

## Behavioural Biases in the Indian Commodity Derivatives Market: Implications and Mitigation Strategies

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**Abstract:** Behavioral finance examines the impact of psychological factors and cognitive biases on financial decision-making. This study investigates how these biases affect the Indian commodity derivatives market. It identifies key behavioral biases such as herd behavior, overconfidence, and loss aversion, and explores their implications for market efficiency and investor behavior. By analyzing secondary data and existing literature, this research provides insights into the prevalence and impact of these biases. Furthermore, it suggests strategies for mitigating these biases through education, regulatory measures, risk management tools, behavioral analytics, and portfolio diversification. The findings underscore the importance of incorporating behavioral finance principles into market regulation and investor education to foster a more resilient and efficient market.

**Keywords:** Behavioral Finance, Commodity Derivatives, Herd Behavior, Overconfidence, Loss Aversion, Indian Market, Market Regulation, Investor Education, Risk Management

### Introduction

Behavioral finance studies how psychological impact affects the concept of rationality on how an investor makes financial decisions. There are several theories in traditional finance include the Efficient Market Hypothesis (EMH) which presupposes that investors work under the premise of efficient operations, in the process of making decisions, investors work with all the available information to their advantage. Still, it has been seen from literature that investors do not always behave rationally because of cognitive and emotional biases (Barberis and Thaler, 2003; Shiller, 2000).

Further, these biases arise in the context of the commodity derivatives market and also distort trade and market conditions. Futures, options, and swaps are examples of Commodity derivatives. These are advanced financial securities that are exercised for risk management, establishing a market price for a specific commodity, and speculation among other uses as explained by Hull (2018). The BCDI in respect of Indian commodity derivatives has developed swiftly over the last one and half decades on the back of the participation of institutions as well as the investors at large (SEBI,

2021). Nevertheless, the increase in markets' role has exposed the need to study how behavioral biases affect the conditions in these markets.

The Indian market of commodity derivatives is highly volatile and highly speculative, which could cause the impact of cognitive bias to grow. For example, the phenomenon of irrationality which is evident in herd behavior may cause market bubbles and crashes due to the obsession with trends without the essence of fundamentals (Liu et al., 2020). Likewise, overconfidence can lead to overactive trading and induce risk-taking, resulting in volatility of the marketplace and is also possibly likely to cause loss.

The present work aims at the cognition and evaluation of the major behavioral biases that influence trading in commodity derivatives in India. Hence, the type of research being undertaken is secondary data research where the hope is to gain an understanding from existing literature about how these biases affect trading activity, volatility, and price. Besides, the paper also discusses ways of reducing the effects of these biases by including education, regulation, risk management, the use of behavior analytics, and the principles of diversification.

## Literature Review

Behavioral finance is a fast-emerging discipline that has taken scholars approximately a few decades to begin seriously studying the effect of psychology on finance. Shiller (2000) noted that psychological factors tend to cause bubbles and crashes in the markets by moving prices far from their fundamentals due to the self-feeding nature of the market. Barber and Odean (2001) pointed out that this overconfidence heaped on top of individuals who invest results in an increase in trading and thus market volatility. Odean (1998) continued with the analysis of the influence of the theory-anchored investors relying on initial reference points to later decisions.

Nickerson (1998) explained how investors tend to look for information that supports what they already believe to be true and filter out information that does not support their view. Kahneman and Tversky's (1979) prospect theory and the concept of loss aversion wherein, investors tend to cling on to losers and book losses for a long time and on the other hand they book profits very early. Tversky and Kahneman (1973) also looked at the availability heuristic, where an individual defines the probabilities from the ease with which particular examples of those probabilities come to mind.

