Hedging dynamics with gold futures

Singh, Saurabh and Saharawat, Swati

Department of Finance Management, College of Agribusiness Management, G B Pant University of Agriculture Technology, Pantnagar, Uttarakhand, India, Department of Finance Management, College of Agribusiness Management, G B Pant University of Agriculture Technology, Pantnagar, Uttarakhand, India

2011

Hedging Dynamics with Gold Futures

SAURABH SINGH, *Faculty Member*, *College of Agribusiness Management, Govind Ballabh Pant Krishi Evam Prodyogik Vishwa Vidyalaya, Pantnagar, U. S. Nagar, Uttarakhand, India – 263 145*
SWATI SAHARAWAT, *Consultant*

ABSTRACT

People by and large tend to postpone their present consumption for numerous reasons. This postponement of consumption leaves them with surplus money to invest for future consumption. Amongst the number of alternatives avenues present for such investments, gold too tends to be one of them. People around the world invest in gold though for many different reasons. Many people view gold as a reliable source of value in times of difficulty. Gold offers insurance against stock market failure. While at the same amongst the different purposes that require use of Gold, certainly include commodity uses. Even if viewed from the historical perspective of a multi-century time frame, no other investment has the wealth preserving power of gold. Other assets are dependent upon a certain government or political climate to retain value or appreciate, but gold is largely independent of political climate. The research design adopted for the completion of the study was of descriptive type. It describes the reasons that affect the prices of gold in world as well as domestic scenarios. The study leads to the conclusion that by keeping an eye on movement of 'Basis and of market the importers and exporters' can manage the four scenarios for both long/short hedgers. The hedger can do two things for minimizing the risk namely first being either can square off the position at the time where he can face minimum risk or can gain profit as bonus if he has no margin left in respect of time i.e. if he has to buy or sell the gold for fulfilling the commitments on or before the expiry date of his future contract only, or the next can be rolling over the position, if there is still some time in fulfilling the commitments i.e. can buy/sell another far month contract for minimizing the risk, according to the movement of Basis and market.

Keywords: Gold Futures, Hedging, Risk Management, Commodity Exchanges

JEL Classification: G10, G12, G13, G19

Hedging Dynamics with Gold Futures

INTRODUCTION

People by and large tend to postpone their present consumption for numerous reasons. This postponement of consumption leaves them with surplus money to invest for future consumption. There are various avenues of such investments and gold is one of them. People around the world invest in gold though for many different reasons. Many people view gold as a reliable source of value in times of difficulty. Gold offers insurance against stock market failure and has proved to be a liquid transportable asset for refugees needing to flee their countries. Gold is used for different purposes, and these certainly include commodity uses. Industrial applications of gold account for about 10 percent of demand each year[1] (Source: MCX Report). Demand for gold as jewellery absorbs around 75 percent[2] (Source: Gold Field Mineral Services –Online Access) of the gold supplied to the market each year, with the balance made up by investment. Gold is certainly included in the leading tradable commodity indices. That makes gold, for many practical purposes, as a commodity.

The real value of gold is not that it provides a quick, speculative fix, but that it can provide a sure and steady means of protecting wealth and enhance the consistency of returns. For centuries gold has been used as a store of value. When viewed from the historical perspective of a multi-century time frame, no other investment has the wealth preserving power of gold. Other assets are dependent upon a certain government or political climate to retain value or appreciate, but gold is largely independent of political climate.

The factors that put gold apart from other commodities stem from three crucial attributes of gold: it is fungible, indestructible and, most importantly, the inventory of above-ground stocks of gold is enormous relative to the supply flow. Inventory of above ground stock means scrap sale and recycled gold. If the gold prices increases then the people having gold as an asset start selling their holdings in market and the demand of gold can easily be met through this recycled gold. Moreover, the prices of gold are not stable due to equilibrium in demand and supply. The core driver of the real price of gold is stock equilibrium rather than flow equilibrium. This is not to say that exogenous shifts in flow demand will have no influence at all on the price of gold, but rather than that the large supply of inventory, above ground stocks, is likely to dampen any resultant spikes in price.

