

IDFM PROJECT

Roll no. – 437

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QUESTIONS

STATEMENT 1 – Hedging using futures can potentially eliminate volatility for any movement in underlying hedged item

STATEMENT 2 - Hedging using options can eliminate the downside volatility of the price movement in the underlying asset at an associated cost.

EXPLANATION

-Both the statements hold true.

Statement : While the use of short and long hedges can reduce (or eliminate in some cases as below) both downside and upside risk.

Reduction of upside risk is certainly a limitation of using futures to hedge.

Some basic terms of futures

A short hedge is one where a short position is taken on a futures contract. It is typically appropriate for a hedger to use when an asset is expected to be sold in the future. Alternatively, it can be used by a speculator who anticipates that the price of a contract will decrease.

A long hedge is one where a long position is taken on a futures contract. It is typically appropriate for a hedger to use when an asset is expected to be bought in the future. Alternatively, it can be used by a speculator who anticipates that the price of a contract will increase.

Basis Risk

In practice, hedges are often not as straightforward as has been assumed in this course due to the following reasons 1. The asset to be hedged might not be exactly the same as the asset underlying the futures contract, actual commodity, weight, quality, or amount might differ 2. The hedger might not be exactly certain of the when the asset will be bought or sold 3. Futures contract might need to be closed out before its delivery month, many commodities do not have 12 delivery months Basis is the difference between the cash price for the asset to be hedged and the futures price. If the hedged asset is identical to the commodity underlying the futures contract, the cash price and futures price should converge as delivery nears. Changes in basis price do not impact the futures contract but do impact the sales price for the produced to be hedged.

Cross-Hedging In the case when an asset is looking to be hedged and there is not an exact replication in the futures/options market, cross hedging can be employed.

Coming back to the explanation part

Futures contracts—also just called futures—are sometimes used by corporations and investors as a hedging strategy.

Some corporations that are producers or consumers of commodities use futures contracts to reduce the risk that an unfavourable price movement in the underlying asset—typically a commodity—will result in the corporation having to face unexpected expenses or losses in the future. When an investor uses futures contracts as part of their hedging strategy, their goal is to reduce the likelihood that they will experience a loss due to an unfavourable change in the market value of the underlying asset, usually a security or another financial instrument. If the security or the financial instrument typically experiences a lot of volatility, an investor may be more likely to purchase a futures contract.

For a short hedge, the more positive (stronger) the basis, the higher the price received for livestock. For a long hedge, the more negative (weaker) the basis, the lower the price paid for livestock.

Example; If cash prices for Lean Hogs is \$69.00/cwt and the futures price is \$73/cwt, then the basis is $\$69.00 - \$73.00 = -\$4.00$ or \$4.00 under. With a cash price of \$69.50 and a future price of \$68.50, the basis is $\$69.50 - \$68.50 = \$1.00$ or \$1.00 over

Example

To hedge stocks using futures, let's say have bought 4300 shares of Tata Motors at Rs. 150.50 per share. The overall investment would be of Rs. 647150.00. Clearly, you are in a 'Long' position on Tata Motors in the spot market. Once you into the position, you came to the realization that quarterly results of Tata Motors are expected soon or there is a macroeconomic risk of interest rate tightening that may affect the share prices of Tata Motors, as a result, the stock price of Tata Motors may decline in value. So, to mitigate that risk in the spot market, you decided to hedge your position.

In order to hedge your position in the spot market, you can simply counter it by taking a short position in the futures market. As you have taken a 'Long' position in the spot market, you will have to take a 'short' position in the futures market.

Tata Motors (Futures)

Share Price	Rs. 151.00
Lot Size	4300
Contract Value	Rs. 649300.00

As you can see that there is a variation in price while long on Tata Motors in the spot market and short on Tata Motors in the futures market. However, it is not much of a concern since you are in a neutral position which you are going to understand soon.

After the impact, let us arbitrarily imagine different scenarios in the stock price of Tata Motors and see what will be the overall impact on your positions.

Arbitrary Price	Long Spot P&L	Short Futures P&L
140	$140 - 150.50 = -10.50$	$151 - 140 = 9$
155	$155 - 150.50 = 4.50$	$151 - 155 = -4$
160	$160 - 150.50 = 9.50$	$151 - 160 = -9$

Now the point to note here is – irrespective of where the stock price move (whether it increases or decreases) your position will neither make money nor lose money. Here your position will be neutral without any market influence. This is how one can hedge stocks using futures. However, to hedge your position perfectly, you need to have the same number of shares as that of the lot size. If they vary, the overall Profit & Loss will vary too. If that happens, you will no longer be perfectly hedged.

