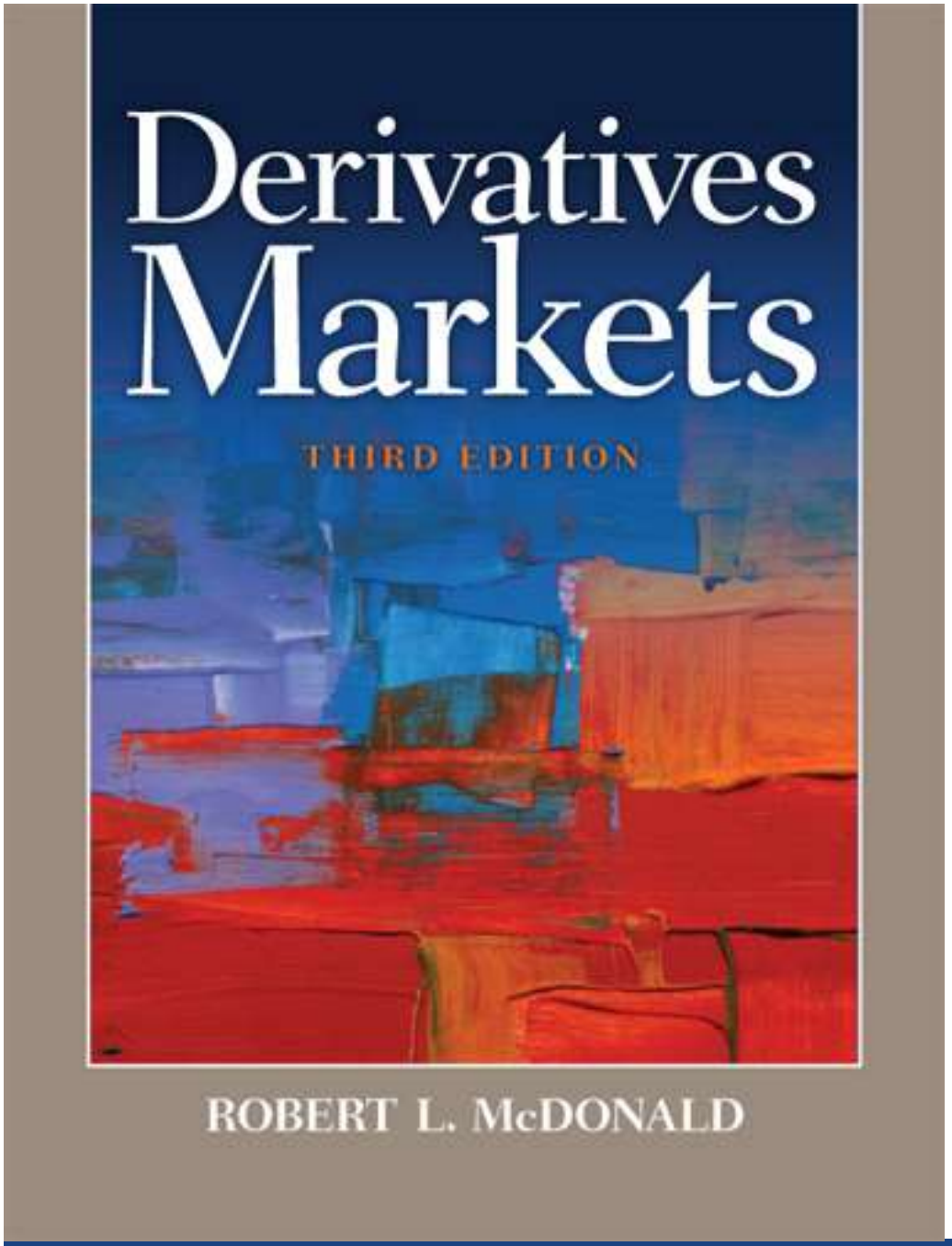



# Chapter 2

## Financial Markets

# Points to Note

1. Steps for the trading of a financial asset, see P. 3 – 4.
2. Comparison of the exchange market and over-the-counter (OTC) market, see P. 5 – 6.
3. The role of the financial markets, see P. 7 – 8.
4. The uses of derivatives, see P. 9.
5. Perspectives on derivatives, see P. 10 – 11.
6. Transaction costs and bid-ask spread, see P. 12 – 13.
7. Futures market, see P. 14 – 16.
8. Options market, see P. 17 – 20.

# An Overview of Financial Markets

- The trading of a financial asset involves at least four discrete steps:
  - A buyer and a seller must locate one another and agree on a price.
  - The trade must be *cleared* (the obligations of each party are specified).
  - The trade must be *settled* (the buyer and the seller must deliver the cash or securities necessary to satisfy their obligations in the required period of time.
  - Ownership records are updated.