Every investor wants to hedge his/her risk against to the price fluctuations before investing in gold, and the right path for this can be investing in Gold Futures with knowledge of Basis. Taking a deep look at the above reasons and broad subject area of hedging the present study was undertaken to understand the nature and functioning mechanism of Basis used to minimize the risk for gold investors, understand different markets for hedgers and suggest some strategies to them for minimizing their risk.

MATERIAL AND METHODS

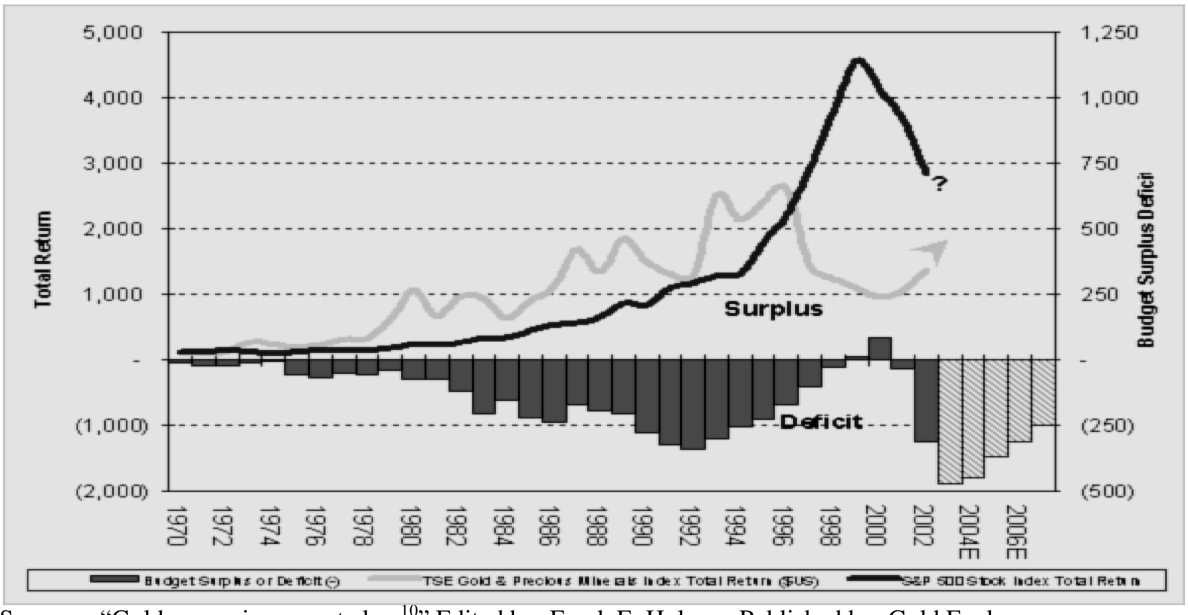
The research design adopted for the completion of the study was of descriptive type. It describes the reasons that affect the prices of gold in world as well as domestic scenarios. It further gives rationale for hedgers to use Basis for effective hedging transaction. The majority of the data required for the fulfillment of the objectives of the study was obtained through data mining from data warehouses of commodity exchanges (prominent being MCX). Further requirement was met from the data available on internet, MCX intranet, magazines, articles and research papers.

RESULTS AND DISCUSSION

Rationale for Investing in Gold: Gold with its role as a portfolio diversifier, a hedge against inflation and exposure to foreign exchange, there are several compelling arguments for investing a portion of one's portfolio in the yellow metal. Some of the justifications for investing in Gold are discussed hereunder.

Portfolio Diversification: Portfolios that contain gold are generally more robust and better able to cope with market uncertainties than those without it. Gold is unusual because it is both a commodity and a monetary asset and is an effective diversifier because its performance tends to move independently of other investments[10] (Holmes, 2003). Adding gold to a portfolio introduces an entirely different class of asset. Gold can improve the stability and predictability of returns.

