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STATEMENT OF THE PROBLEM

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RESEARCH METHODOLOGY

RESULTS & DISCUSSION

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RECOMMENDATIONS/SUGGESTIONS

CONCLUSIONS

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PRICING DYNAMICS OF GOLD IN INDIAN COMMODITY MARKET

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ABSTRACT

The wider classification of the Indian Future Market can be made in terms of the bond market, equity market and commodity market. the commodity markets of India include agro commodities (wheat, rice, onion, potato, etc.), non- agro commodities (precious metals, base or industrial metals, energy and weather). The future trading of commodities resulted in the batter price discovery mechanism experienced ever before, the price discovery results from the demand/ supply mechanism in the online integrated market place. Traders and investors reaction of various political, economic events reflects in the market immediately. The price movements provided the insight of research for the trader, investor and researcher. The eagerness to predict the price and movement of an asset provided the foundation of technical analysis. The technical analysis is done through various statistical tools and techniques. The study contains the technical analysis of commodity prices traded in the Indian commodity exchanges. Broadly the commodities traded in the Multi Commodity exchange (MCX) will be covered. Commodity scripts as metals and energy scripts shows high volatility and distinct trend which is needed to be analyzed using technical analysis tools. The relationship among these commodities in international traded market and domestic markets also provides the insight of research which is to be analyzed using the technical tools provided in the econometrics. It will be figured out weather these tools are providing the estimation for price change or not. Basically gold is taken for the study. The tools in technical analysis such as Moving averages, RSI, STOCH, etc. have been taken for the study. Data from 2004-2014 are available both in Dollars and Rupees collected from COMEX (New York) and MCX (Mumbai). The data is widely available on web sites, magazines and e-publications by the exchanges. This study will reveal the relevance of technical analysis tools for the analysis of future price movements and reveal the various reasons which move the prices in the particular trend. This analysis benefits society in a way that the individual investors can mobilize their savings in the commodity as well as capital markets as this analysis provides the best tools for price prediction through which the investors can manage their risk efficiently. Price analysis tools can help investors to deploy more funds in the capital market. Weather these tools and techniques provide help for the investors in making investment decisions?

KEYWORDS
commodity market, commodity derivatives market, commodity futures, commodity exchanges, gold futures, trend, moving averages.

