Business Standard
Log on to Indian business

Thursday, July 1, 2004

MARKETS & INVESTING

NEWS

Cash Vs physical settlement

GUEST COLUMN

Jayanth R Varma / Ahmedabad January, 19 2004

In mid 2001, cash-settled single stock derivatives were introduced in India with a promise to be shifted to physical settlement after six months.

Since then there has been much controversy about the two modes of settlement with proponents of each mode decrying the other as speculative and vulnerable to manipulation. This article attempts to throw some light on this debate.

First of all, cash settlement allows the creation of derivative contracts on an underlying whose physical delivery is infeasible or even impossible - index futures and weather derivatives are prime examples.

Cash settlement may also allow us to choose an underlying that is less manipulable and has lower basis risk for hedgers.

However, single stock futures and options have been designed to permit physical settlement. Both modes of settlement are possible and the question is how to choose between the two modes.

What is the difference between receiving the underlying and receiving its price? Finance theory tells us that apart from transaction costs, there is no difference.

To convert the price into the underlying or the other way around requires one transaction in the cash market - nothing more and nothing less.

Let us look at the four categories of players in the derivative market - speculators, arbitrageurs, hedgers and manipulators - and see what difference the two modes of settlement make to each of them.

Consider a speculator who bought the futures at 40 and has seen the price rise to 55 before expiry. He would have received 15 as mark-to-market gains during the course of this price rise, and under cash settlement, there is nothing more to be done.

Under physical settlement, the speculator has to undertake one extra sale transaction in the cash market to complete the transaction.

At expiry, he pays 55 in the futures market and receives the underlying; simultaneously he sells the underlying for 55 in the cash market. These transactions on the expiry day cancel out apart from transaction costs.

Consider next an arbitrageur who has sold futures and bought the underlying for a cash and carry arbitrage. Under physical settlement, the arbitrageur simply delivers the underlying into the futures market.

Under cash settlement, the arbitrageur needs to sell the underlying in the cash market at expiry. The transaction costs here include an execution risk - the risk that the price realised in the cash market may not be exactly the same as the settlement price used for cash settlement in the futures market.

We now turn to the hedger who owns the underlying and is trying to hedge its value. Assuming that the hedge has been rolled over until the expiry matches the holding period of the underlying, the hedger's position is identical to that of the arbitrageur. Under cash settlement he needs to sell in the cash market and incur the transaction costs and execution risks.

Finally, we look at the manipulator trying to implement a bear squeeze. Under both modes of settlement, the manipulator buys both spot as well as futures.

In physical settlement, when he has bought up most of the floating stock, he makes a profit by selling the underlying to the shorts at an inflated price.

The shorts deliver this underlying back to him. In cash settlement, the manipulator gains by the futures being settled at the inflated price.

The underlying bought in the cash market remains with him. Under both settlement modes, the manipulator's transactions are the same and his holdings post expiry are also the same. In both modes, the defence against manipulation is position limits and large position disclosure.

In short, apart from transaction costs, there is no difference between cash settlement and physical settlement.

Even these costs do not apply to most trades because they are squared off before expiry. The choice of settlement mode can, therefore, be safely left to market forces.

But if the regulator chooses to intervene, it should be on the side of physical settlement because it imposes lower transaction costs on hedgers and arbitrageurs at the cost of higher transaction costs on speculators.

One final point about price discovery: under both modes of settlement, arbitrage keeps futures and cash prices tightly coupled. The principal exception is under intense short sale restrictions, when the cash price gets decoupled from the true equilibrium price.

Cash settlement may allow the futures price to track the true price even in this scenario. When liquid futures and spot markets disagree, usually the futures is right because there are less friction in the futures market.

(Jayanth R Varma is professor at Indian Institute of Management, Ahmedabad. He could be contacted at jrvarma@iimahd.ernet.in)