Akerlof and Shiller (2009) opined that stock market bubble and boom viscosity is as a result of some behavioral economic flaws that include; recency bias whereby near events are overemphasized and recent movements are over-relied on. Rabin (2002) described the gambler's fallacy claiming that a series of random events influences the probabilities of the next random events. Thaler (1980) built the concept of the endowment effect that makes investors value owned commodities more than the ones they do not own- this leads to the effect of over-attachment. Another aspect is mental accounting which is reported by Thaler (1999) that people manage money differently depending on where the money comes from and where it goes and this influences investment decisions. Shefrin and Statman (1985) have indicated that investors often exhibit the disposition effect, implying that they hold winning stocks for too little time, or fail to sell their losing stocks at the right time, given the correct investors' strategies.

Subsequent works have been carried on investigating these biases in different settings. For instance, Liu, Weng, and You (2020) studied herding effects on business commodity markets and concluded the results show that herding influences lead to price bubble phenomena. Hence, Sahi, Arora, & Dhameja (2021) specifically examined overconfidence and its impact on trading volume and volatility of the derivative market in India. Agarwal and Jaiswal (2022) have presented empirical evidence of loss aversion concerning the Indian investors' trading behavior relating to the derivatives segment.

## Objective & Significance of the Study

### Objective of the Study

The primary objectives of this study are to:

Identify key behavioral biases that influence commodity derivative trading in India.

Assess the impact of these biases on trading volumes, market volatility, and pricing.

Explore the implications of behavioral finance for market regulation and investor protection.

### Significance of the Study

The contribution of this study is that the knowledge acquired on behavioral biases could help explain the commodity derivatives trading in India. Thus, as the market develops and gains in size and popularity with participants of varying experience, awareness of and attempts to counteract these biases becomes critical. This research work intends to provide a way to fill a major research gap arising from the opinion that the context of India may modify the proportions and implications of behavioral biases.

Thus, these biases can be defined as the psychological factors that contribute to the understanding of investors' behavior in the Indian commodity derivatives sector. Knowing these prejudices makes it easier to devise better solutions for managing risks since the latter is based on the activities of investors who have biases. For example, understanding herd behavior may assist the participants of the market in introducing the measures against the implementation of such a mentality, including critical evaluation among the investors.

In addition, this study might help the formulation of regulations related to the improvement of market efficiency and the protection of investors. The study's outcomes could guide regulators in devising measures that eliminate or significantly, reduce the impact of cognitive biases. For instance, more transparency and disclosure can mitigate confirmation bias since other investors would gain ample access to information that they have not considered.

Investor education programs are still another area that is considered important to the industry and where the findings of the present study can be useful. Because the investors can learn about those peculiar behavioral biases and how they distort the decision-making process, such programs can help to improve the rationality of investment. This is especially so in other emerging markets such as the Indian commodity derivatives market where many investors especially the retail type are coming in and many of them may not be financially literate.

Furthermore, the information can be used to applications and solutions on behalf of the financial institutions that can assist investors in addressing their biases. For instance, behavioral analytics can best be employed in trading activities to watch for improper trading behavior patterns and give recommendations that will in effect discourage such behavior. Further, there are means to protect from biases like automated trading systems and diversification in the portfolio.

#### Behavioral Biases in the Derivative Segment

##### Derivative

Financial instruments such as future, option and swap where the value of the instrument stems from the physical commodity market includes metals, energy products and agriculture products. These instruments have various uses, they are most commonly used as tools that enable managers to hedge risks as well as enable them to determine an asset's price as well as engage in speculative undertakings (Hull, 2018). In India the over the counter commodity derivatives market has grown and large exchanges such as Multi Commodity Exchange (MCX) and the National Commodity and Derivatives Exchange (NCDEX) are governing reputed exchanges (SEBI, 2021).

Commodity derivatives are effective risk management instruments in mitigating price risks, thus, maintaining efficiency in the market. Futures contracts cover the chances for producers or consumers and decrease risks which are tied to the relations between what commodities shall cost in the future. Futures give the user the potential to purchase or sell a particular commodity at a stated price in the future giving further possibility to manage market risks (Hull, 2018).