INTRODUCTION

Bombay cotton and trade association is the pioneer of commodity future trading in India. It's history is traced backed in 1875 which is 140 years old now. It was basically started to attract the traders of future contract in cotton. Future market for bullions was emerged in Mumbai in 1920 and it gradually became the centre for bullion traders across the country. With the further developments in the Indian future commodity market the government felt the need of a law, consequent to which Forward Contract (Regulation) Act 1952 was passed. Forward Contract (Regulation) Act banned the future commodity trading from 1953 to control the speculation in essential commodities and bullions. After the recommendations of many committees like Shroff Committee, Dantwalla Committe, Khusro Committee and Kabra Committee commodity future trading (from 1953-1990). In 2002 government allowed screen based future trading in commodities including bullion. While India was gradually becoming the largest consumer of gold in the world, a position it still enjoys, futures markets in bullion were inevitable and began to emerge in Mumbai in 1920. The Indian commodity market can be broadly classified into commodity future market and commodity spot market. According to FMC the Indian spot market is the market where the claims are to be settled within 10 days of such trade, after 10 days either it will be considered as the future contract or automatically get settled by the exchange. The commodity market in India comprises of all markets that we come across in our daily lives. Such markets are social institutions that facilitate exchange of goods for money. The cost of goods is estimated in terms of domestic currency. Indian Commodity Market can be subdivided into the following two categories. Considering the present growth rate, the total valuation of the Indian Retail Market Is estimated across Rs.10,000 billion in the year 2010. Demand for commodities is likely to become four times by 2015 than what it was in 2010. In today's world, online Commodity markets/exchanges are the artificial person in the form of company or association of person which provides the facility to buy/sell the commodity online through d-mat account. The organised commodity markets growing across the world which clearly forms the proper supply chain of essential commodities (agricultural, non-agricultural, industrial metals, oils, etc) in the country and across the globe The basic purpose of commodity exchange is to find the prospective buyer/seller for every commodity in a centralized marketplace. With the proper supply chain of the commodity, the price discovery process becomes easy. The easy access of the commodity market provides the opportunity to the investors and businessman to buy/sell the commodity within short span of time, which increases efficiency of investor to invest in the vast variety of commodities and it also increases the efficiency of businessmen to purchase the raw material The easy access of commodity market is giving more and more birth to the hedgers, speculators and arbitragers. Hedgers, speculators and arbitragers are the group of peoples who enters in the market with the primary motive to earn profit. With the entry of this group of peoples the price discovery process becomes complex, biased and volatile. In India, the first two commodity exchanges were MCX (multi commodity exchange ltd) NCDEX (national commodity and derivative exchange ltd) which allowed large number of agro, non-agro commodities with some metals (ferrous and non-ferrous). The introduction of these two exchanges provided the opportunity for the peoples to trade in bundle of commodities on single screen. It also provided opportunity to the farmers to sell their agricultural produce directly to the wholesalers, retailers and consumers on the future date on a specified agreement. Government of India introduced e-choupal scheme to initiate online commodity trading among farmers. Farmers are getting better price by selling their produce online. With the introduction of commodity exchanges in India, massive speculation is taking place in commodities, which is pushing the price of commodities on the bullish side. There are several techniques which provide the tools for the calculation of volatility and future price movement Value at risk provides the estimates regarding the maximum expected loss under certain confidence level. There are three methods under value at risk analysis which provides the estimation of future loss. The concept of annualized actual volatility provides the idea about the volatility among the price of underlying asset. Pivot point analysis provides the prediction about the direction of prices in which the prices can move. It also gives certain support and resistant levels which bounds the prices of the underlying asset in the range. Support means downward support in a price of an asset and resistance means the resistance for the upward movement of the prices of an asset. Moving averages are also the most reliable tools for the prediction of the trend; trend analysis is done by using simple and exponential moving average. Stochastic analysis is based on the probability theory which provides the indicator to buy or sell the commodity. A commodity is an asset which can be added in the portfolio for the batter performance with the limited degree of risk associated with it. A commodity exchange is an association or a company or any other body corporate organizing futures trading in commodities for which license has been granted by regulating authority.

PRESENT COMMODITY MARKET IN INDIA
Commodity markets are centre place for the speculators; speculators basically move the market when there is low degree of volatility in it, the price discovery mechanism. It brings a price transparency and risk management in the vital market. 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. Since 2002, the commodities future market in India has experienced an unexpected boom in terms of modern exchanges, number of commodities allowed for derivatives trading as well as the value of futures trading in commodities, which crossed $ 1 trillion mark in 2006.In India there are 25 recognized future exchanges, of which there are four national level multi-commodity exchanges. After a gap of almost three decades, Government of India has allowed forward transactions in commodities through Online Commodity Exchanges, a modification of traditional business known as Adhat and Vayda Vyapar to facilitate better risk coverage and delivery of commodities. The four exchanges are given below:
1. National Commodity & Derivatives Exchange Limit (NCDEX) Mumbai,
2. Multi Commodity Exchange of India Limited (MCX) Mumbai and
3. National Multi- Commodity Exchange of India Limited (NMCEIL) Ahmedabad.
4. Indian Commodity Exchange Limited (ICEX), Gurgaon.

OBJECTIVES OF THE STUDY
To know the relevance of the tools in analysing the market in respect of commodity market analysis, to predict the future trend of the commodity market in respect of gold, to predict the reversal of trend in respect of gold, to know the factors influencing the gold prices, to find the appropriate tool for the future price analysis, to find the impact of change in dollar price on various internationally traded commodities, to understand the role of various group of nations in commodity price movement.

REVIEW OF THE LITERATURE
Rajnarayan Gupta (2011) in his study titled "Commodity Derivative Market in India: The Past, Present and Future" examined the commodity derivative market was reintroduced in India in early 2000s. Since its resumption, however, the market has been growing at a very high pace. The growth is evident in the spread of market network as well as in volume of trade. Earlier there were only regional exchanges in the country. Now there are national level bourses, namely, MCX, NCDEX and NMCE which dominate the market.

