LECTURE 9

DERIVATIVES

Reading assignment

+ Financial Policy Forum: Primer on Derivatives
+ Financial Policy Forum: Primer on Derivatives Instruments
+ Financial Policy Forum: Primer Derivatives for Journalist
+ Financial Policy Forum: Primer Structure of OTC Derivatives Markets
+ Financial Policy Forum Special Policy Report 8: Derivatives Markets: Sources of Vulnerability in U.S. Financial Markets

• Hull, Chapters 1, 31, 32
• Mishkin: Ch. 13
• Mishkin and Eakins, Chapters 23, 24
• Liaw, Thomas and Ronald Moy. 2000. *The Irwin Guide to Stocks, Bonds, Futures, and Options: A Comprehensive Guide to Wall Street's Markets*. McGraw-Hill Professional Book Group.

USE: Economic Purpose

- risk shifting
- price discovery
    - complete markets
    - improve price efficiency (central market, lower transaction costs)

Market Development

Markets have been around a very long time

Exchange trading dates at least to Amsterdam in 1595.

In the US, the CBOT began trading futures and options in 1851.

Mostly commodities until breakdown of Bretton Woods. Then CME started trading futures and options on foreign exchange. Later futures were designed for interest rates (e.g. futures on US Treasury securities) and then stock indices. The most famous stock index future is the CME's S&P500 contract, but the first stock index future was introduced by the Kansas City Board of Trade on the Wilshire 5000.

The OTC market similarly arose from the need to hedge foreign exchange rate risk following the breakdown of Bretton Woods. Later trading started in interest rate products. The first acknowledged interest rate swap was between IBM and the World Bank in 1981.

Today the markets are huge…

Instruments

(Derivatives are NOT securities, there is no principal, no underlying claim other than payments based on the change in prices. A securities pre-exists its being traded, while a derivative does not exist until it is traded. That is why a derivative is often referred to as a transaction or as a purchase or sale for future delivery.)

Exchange-traded derivatives
- futures
- options

OTC traded derivatives
- forwards
- swaps
- options
- swaptions
- exotics
- hybrids

Markets

There are two basic type of derivatives markets: exchange traded and OTC. Exchange traded market were those characterized by PIT trading. Pit trading consists of traders standing in a stadium or bowl like pit and using hand signals combined with shouted prices to negotiate the execution price of derivatives transactions. They use hand signals to designate the quantity as well as their willingness to buy or sell (i.e. whether it is a bid or offer) and they use hand gestures to designate the acceptance of a bid or offer. One of the key characteristics of this "open outcry" trading method is its multilateral nature – everyone in the market can see the same prices and have an equal chance of trading at those prices. In this way it is also more 'democratic' in that everyone pays the same price.

Today many exchanges have moved, or are in the process of moving to, a multilateral electronic trading exchange. The electronic exchange is essentially a computer algorithm whereby traders can enter orders to buy or sell (orders that are not matched because the bids are too low or offers too high get posted as quotes in a queue), observe all the quotes in the market (i.e. observe the quote queue) and submit order to buy or sell "at the market." The algorithm matches the orders at the best price.

The electronic exchange some of the same characteristics of the pit. Everyone can observe quotes – only it appears on a screen into of before one's own eyes and ears – and the execution prices. Similarly, everyone has the chance to trade at those prices – it retains its democratic character. The electronic exchange is much less expensive to operate and it can be operated at all hours and days. It also lowers the cost of listing new contracts and thus allows for less expensive innovation in new contract design.

OTC markets are quite different in their economics. OTC market are organized around dealers. The dealer posts bid and ask quotes to their customers and the customers can accept them or not. Dealers also trade amongst themselves in an interdealer market. Here the trading is more liquid and the bid-ask spreads smaller. Customers are generally not privy to the interdealer market. They can observe the quotes of different dealers by calling around to ask for quotes or by using electronic bulletin boards provided by each dealers.

Some OTC markets are brokered. This is most likely in the interdealer markets. The broker sometimes uses an electronic bulletin board to post current quotes and execution prices. The changes the bilateral character of the OTC market into a quasi-multilateral market. It is not completely multilateral because it does not include all the market participants – just the dealers.

Think of the OTC market as bilateral and two-tiered. Dealers trade amongst themselves in the interdealer market, which can have multilateral qualities if it is brokered. Dealers then trade with their customers in the second tier market.