Exhibit 1 shows that since 1971, when gold became free trading commodity, the TSE Gold Equity Index outperformed the S&P 500. This period was also characterized by budget deficit spending. In 1996, a political commitment to balance the budget deficit created a strong dollar, a bullish stock market and a weak gold price. However, since September 11, 2001, the budget surplus has evaporated, the stock market has fallen and gold has risen



Source: - "Gold as a unique asset class[10]".Edited by: Frank.E. Holmes. Published by: Gold Eagles

Exhibit 1: Negative correlation between stock returns and gold prices

Dollar Hedge: Gold is often cited as being an effective hedge against fluctuations in the US Dollar, the world's main trading currency. If the dollar appreciates, the dollar gold price falls and similarly a fall in the dollar relative to other main currencies produces a rise in the gold price. Moreover, gold commands great market depth and liquidity as far as commodity markets and commodity derivatives are concerned, being only next to oil. Exhibit 2 reveals that as the value of USD decreases the gold prices increases.

Source: US Dollar Index and Gold; http://www.zealllc.com

Exhibit 2: Movement in gold prices with US Dollar

Inflation: The value of gold in terms of real goods and services that it can buy has remained remarkably stable. In contrast, the purchasing power of many currencies has generally declined. This makes gold and its derivative an effective instrument to counter the effects of inflation and currency fluctuations. In fact extensive research from has consistently shown that, in spite of price fluctuations, gold has consistently reverted to its historic purchasing power parity[7] (Ranson and Wainwright. 2005); and during periods of financial, economic and social turmoil, gold has been a safe refuge when the value of other assets was all but destroyed. Exhibit 3 shows the change in gold prices with change in inflation rate[9] (Eden, 2006).

Exhibit 3: Movement in gold prices with inflation

Safe store of value: As, we can see from Exhibit 1, 2 and 3 that in volatile and uncertain times, we often witness a 'flight to quality', as investors seek to protect their capital by moving it into assets considered to be safer stores of value. Gold is among only a handful of financial assets that is not matched by a liability. It can provide insurance against extreme movements on the value of traditional asset classes that can happen in unsettled times[6](Paradis, 2007).

GOLD DERIVATIVES

Derivatives are financial contracts, which derive their value from underlying assets. Gold derivatives market has differed from that of other commodities due to the existence of massive above-ground stocks. This has made the gold market both operate in a different fashion from those relating to other commodities and become considerably more extensive. It has brought to market participants both new opportunities and new risks. As with all derivative markets, its complexity, the rapid pace of innovation and the chain of transactions typically triggered by one initial operation have made it difficult to measure or assess the market. ***A further problem in assessing the derivatives market has been the variable quality of the underlying data on gold holdings and gold movements.*** While the operations of certain participants are relatively well tracked, information about others can be limited or completely absent.

The unusual characteristics of the gold market have caused derivatives to develop in a way that favours the short side of the market. Certain of these features have exacerbated the unfavourable price conditions of recent years. The actions of market participants, including producers, central banks, the commercial banks and the hedge funds need to be considered in the light of these circumstances. In any market, especially one that remains in contango (forward price higher than spot price offering a positive interest rate), mine management is hard pressed not to embark on a hedge programme of some description. However, the future ability to hedge with the ease that characterized the past decade now remains to be seen. This then has very significant implications for the lending market and future demand for liquidity.

The above ground stocks of gold are very large and are in general held in a form that could readily come to market. Further, the willingness on the part of the holders of this metal to participate in the market implies that the cost of borrowing gold remains relatively low compared with money market rates. This is one of the major reasons why the gold forward market is nearly always in contango and only very rarely lapses into backwardation.

The purpose of hedging price risk is to minimise the impact of adverse price movements. Effectively, locking in a future price for the date of delivery of the metal means that the producer, consumer, merchant etc knows the price that he will command or receive on the day in question. The important principal to bear in mind here is that a forward or futures price is a function of interest rates, storage and insurance charges for a given period of time. Consequently, all other things being equal, a forward price will be higher than a nearby price and as the time value of the contract dwindles to zero, so does the difference in price. In other words, once the futures contract has become spot, by definition its designated price is the spot price.

BASIS USED BY HEDGER

The price difference between the spot and futures keeps on changing regularly. This price difference (spot - futures price) is known as the basis and the risk arising out of the difference is defined as basis risk. A situation in which the difference between spot and futures prices reduces (either negative or positive) is defined as narrowing of the basis.