Sanjay Sehgal, Namita Rajput, and **Rajeev Kumar Dua (2012)** in his research paper "Price Discovery in Indian Agricultural Commodity Market" studied the price discovery relationship for Agricultural Commodities in Indian markets. They found an efficient price discovery process in place. They recommended the strengthening of the market regulatory framework. An emphasis on the autonomy of Forwards Market Commission (FMC) was made. Their study also revealed the need for well-developed warehousing and market linkages.

Kushankur Dey, and **Debasish Maitra (2012**), in his research paper "Price Discovery in Indian Commodity Futures Market: An Empirical Exercise", conducted studies on pepper to examine the price discovery process by applying Granger causality, Co-integration, Error Correction model. There was a unidirectional causality from Futures to Spot prices in the pepper Futures market.

Brajesh and **Pandy (2013)** in his study research paper "Market Efficiency in Indian Commodity Futures Markets" investigated the short run and long run market efficiency of Indian commodity futures market. They had tested four agricultural and even non-agricultural commodities for market efficiency and unbiasedness. The result confirmed the long run efficiency of commodity futures prices and inefficiency of futures prices in short run.

Mrs. Isha Chhajed and **Mr. Sameer Mehta (2013)** in his research paper "Market Behavior and Price Discovery in Indian Agriculture Commodity Market "examined the price discovery mechanism is quite effective for most commodities, but may not be very effective for some commodities. They found several natural processes such as seasonal cycles based on harvests, monsoons, depressions, and other weather events would also be expected to have an impact on price discovery in commodity markets; this is another area that needs to be studied.

Neeti Agarwal and **Gurbandini Kaur (2013)** in his study titled "Agricultural Commodity Future Trading and its Implications – An Overview" the discussion based on various parameters of the commodity market as a whole show that the researchers have a mixed view. There is no defined viewpoint on any of the variables selected. This clearly shows the uncertainty prevailing in the market which forms the basis of the research. This conceptual study therefore provides a scope for research in the developing and emerging markets.

Shamim Ahmad and **Mohammed Jamshed (2014)** in his study titled "Nurturing an Agriculture Friendly Commodity Derivatives Marketing in India" examined the analysis and discussion leads to the creation of a new 'institutional design' exclusively for governing, monitoring and regulating the spot, futures and derivatives markets in agricultural commodities. They found the Government of India should empower spot exchanges to function on pan-India basis through integrated single window. It need not be limited to State APMC Laws.

Nilanjana Kumari (2014) in his research paper "India's Foreign Trade with China with Special Reference to Agricultural Commodities" investigated the Sino-Indian bilateral trade relationship took an impressive turn during the last decade as China gradually ascended to become the largest trading partner of India since 2008. They found it can be observed from the trade composition that our commodity basket mainly consists of mineral based products, along with the semi-manufactured products.

RESEARCH METHODOLOGY
PERIOD OF THE STUDY
Period of the study will be from 1/11/2014 to 30/04/2015.

SOURCES OF DATA
The secondary data will be used in the study and data will be collected from the web resources of various international organisations Such as UNTCAD, World Gold Council, LME London, COMEX, NYMEX, London bullion association, etc. The data is also collected from some national Institutional Web resources such as Forward Market Commission (FMC), Multi Commodity Exchange (MCX), National Commodity and Derivatives Exchange (NCDEX).

SCOPE OF THE STUDY
The scope of the study will cover the prices of the Gold traded in Indian commodity exchange. The price movements and data from Multi Commodity Exchange of India Limited are taken for the study; the main commodity that is covered in the study is Gold. The impact of exchange rate fluctuations is also covered and the fluctuation in exchange rate in respect of gold is also studied to gain the insight of relationship among U.S. Dollar and Gold. Multi commodity exchange covers 82 % of commodity market in reference to gold, silver and crude oil. The data is to be taken from other exchanges and various government agencies to get the data about total volume of trade in India. The actual price variation and its study will be taken from MCX and COMEX. COMEX, an American exchange shows the

commodity price movement in dollar and MCX market shows prices in its converted form, i.e., in rupees. The global demand/supply and global fundamental analysis of commodities are also been included, as it forms the base for the price fluctuation in Indian economy.

