

A Comparative Study on Equity, Commodity, Currency Derivatives in India - Evidence from Future Market with special reference to BSE Ltd, Mumbai

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Abstract

The study compares the equity, commodity, and currency derivatives in India – evidence from future market. This study focus on the risk and return associated with derivatives used in equity, commodity, and currency market in India. The average and standard deviation to access the risk and return factor and also comparative tool for correlation analysis were used to find out relationship among risk and return. It is found that the risk premium of equity is essentially the same as commodity, equity returns are negatively correlated with commodity return and currency return and also found that the equity, commodity, and currency of derivatives are used for hedging purpose

.Key words: Derivatives, Stock market, Risk & Return.

Introduction

Derivative is a product whose value is derived from the value of one or more basic variables, called bases (underlying asset, index, or reference rate), in a contractual manner. The underlying asset can be equity, forex, commodity or any other asset.

Over the last decade the business environment has become more and more global, which has led to an increasing level of competition but also enabled entities to gain access to new customers and additional resource markets. With a growing diversity of international business operations an increase in risks naturally comes along, especially with risks related to financial issues such as fluctuating currencies, commodity prices and interest rates. When companies face those kinds of risks, a common way to deal with such issue is the usage of hedge

instruments. Hedging can basically be described as an attempt to reduce the risk of an underlying transaction by concluding an adverse transaction in order to offset the risks. New financial instruments such as derivatives have been intensively used to hedge these risks. Derivatives are kinds of financial instruments whose changes in market value are depending on changes in underlying variables (asset and/or liabilities). Common examples of underlying variables are interest rates, exchange rates, stock prices, stock-market indices, or prices of commodities. Besides hedging risks, derivatives can be used for trading (speculative) purposes. Though the primary users of derivatives are financial institutions such as banks, insurance companies, and investment managers, the usage of derivatives by non-financial firms is considerable.

This study examines the impact of introduction of derivative market trading on the Indian stock market. It examines the theme that the compare the risk and return profile of equity derivative, commodity derivative, currency derivative towards in Future Market in India. Prices in an organized derivatives market reflect the perception of market participants about the future and lead the price of underlying to the perceived future level.

Statement of the Problem

Investors are less knowledge about the derivative market. Investor always makes investment in expectation of return. However, return is always subject to the risk attached. Investors do require a hedging mechanism to offset the risk of investing in shares and debentures. There has been a quest for finding out suitable hedging mechanism. Some of these are forward contracts, futures and options. These are collectively called as Derivatives because these contracts derive their value from some underlying assets (Stock, index, interest rate, currency, and commodity). Many Investors are not aware of the hedging the risk and also cannot diversified the risk in various investment option.

Objective of the Study

- To analyze the risk and return towards the future trends of Equity Derivatives.
- To analyze the risk and return towards the future trends of Commodity Derivatives.
- To analyze the risk and return towards the future trends of Currency Derivatives.

- To Compare the risk and return profile of Equity, Commodity, Currency Derivatives towards in Future Market in India.

Scope of the Study

Derivative is a generic term like futures and options on Indian stock markets have become important instruments of price discovery, portfolio diversification and risk hedging in recent times. The study can't be said as totally perfect because of any alteration may come. The study has only made a humble attempt at evaluation derivatives market only in India context. The present study has been carried out with the focus on future contract. This study is useful for the Advisory agents and the investors to manage the price risk that prevails in the market. Moreover it is helpful for the investors to hedge their profits through the use of stock exchange. It should be extended with consists of investment in all securities of the market.

Review of Literature

Viral Acharia and Matt Richardson (2009) "Derivatives – The Ultimate Financial Innovation": In this article should review that the derivatives background and the ultimate financial innovation of derivatives market. And also the procedures of cost – benefit analysis of derivatives.

Edmund Parker (2008) "Overview and introduction to equity derivatives": This review deals with over all Equity derivatives traded in

stock exchanges. Size and history of equity derivatives market briefly described the author. They briefly discuss on equity derivatives market constitution, tax benefit, transaction process should be also trading methods on stock market.

Gary Gorton and K. Geert Rouwenhorst (2005) "Facts and Fantasies about Commodity Futures": This paper review that construct an equally-weighted index of commodity futures monthly returns over the period between July of 1959 and December of 2004 in order to study simple properties of commodity futures as an asset class. Fully-collateralized commodity futures have historically offered the same return and Sharpe ratio as equities. While the risk premium on commodity futures is essentially the same as equities, commodity futures returns are negatively correlated with equity returns and bond returns. The negative correlation between commodity futures and the other asset classes is due, in significant part, to different behavior over the business cycle. In addition, commodity futures are positively correlated with inflation, unexpected inflation, and changes in expected inflation.

George Allayannis and James P. Weston (2001) "The Use of Foreign Currency Derivatives and Firm Market Value": This article examines the use of foreign currency derivatives (FCDs) in a sample of 720 large U.S. nonfinancial firms between 1990 and 1995 and its potential impact on firm value. Using Tobin's Q as a proxy for firm value, they find a positive relation between firm value and the use of FCDs. The hedging premium is statistically and economically significant for firms with exposure to exchange

rates and is on average 4.87% of firm value. They also find some evidence consistent with the hypothesis that hedging causes an increase in firm value.