Exhibit 4 shows the convergence of spot and future prices, in the contango market where future price is greater than spot price, when the contract gets expired.

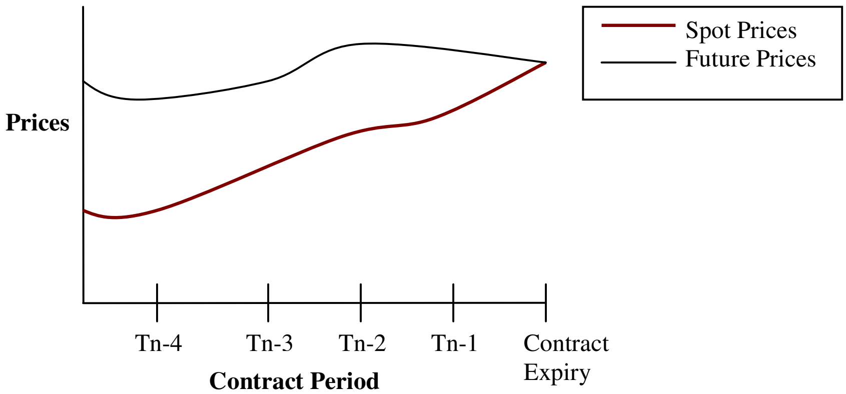


Exhibit 4: Contango Market
Source: Options, Futures and Other Derivatives (6th Edition). John C. Hull. 2006. Published By: Pearson Education

Exhibit 5 shows the convergence of spot and future prices, in the backwardation market where future price is less than spot price, when the contract gets expired.

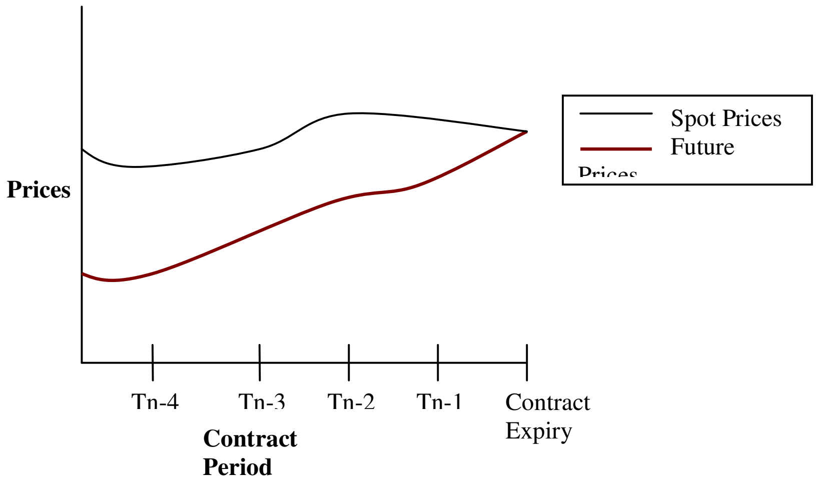


Exhibit 5: Backwardation Market
Source: Options, Futures and Other Derivatives (6th Edition). John C. Hull. 2006. Published By: Pearson Education

A narrowing of the basis benefits the short hedger and a widening of the basis benefits the long hedger in a market characterized by contango – when futures price is higher than spot price. In a market characterized by backwardation -- when futures quote at a discount to spot price -- a narrowing of the basis benefits the long hedger and a widening of the basis benefits the short hedger. However, if the difference between spot and futures prices increases (either on negative or positive side) it is defined as widening of the basis. The impact of this movement is opposite to that as in the case of narrowing.

Basis risk is an important concept of hedging. It is created by hedgers' uncertainty as to what the basis will be at maturity of the hedge. By seeing the movement of basis and market, the basis risk can be managed by hedgers. Based on this one can have the following scenarios:

- Backwardation Market, Widening of Basis
- Contango Market, Narrowing of Basis
- Contango Market, Widening of Basis
- Backwardation Market, Narrowing of Basis

By knowing the above scenarios hedgers can decide as to what position they should take in futures to offset an exposure to the price of an asset. The first scenario, for both long and short hedger, is explained hereunder based on the basis movement by taking the different gold futures of last four years into account. Also, the pay off or basis risk/gain in different scenarios has been calculated.