'MOVING AVERAGE - MA'

Moving averages are used as a tool for the analysis of price trend as it smooth out the price movements and clears the movement of price beyond the trend line which is also called smoothing of "noise" from the data. Moving average always involves the past prices for the calculation and it is called the trend following indicator. Basically there are two types of moving averages which are used commonly i.e. simple moving average which is the simple average of a asset over a defined number of time periods, and the exponential moving average (EMA), which gives bigger weight to more recent prices. The basic use of moving averages is to determine the trend line and support and resistance level. While MAs are useful enough on their own, they also form the basis for other indicators such as the Moving Average Convergence Divergence (MACD).

SIMPLE MOVING AVERAGE

Daily Closing Prices: 11,12,13,14,15,16,17
First day of 5-day SMA: (11 + 12 + 13 + 14 + 15) / 5 = 13
Second day of 5-day SMA: (12 + 13 + 14 + 15 + 16) / 5 = 14
Third day of 5-day SMA: (13 + 14 + 15 + 16 + 17) / 5 = 15

EXPONENTIAL MOVING AVERAGE

SMA: 10 period sum / 10
Multiplier: [2 / (Time periods + 1)] = (2 / (10 + 1)) = 0.1818 (18.18%)
EMA: {Close – EMA (previous day)} x multiplier + EMA (previous day).
Source: stockcharts.com

MOVING AVERAGE CONVERGENCE AND DIVERGENCE (MACD)

Convergence and divergence of moving averages collectively form MACD. When two moving averages (12days, 26days) moves towards each other it is said to form convergence. When two moving average (12days, 26days) moves away from each other, it forms divergence. The shorter moving average (12-day) is faster and responsible for most MACD movements. The longer moving average (26-day) is slower and less reactive to price changes in the underlying security.
MACD Line: (12-day EMA - 26-day EMA)
Signal Line: 9-day EMA of MACD Line
MACD Histogram: MACD Line - Signal Line
Source: stockcharts.com

RESULTS AND INTERPRETATION

MOVING AVERAGES

TABLE 1

Moving average	Simple MA	Signal	Exponential MA	Signal
MA 5	27,172	BUY	27,149	BUY
MA 10	27,081	BUY	27,095	BUY
MA 20	27,983	BUY	27,025	BUY
MA 50	26,937	BUY	26,950	BUY
MA 100	26,888	BUY	26,929	BUY
MA 200	26,913	BUY	26,889	BUY

The simple and exponential moving averages are showing the long signal. These signals are relevant up to 20 preceding days of the analysis. At the time of analysis, the prices of gold were around 26500 and it was expected that the price of gold will increase as shown in the analysis. The price of gold moved up to 27200 after the analysis. Hence it can be stated that the moving averages provides the trend on which the prices tend to move.