The trading activity in India in terms of commodity derivatives has been picking up due to participation by institutions and the small investors. Such growth is due to factors such as liberalisation in the market, use of technology, and better polices and regulations (SEBI, 2021). However, due to the complexity coupled with high risks characteristic of the market, one cannot underestimate the need for analyzing the behavioral aspects that affect trading or even the operations of the market.

##### Behavioral Biases

Commodity investors are no exception and are just like any other investors, meaning they are also bound to approach the decisions they make with different behavioral biases. Here are some common behavioral biases specific to commodity investors:

- a. **Herd Behavior:** People tend to copy others' actions, or herd, and this leads to buying of commodities when prices are high and selling them when prices are low constituting bubbles and crashes. Research has proved that herding has a great impact on the market thus upsetting the fundamental values (Liu et al. , 2020). The main feature is the amplification of these fluctuations in the context of some market stress or uncertainty, investors' FOMO or panic selling.
- b. **Overconfidence:** This is because several commodity investors might even go to the extent of perceiving that they know everything or possess incredible prowess in the patterns of commodity market fluctuations and as such engage in more trading and risky activities. Egotistical investors are habitual traders who execute large numbers of trades, and their returns are likely to be inferior to the market as a result of transaction costs and timing (Barber & Odean, 2001; Sahiet al. , 2021). It also leads to underestimation of risk

hence inadvertently in situations where the market is volatile the trader can lose a lot of his/her investment.

- c. **Anchoring:** It makes the investors lean too much on the first price of a certain commodity or other random benchmarks, distorting their overall future decision-making by misleading signals. This favoritism can make the timing of entry and exit points less than perfect which influences the overall profitability ((Odean, 1998). For example, if an investor has a high anchaison situ, because of historical price, such an investor will not be willing to sell a commodity that is currently valued low although other market indications show that the price may still fall even more.
- d. **Confirmation Bias:** Shareholders act exactly in the way, that they do not want: they look for information that supports their opinions and exclude the one that opposes them. This mode of processing information means that only certain information is attended to and this can tend to perpetuate wrong beliefs and therefore lead to constant trading errors (Nickerson, 1998). This could mean excluding signals suggestive of the supply rise or technologies, which may affect price levels, in commodity markets.
- e. **Availability Heuristic:** This way investors can make decisions based on information that is easiest for them to obtain or even the most up-to-date information, disregarding all the other information out there. This can bring to an end over-reaction to recent specific information and high fluctuation in the market (Tversky&Kahneman, 1973). For instance, a new increase in oil prices resulting from tension in geopolitical settings can cause the formulation of wrong perceptions of the market in the long run.
- f. **Recency Bias:** They put higher importance on recent data than the past data whereby their evaluation concentrates more on short period trends than the long-term trends. This leads to the cases where investors are choosing their stakes based on short-term market volatilities as opposed to longer-term values (Akerlof& Shiller, 2009). In the commodity market, this can be observed as return and variability of prices, about the most recent supply shocks or weather conditions.
- g. **Gambler's Fallacy:** The idea that regular occurrences of events that are random are influenced in some way by earlier random occurrences of similar events, for example, the ideology that a specific commodity price that has been on the rise will continue to go up or down. As a result, decisions in predicting future returns and the conduct of trades can be wrong (Rabin, 2002). frequently, for example, after an extended bullish run, the investor may erroneously conclude that a retest of the low prices is around the corner despite a lack of fundamental reasons.
- h. **Endowment Effect:** This results in an over-estimation and hence attachment to a commodity that one owns as compared to a similar but unrelated commodity one does not own leading to an inability to sell a commodity at a good price (Thaler, 1980). It can lead to keeping stocks for sentimental reasons instead of properly evaluating the market and the company's or product's performance.
- i. **Mental Accounting:** Describing something as gaining money when it losing money and vice versa if it is losing money when it is gaining it, mainly due to unequal treatment of money being a result of its source and use through which people can behave irrationally in investing (Thaler, 1999). For instance, an investor will be overly aggressive with his/her profits from the last transaction, and view it as 'house money,' while the investor will be pretty cautious with his/her initial capital.
- j. **Disposition Effect:** This behavior is the opposite of what is right because the optimal strategy is to cut losses and let profits run as pointed out by Shefrin and Statman (1985). Such behavior lowers the overall performance of the portfolio because it denies the investor an opportunity to make good profits on worthwhile trades