Methodology

Research is simply a scientific search for knowledge of new things. Research as "a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program which is considered research for other purposes. For example, some demonstration and service programs may include research activities"

Research Design

A research design is purely and simply the framework or plan for a study that guides the collection and analysis of the data. It is the blueprint for finding research objectives and answering questions. It is a framework for the collection and analysis of data. The research relies mainly on secondary data. However, it still offers thorough and accurate answers to all the research questions. The qualitative research methodologies would be applied. The reasons why this research method is utilized will be explained later in the research method and approach section. The type of research under present is an analytical research, we use facts or information is already available and analyzes to makes the critical evaluation of the project.

Data Collection

Data Collection is an important aspect of any type of research study. Inaccurate data collection can impact the results of a study and ultimately lead to invalid results. In this study, the secondary data has been provided wherever required.

Secondary data is the data which is collected, collated and analyzed by someone other than user as opposed to primary data which is collected directly by researcher. The research method exploited in this study is merely based on secondary data that has been collected from the commercial websites on stock exchanges, commodity exchanges, and Reserve Bank of India. The prominent advantages of this method are to provide larger database and to guarantee the high level of reliability and accuracy, the first and foremost criteria in finance research. Another merit involves far less time consuming and cheaper cost in searching secondary sources than in conducting primary data collection.

Tools for Data Analysis

1. Return
2. Standard Deviation
3. Correlation

Descriptive Statistics

Average and Standard Deviation : To assess the risk and return factors.

Inferential Statistics

Correlation : An analysis of the relationship of two or more

variables.

Period of the Study

The data for a period 5 years ranging from April 2008 to March 2013 have been collected and considered for analysis.

Returns

A major purpose of investment is to set a return of income on the funds invested. On a bond an investor expects to receive interest. On a stock, dividends may be anticipated. The investor may expect capital gains from some investments and rental income from house property.

$$R_{j,t} = P_{j,t} - P_{j,t-1} / P_{j,t}$$

Where;

$P_{j,t}$ = The yearly Price of stocks j at the year t ;

$P_{j,t-1}$ = The yearly price of the stock j at the month $t-1$

Standard Deviation

Standard deviation is applied to the annual rate of return of an investment to measure the investment's volatility. Standard deviation is also known as historical volatility and is used by investors as a gauge for the amount of expected volatility. Standard deviation is a statistical measurement that sheds light on historical volatility

A measure of the dispersion of a set of data from its mean. The more spread apart the data, the higher the deviation. Standard deviation is calculated as the square root of variance.

$$s_N = \sqrt{\frac{1}{N} \sum_{i=1}^N (x_i - \bar{x})^2}$$

Correlation (R)

The correlation is one of the most common and most useful statistics. A correlation is a Single number that describes the degree of relationship between two variables. The Correlation Coefficient measures the nature and extent of relationship between the stock Market index Return and the Stock Return in a particular period.

$$r = \frac{\sum dx dy}{\sqrt{\sum dx^2 \sum dy^2}}$$

Limitations of the Study

- The study is applicable to derivative market and focuses on price discovery and risk hedging only.
- The time period of research was restricted to 30 days.
- The study has covered only three underlying assets (Equity, Commodity, and Currency).
- The reliability of the data may not be dependable.

Analysis and Interpretation

To examine the risk premium across a variety of commodity, stock, and currency and the particular time periods

Comparative Risk Premium of Commodity, Stock, and Currency

	Commodity	Stocks	Currency
Average	5.23	5.65	2.22
Standard Deviation	12.1	14.85	8.47

T-statistic	2.92	2.57	1.77
Sharpe ratio	0.43	0.38	0.26

Inference:

It is understood from the table historical risk premium of Commodity (5.23) is about equal to the risk premium of Stocks (5.65), and is more than double the risk premium of Currency (2.22). The t-statistic measures the confidence that the average risk premium is different from zero.

Comparative Risk Premium of Commodity, Stock, and Currency Diagram

The Comparative Return of Commodity, Stock, and Currency of the returns on financial returns often deviate from a normal distribution, display skewness, and have “fat tails.”

Comparative Return of Commodity, Stock, and Currency

	Commodity	Stocks	Currency
Average	0.89	0.93	0.64
Standard Deviation	3.47	4.27	2.45
Skewness	0.71	-0.34	0.37

Inference:

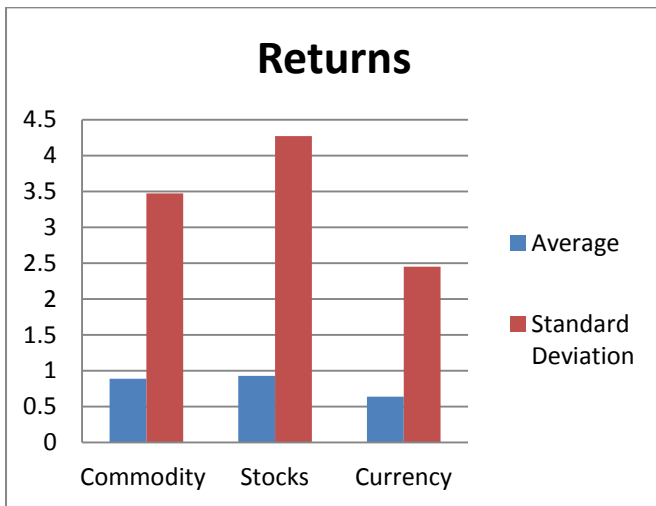
It is understood from the table Commodity (0.89) and Stocks (0.93) have about the nearest average return, but the currency (0.64) have medium return yield. The return distribution of

equities has negative skewness, while the

	Commodity	Stocks	Currency
Monthly	0.05	-0.14	0.01
Quarterly	-0.06	-0.27	0.14
1-year	-0.10	-0.30	0.29
5-year	-0.42	-0.25	0.45

distribution of commodity and currency returns has positive skewness.

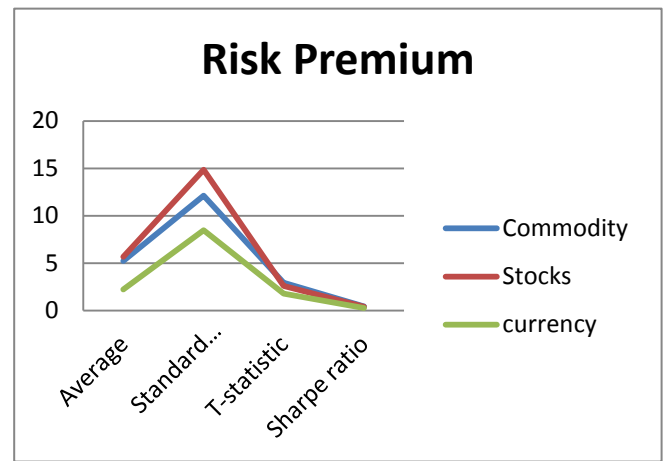
Comparative Return of Commodity, Stock, and Currency Diagram



The coefficient of correlation indicates the strength and direction of statistical relationship between commodity, stock, and currency. Comparative Correlation of Commodity, Stock, and Currency

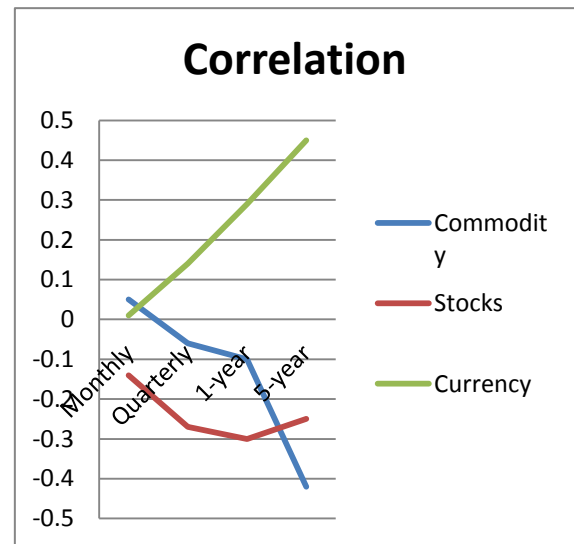
Inference:

It is understood from the table negative correlation of Commodity tends to increase with holding period. The negative correlation of Stocks tends to increase with holding period. And the



positive correlation of Currency tends to increase with the holding period.

Correlation of Commodity, Stock, and Currency Diagram



Findings of the Study

The study has revealed the following important findings.

- The risk premium of equity (5.65) is essentially the same as commodity (5.23) and double the currency (2.22).
- The return of equity (0.93) is essentially the same as commodity (0.89) and single time high in currency (0.64).
- Holding period more than five years the return of equity (-0.25) and commodity (-

0.42) is negatively correlated but currency (0.45) is positively correlated.

Suggestions

- The risk premium of equity (5.65) more high compare with commodity (5.23) and currency (2.22) so it is suggested that the risk avoiders may invest in different equity, commodity, and currency derivatives combinations.
- The investor should try to make more investment in derivative market since the fluctuation is normal for risk and return on holding period less than one month.

Conclusion

Derivatives are financial contracts whose value is derived from some underlying asset. These assets can include equities and equity indices, bonds, loans, interest rates, exchange rates, commodities. The contracts come in many forms, but the more common ones include options, forwards/futures and swaps. This study has been to investor compare among different types of derivatives for reducing risk and increase the return. This is important if one wants to understand the determinants of use of each type of derivatives, due to the fact that investors of derivatives often use more than one type of derivatives. The results shows negatively correlated with equity, commodity, and currency returns. This study applies to each of the three types of derivatives is not dependent on size, leading us to conclude that the finding of a size

effect from previous studies was probably the result of including firms that used a multiplicity of derivatives and then also found results that are consistent with the use of derivatives for hedging purposes.

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