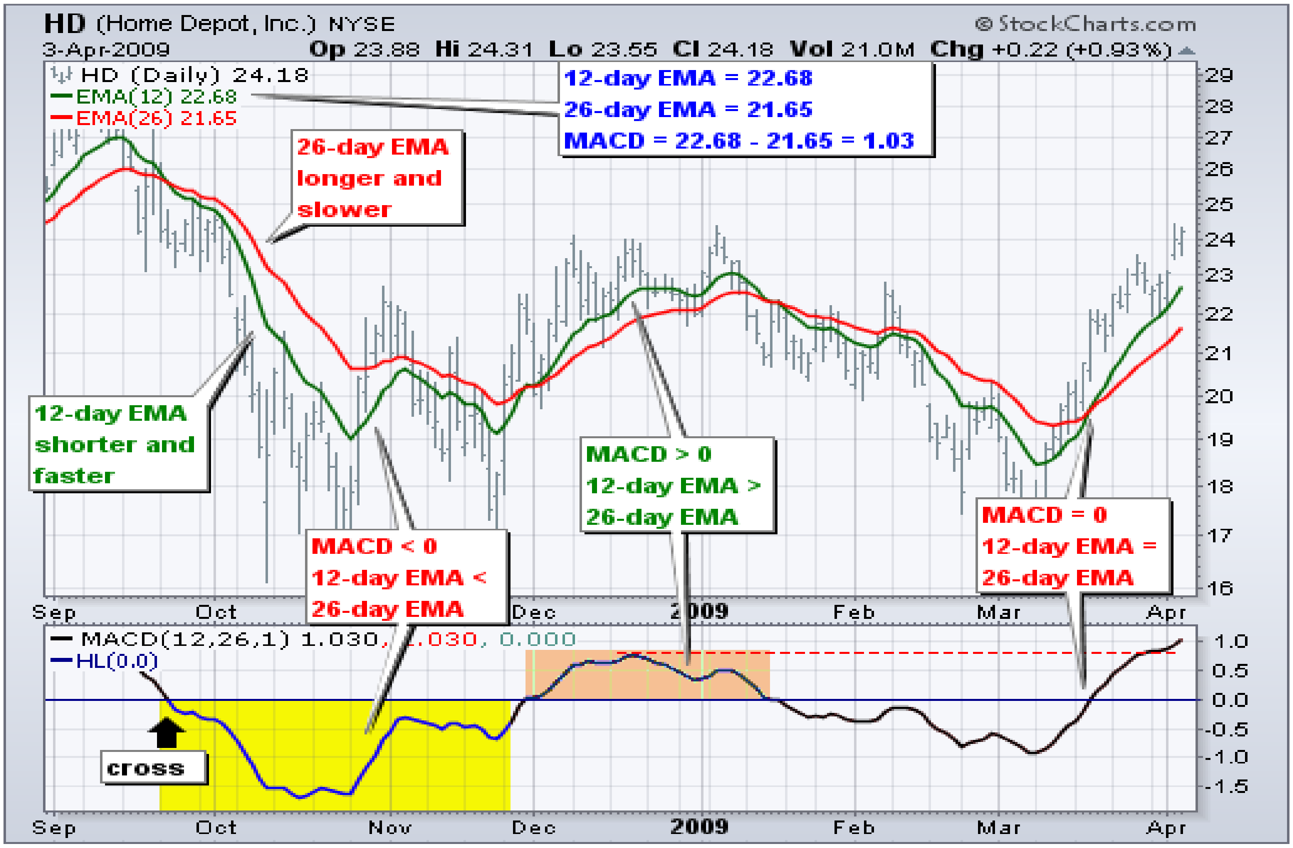
FIG. 1

Source: stockcharts.com

MOVING AVERAGE CONVERGENCE AND DIVERGENCE (MACD)

Outcome of MACD (12,26) is 72.845
Hence, it indicates that the trend of the gold prices can be reversed from this point.

FIG. 2



Source: www.stockcharts.com

LIMITATIONS OF THE STUDY

1. Secondary data has been used in the study.
2. The data is collected from the web resources and it cannot be collected in the primary form.
3. Data before the date 1/11/2014 and after 30/04/2015 is preferred for the study.
4. The impact of uncontrollable situations (like wars, recession, defaults, etc) on market and their reflection on prices cannot be eliminated and it will continue to influence the price.
5. The international price of gold is not considered for the study and the impact of exchange rates has not been included.

RECOMMENDATIONS

from the above analysis made above, the result of indicators (moving averages and MACD) suggests that the commodity should be purchased in further expectation of price rise as calculated MACD indicates above high signals 72.845 and however, all moving averages are showing the positive results. These indicators provided the accurate prediction in the above scope of study. Hence, these indicators can be used for prediction of prices in the commodity market

CONCLUSION

The prices of Gold will rise to 27500 within the period of 15 days. The prediction in rise in price of gold is indicated by both the indicators used in the study. The moving averages suggest that the demand of the Gold can be increased in the near future and MACD suggests the trend reversal as the gold touches its line of 70 points on the graph. It is strongly predicted that the prices of Gold will tend to move upward as both the indicators showing the same result.

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