Statement 2 – some terms in options theory

Call Option

A call option is in-the-money when the market price is above the exercise price. In such a scenario, it means the option holder has the chance to buy the security below the market price and at the strike price.

For example, if an investor entered into a call option contract to buy a Tesla stock for \$15 in the future and that by the time the contract expires, the market price of the equity is \$17, it means the call is in-the-money and that the investor would save \$2 per stock agreed upon.

Put Option

A put option is in-the-money when the market price is below the exercise price. As put options provide holders the right to sell the security at the strike price, they have the opportunity to make money by selling their stock at a value higher than what is offered in the market.

In-the-Money

In-the-money is a term that indicates that the option contract yields value, as its strike price is in a favourable position based on the market price of the underlying asset.

At-the-Money

At-the-money is a term where the option's strike price is equal to the market price of the underlying asset. Both call and put options can be at-the-money.

Out-of-the-Money

Out-of-the-money is an expression that describes an option contract that yields zero intrinsic value while containing some extrinsic value. An option that is out-of-the-money occurs in the following circumstances:

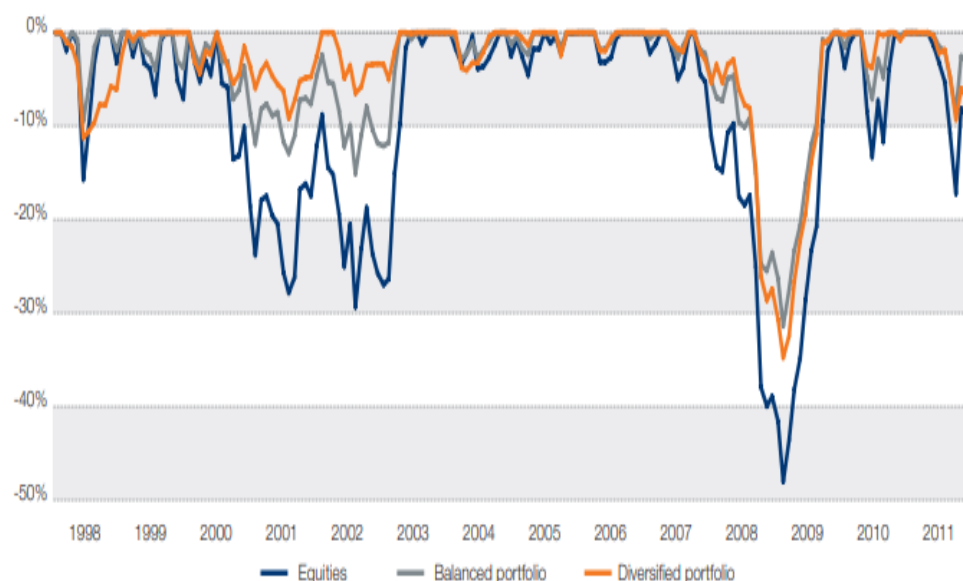
Hedging strategies are used by investors to reduce their exposure to risk in the event that an asset in their portfolio is subject to a sudden price decline. When properly done, hedging strategies reduce uncertainty and limit losses without significantly reducing the potential rate of return.

The pricing of options is determined by their downside risk, which is the likelihood that the stock or index that they are hedging will lose value if there is a change in market conditions.

There is an increasing demand for protection against falls in markets and there is a wide range of instrument and strategies that can be used for downside risk management

As well as overall strategies for managing downside risk, there are specific instruments to do this of which options are the most commonly used.

Figure 1: The historical drawdown for equities, a traditional balanced and a diversified portfolio



Diversification out of equities into the asset classes did not protect portfolios as well as expected