LONG HEDGER

Exhibit 6 shows the movement of Basis from June 2004 to August 2004. It reveals that the market is backwardation as basis is more than zero, and basis is getting widen i.e. moving away from zero. By applying sigma limit to the movement of basis, shown in the Exhibit, two points can be selected where there is abrupt change in the basis. So, the hedger can take long/short positions on any of these two days in order to minimize his/her risk.

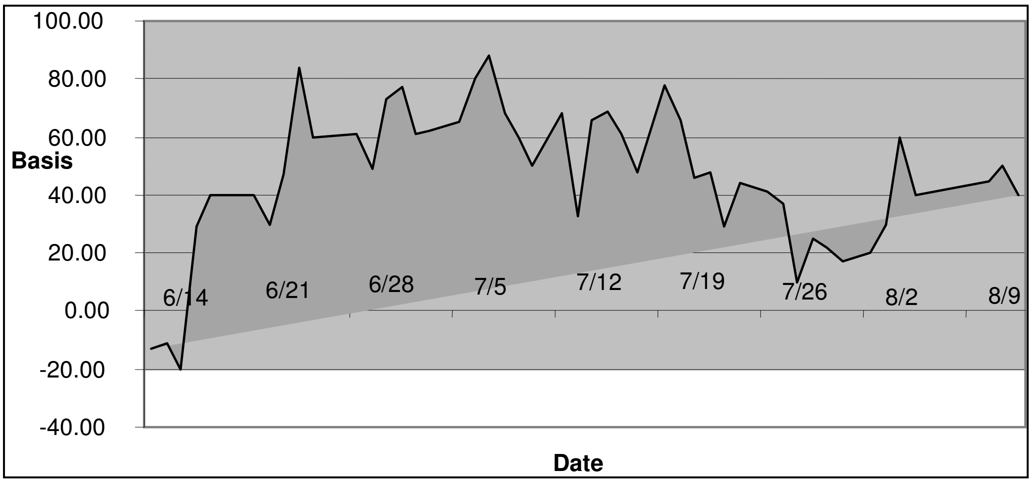


Exhibit No. 6: Basis movement from June 2004 to August 2004 Future Contract

Table 1 depicts:

- Spot is greater than future, Backwardation market; and
- Spot prices are increasing more relative to future prices.

Table 1: Basis risk in Long Hedging

Date	Spot Price (Rs.)	Future Price (Rs.)	Basis (Rs.)
17-Jun-2004	5780 (S)	5751 (B)	**29**
07-Jul-2004	6030 (B)	5942 (S)	**88**
Difference	-250	191	**-59**

Take example of such traders who want to buy gold in future for fulfilling their forward commitments, usually worry about the increase in future price. So according to the above example if he/she takes long position in Future market i.e. buy gold August Future Contract in a backwardation market then squaring off their position before reaching the expiry date of contract will give them a basis risk of Rs. 59 (-250+191). In other words there is no margin left with traders so they cannot bid the price of gold according to their choice. For maintaining their profit or minimizing the loss of Rs. 59 traders, before squaring off, should find out that position in the future market where traders risk of Rs.59 in terms of basis risk can be managed. The traders can also go for roll-over depending upon their commitments. Thus we can conclude that if spot prices increase more than future prices, widening of basis in backwardation market, then it will give little profit to Future side and larger loss to cash side for Long Hedger.

Short Hedger

Exhibit 7 shows the basis movement from October 2004 to December 2004. It also shows that the market is backwardation as basis is more than zero, and basis is getting widen i.e. moving away from zero.

