overbought and oversold period of cotton. If RSI line crossed 70 which shows the overbought and below 30 is showing oversold of cotton.

6.3 Moving Average Convergence Divergence

Moving Average Convergence Divergence (MACD) is one of the easiest and very useful momentum indicators presented. The MACD uses two trend trailing indicators, moving averages, into a momentum oscillator by deducting the long time moving average from the short time moving average. As a consequence, the MACD proposes the finest of both indicators. The MACD varies overhead and underneath the middle line as the moving averages converge move and deviate. Investor can use the

indicator line crossovers, centerline crossovers, and divergences to make signals. Because the MACD is boundless, it is not mostly beneficial for recognizing overbought and oversold stages.



Inference

The MACD is designed with past three years data of cotton. MACD is computed through EMA 12 and EMA 26 intervals. If the EMA 12 line is over EMA 26 line, indicate strong market and signals for buying and if the EMA 12 line is below EMA 26 indicate depress market and show selling signals. The average closing price of EMA 12 is mostly above EMA 26 which indicate strong market (buyers are dominating the sellers) and shows buy signal for the traders and investors.

6.4 Exponential Moving Average

Exponential moving average diminish the lag by smearing more focus to near past prices. The weighting used to the most near past prices depends on the number of intervals in the moving average. Investor have three crucial steps to computing an exponential moving average. It starts with calculating the simple moving average. An exponential moving average has to start anywhere so a simple moving average used as the past interval's EMA in the primary computation. Next, compute the weighting multiplier. Next, compute the exponential moving average. The formula below is for a 10-day EMA.

SMA: 10 period total / 10

Multiplier: $(2 / (\text{Time periods} + 1)) = (2 / (10 + 1)) = 0.1818$ (18.18%)

EMA: $\{\text{Close} - \text{EMA} (\text{previous day})\} \times \text{multiplier} + \text{EMA} (\text{previous day})$.



Inference

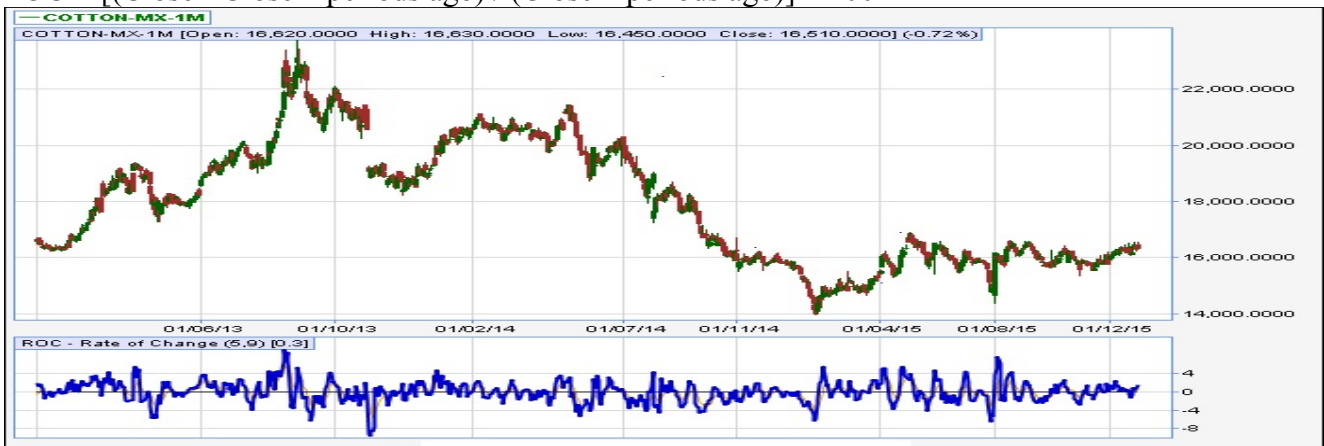
The EMA is plotted with last three years' data of cotton and five months moving average has been taken to construct the EMA. The three years' chart of EMA indicate that on numerous times, the

monthly moving average line crosses the five months EMA line from bottom to top which shows strong market and indicate for buying signals and it shows the correct time to invest and occasionally, the monthly moving average line crosses the five months EMA line from top to bottom which indicate depress market and signal for selling. and it is correct time to go for fresh short.

6.5 Rate of Change

The Rate of Change (ROC) indicator, which is also denoted to as purely Momentum, is a momentum oscillator that measures the % change in price from one interval to the subsequent. The ROC computation links the present price with the price “n” interval before. The plot makes an oscillator that varies over and below the center line as the Rate of Change travels from positive to negative. As a momentum oscillator, ROC indicator contain zero line cut divergences and overbought and oversold regions. Divergences is unable to predict prefigure reverses more frequently than not so this indicator will relinquish a conversation on divergences. Even though zero line cutovers are disposed to whipsaw, particularly short run, these cutovers can be beneficial to recognize the general trend. Recognizing overbought or oversold excesses comes usual to the Rate of Change oscillator.

$$ROC = [(Close - Close\ n\ periods\ ago) / (Close\ n\ periods\ ago)] * 100$$



Inference

The ROC is designed using past last three years' data of cotton. The ROC graph which is designed over and below the center line that defines the bearish and bullish market and provide buy indication and sell indication to the traders and investors of the cotton. When the graph is noticeable over the center line it indicates buyers are dominating sellers and giving bullish indication and if it is noticeable below the center line, it shows sellers are dominating buyers and indicating bearish market.

7. FACTORS INFLUENCING THE COTTON MARKET

- i. The forces of demand and supply, price difference between inter crop, expenses of cultivation and world price scenario are crucial factors that affects price of cotton.
- ii. Final consumers are main source of demand such as demand for clothes and home interior; the overall health of industry depends on final consumer.
- iii. Cotton fiber contribute approximately 69 percent of the fiber production in India. So price of cotton majorly affects the clothing and textile sector in India. Government mainly focus on both textile and cotton industries while constructing policies for cotton.
- iv. There is a very high correlation between cotton yarn prices and countries raw cotton fiber prices in different market throughout India.
- v. Climate, vermin, sicknesses and other danger issues related with agrarian harvests also have a pressure on cotton market.
- vi. New innovation of technology regarding mechanization, fiber in cloth and textile industries impact prices of cotton market.

- vii. Minimum Support Price (MSP) and administrative guidelines related to export and import are also an important influencing factors for future and spot market prices of cotton.
- viii. The trade of yarn, fabric and clothing internationally impacting cotton market directly or indirectly and India contribute thirty percent to cotton fiber.

8. FINDINGS

The last three years' price movement of each commodity explains that investors are satisfied from the reasonable return from investment in cotton. Moreover, the investors are motivated to buy or sell the commodities from the commodities future market with his investments plans. An investor can succeed in his investment only when he is able to select the right commodities at the right time. The investors should keenly watch the situation like a market price, economy, returns and the risk involved in commodities before taking a decision on a particular commodity. This study made will help the investors know the commodity market and technical analysis thus can succeed in the market. SMA chart shows many buy and sell signal over the selected period. SMA chart shows that there is a buy signal to the investor for February 2012. ROC chart shows many buy and sell signal over the selected period. In Crude Oil, ROC chart is marked below the zero line in the chart; hence, it is the right time to sell the cotton. RSI chart shows many buy and sell signal over the selected period. RSI chart shows that there is a further increase in price level. So the investors can buy the cotton commodity. The investor should wait until the end of the bear market to make their investment strategy. The buying decision should be made only when the product is showing a positive sign for buying. Investors can predict the commodity market through price movement. As per the study investing in these commodities at the present condition will yield less profit.

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