### **Mitigation of the Impact of Behavioral Biases in the Derivative Market**

The impact of behavioral biases in the commodity derivatives market can be mitigated through several strategies:

- a. **Education and Awareness:** In this case, creating awareness of these behavioral biases to the investors can assist in reducing irrational behaviors. Such biases, therefore, should be among the common topics that investor education programs cover, especially how one could overcome them. The ongoing measures, including the workshops and online courses organized by the financial institutions and relevant regulators, have emerged as useful in the improvement of investors' awareness (Sahiet al. , 2021).
- b. **Regulatory Measures:** Hence, there is a need for the development of sound implementing regulations that assist in the enhancement of transparency besides minimizing behavioral biases. For instance, making sure that investment risks are stated in detail and making sure that financial advisors are ethical can guard investors. The regulator of the securities market in India, SEBI, has put in place measures that jell with those of developed securities markets to enhance the level of market transparency and protection of investors, which would possibly reduce the impact of bias (SEBI, 2021).
- c. **Risk Management Tools:** Stop loss orders, diversions and hedging of stocks are some of the ways through which an investor can limit his/her exposure to high risks and avoid being influenced by biases. These tools can also make staff adhere to discipline as well as ensure that they do not take emotionally charged decisions. For instance, stop-loss orders can automatically sell a commodity when it reaches a specific price to minimize further losses since people avoid such a loss.
- d. **Behavioral Analytics:** Using the analysis of behavioral patterns in trading it is possible to detect the signs of irrational behavior and carry out appropriate actions. Expert data processing can reveal rather obvious self-biasing factors influencing trading activities and recommend measures to reduce or eliminate such impacts. Artificial intelligence and machine learning are the new trend among financial institutions in analyzing investor's behavior and offering them advice (Agarwal &Jaiswal, 2022).
- e. **Portfolio Diversification:** Getting rid of biases regarding specific commodities and assets can be performed when investing in different kinds of commodities and assets. Portfolio diversification can help cut some risks and better quantify returns, thus; avoiding hasty decisions caused by market fluctuations. Some studies conducted in the recent past have revealed that investment diversification is relatively more effective in the long run despite the fluctuation that characterizes the short run (Liu et al. , 2020).
- f. **Emotional Regulation:** Persuading investors to adopt coping styles and ways of thinking that were developed by cognitive psychologists can lead to the alteration of decisions they make based on feelings. It is thus possible to make use of emotional regulation strategies to minimize the effects of biases for example; loss aversion and excessive self-confidence. Education programs for psychological protection and stress management have also been useful in enhancing decision-making under pressure (Kahneman&Tversky, 1979).
- g. **Structured Decision-Making Processes:** The checklist and decision matrices, for instance, ought to be embraced by investors as ways of enhancing structured decisions hence mitigating the bias. They can serve the purpose of making sure that decisions are made rationally and not based on the case or heuristics. For instance, a checklist could entail factors like analysis of the basic data, the prevailing market conditions, and analysis of the risks that are involved in the investment.

## Conclusion

The study finds that the portrait of the IGDM is characterized by behavioral biases that affect the investors' decisions and the overall market performance. These biases can however be taken into account by investors, regulators, and financial advisors in the market so as to come up with techniques on how best to counter them and have the market depict rationality. Elements of these strategies include education for the public and the managers, legal resolutions, instruments for managing risks, behavioral assessment, diversification in the portfolio, controlling

emotions, and standard practice of decision-making. The usage of behavioral finance ideas in the regulation of the stock market and involving the public with those ideas will greatly enhance the depth of the market which in turn will improve the Market efficiency to the benefit of all the shareholders.

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