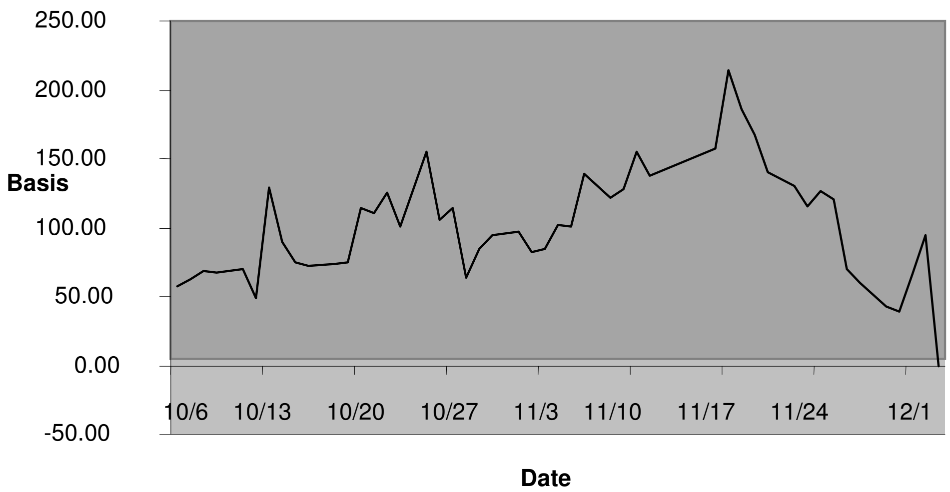


Exhibit 7 Basis movement from October 2004 to December 2004 Future Contract

By applying sigma limit to the movement of basis, shown in Exhibit 8.2, two points can be selected where there is abruptly change in the basis. So, the hedger can take long/short positions on any of these two days in order to minimize his/her risk.

Table 2 depicts:

- Spot is greater than future, Backwardation market
- Spot prices are increasing more relative to future prices.

Table 2 Basis gain in Short Hedging

Date	Spot Price (Rs)	Future Price (Rs)	Basis (Rs)
13-Oct-04	6340 (B)	6211 (S)	**129**
17-Nov-04	6580 (S)	6366 (B)	**214**
Difference	240	-155	**85**

Take example of such sellers who acquire inventories in the spot market and want to sell an equivalent or less amount in the futures market, usually worry about the decrease in future price. So, if they take short position in Future Market i.e. sell gold December Future Contract in a backwardation market then squaring off their position before reaching the expiry date of contract will give them a basis gain of Rs. 85 (240-155). Thus a margin is left with trader so that he can offer the price of gold according to his/her choice. In case, the prices of gold decrease in the spot market the seller can purchase up to Rs 85 per 10 gm higher as the amount of loss in future market can be offset by the gain in cash market.

Thus we can conclude that if spot prices increase more than future prices, widening of basis, in backwardation market, then it will give little loss to Future side and larger profit to Cash side for Short Hedger.

Conclusion:

By keeping an eye on movement of Basis and of market the importers and exporters can manage the four scenarios for both long/short hedgers.

The hedger can do two things for minimizing the risk:

- Either can square off the position at the time where he can face minimum risk or can gain profit as bonus if he has no margin left in respect of time i.e. if he has to buy or sell the gold for fulfilling the commitments on or before the expiry date of his future contract only ,or
- Rolling over the position, if there is still some time in fulfilling the commitments i.e. can buy/sell another far month contract for minimizing the risk, according to the movement of Basis n market.

References

1. http://www.mcxindia.com/ was retrieved from 10th June to 11th July 2007.
2. http//:www.gold.org./_was retrieved from 15th June to 5th July 2007.
3. http//:www.atimes.com/ was retrieved on 28th June 2007.
4. http//:www.bmsinc.ca/ was retrieved on 10th July 2007
5. Gold shines as retail Investment: The Hindu Business Line. 10th Oct. 2005. Edited By: C. J. Punnathara
6. Is gold a good investment: International Business times. 11th June, 2007. Edited By: Tim Paradis
7. David Ranson, H. C. Wainwright. (2005). Inflation Protection: Why gold works better then "linkers". World Gold Council
8. David Ranson, H. C. Wainwright. (2005). Why Gold, not oil, is the superior predictor of inflation. World Gold Council
9. Paul Van Eden. "Gold Prices". October 21, 2006 Published By: Gold Money. Edited By: James Turk.
10. Frank. E. Holmes. "Gold as a Unique Asset class". June 2, 2003. Published By: Gold Eagle.