1. Sell a covered call

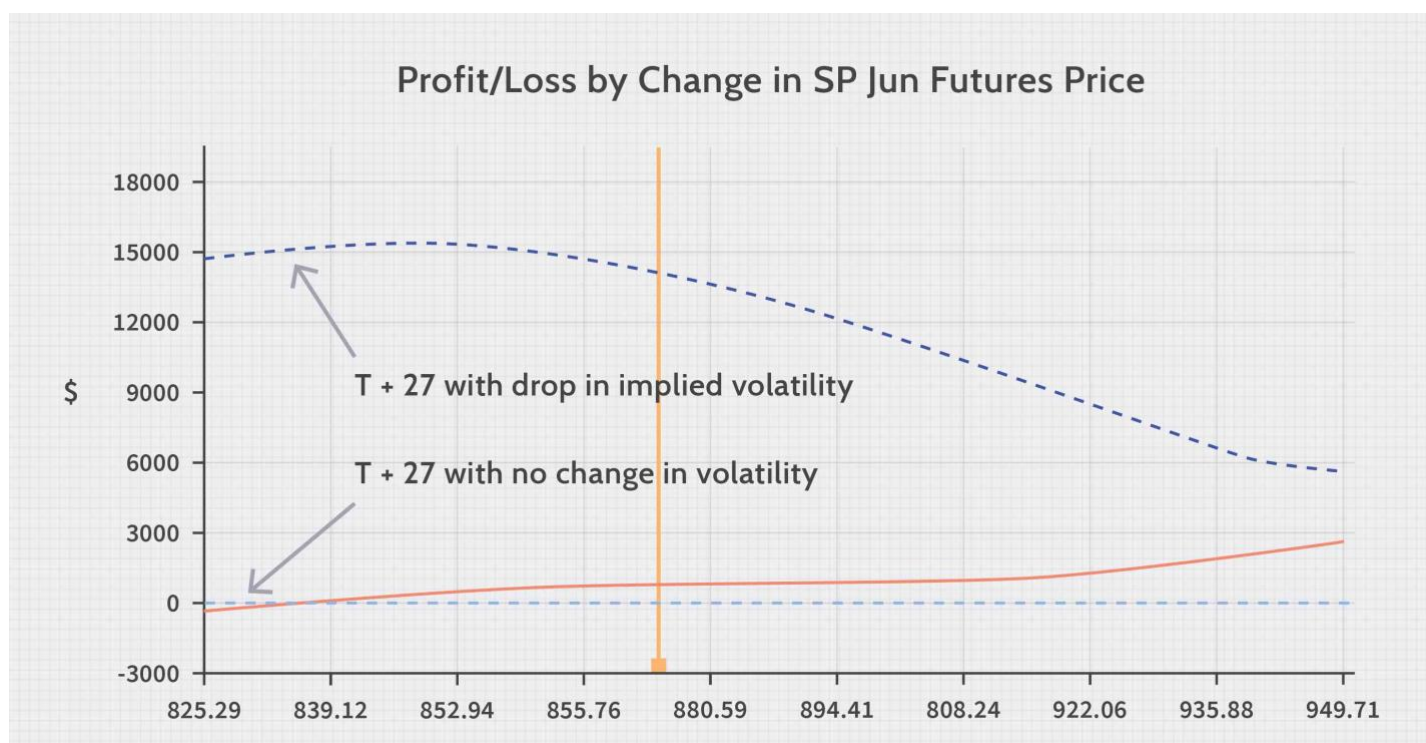
This popular options strategy is primarily used to enhance earnings, and yet it offers some protection against loss. Here's how it works: The owner of 100 (or more) shares of stock sells (writes) a call option. The option buyer pays a premium, and in return gains the right to buy those 100 shares at an agreed upon price (strike price) for a limited time (until the options expire). If the stock undergoes a significant price increase, that option owner reaps the profits that otherwise would have gone to the stockholder.

The stockholder receives cash up-front. That cash offers protection against a decline in the stock price. Thus, the covered call writer sacrifices the possibility of earning profits over and above that previously agreed upon price -- in exchange for that real cash payment. Additional details are required to gain a complete understanding of this idea, but the basic premise is this: cash now in exchange for profits that may never materialize.

2. Buy puts

When you buy puts, you will profit when a stock drops in value. For example, before the 2008 crash, your puts would have gone up in value as your stocks went down. Put options grant their owners the right to sell 100 shares of stock at the strike price. Although puts don't necessarily provide 100 percent protection, they can reduce loss. It's similar to buying an insurance policy with a deductible. Unlike shorting stocks, where losses can be unlimited, with puts the most you can lose is what you paid for the put.

One of the advantages of buying puts is that losses are limited. By picking a strike price that matches your risk tolerance, you guarantee a minimum selling price -- and thus the value of your portfolio cannot fall below a known level. This is the ultimate in portfolio protection. The reason the vast majority of conservative investors don't adopt this strategy is that puts are not cheap, and this insurance often costs more than investors are willing to pay.



By this we conclude the report and say that options and futures can both be used for hedging

Thank you.