# An Overview of Financial Markets (cont'd)

- Much trading of financial claims takes place on organized exchanges. In the past, the exchange was solely a physical location where traders would buy and sell. Such in-person venues have largely been replaced by electronic networks that provide a virtual trading venue.
- After a trade has taken place, a **clearinghouse** matches the buyers and sellers, keeping track of their obligations and payments. To facilitate these payments and to help manage credit risk, a derivatives clearinghouse typically imposes itself in the transaction, becoming the buyer to all sellers and the seller to all buyers.

# An Overview of Financial Markets (cont'd)

- It is possible for large traders to trade many financial claims directly with a dealer bypassing organized exchanges. Such trading is said to occur in the **over-the-counter** (OTC) market.
- Exchange activity is public and highly regulated.
- Over-the-counter trading is not easy to observe or measure and is generally less regulated.
- For many categories of financial claims, the value of OTC trading is greater than the value traded on exchanges.

# Exchange Traded Contracts

- Contracts proliferated in the last four decades

TABLE 1.2 Examples of underlying assets on which futures contracts are traded.

| Category | Description |
|---|---|
| Stock index | S&P 500 index, Euro Stoxx 50 index, Nikkei 225, Dow-Jones Industrials, Dax, NASDAQ, Russell 2000, S&P Sectors (healthcare, utilities, technology, etc.) |
| Interest rate | 30-year U.S. Treasury bond, 10-year U.S. Treasury notes, Fed funds rate, Euro-Bund, Euro-Bobl, LIBOR, Euribor |
| Foreign exchange | Euro, Japanese yen, British pound, Swiss franc, Australian dollar, Canadian dollar, Korean won |
| Commodity | Oil, natural gas, gold, copper, aluminum, corn, wheat, lumber, hogs, cattle, milk |
| Other | Heating and cooling degree-days, credit, real estate |

# The Role of Financial Markets

Risk-Sharing

- Insurance companies and individual communities/families have traditionally helped each other to share risks.
- Diversifiable risk – it is unrelated to other risks.
- Nondiversifiable risk – risk that does not vanish when spread across many investors.

# The Role of Financial Markets (cont'd)

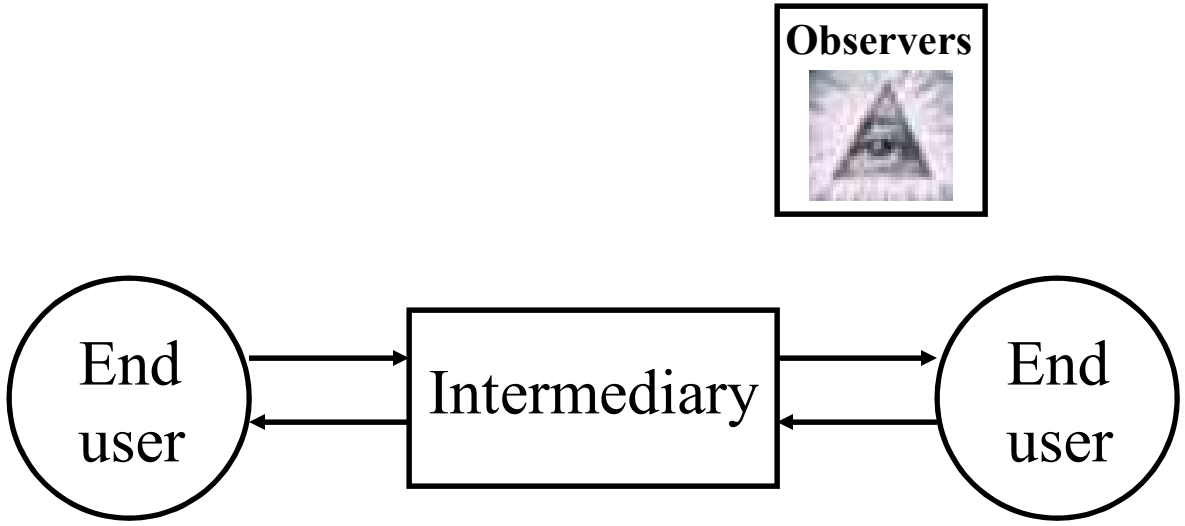
- Markets make risk-sharing more efficient
  - Markets permit diversifiable risk to be widely shared. So, diversifiable risk vanishes.
  - Non-diversifiable risks are reallocated to those most willing to hold it.

# The Uses of Derivatives

- Uses
  - **Risk management**. Derivatives are a tool for companies and other users to reduce risks.
  - **Speculation**. Derivatives can serve as investment vehicles.
  - **Reduce transaction costs**. Sometimes derivatives provide a lower cost way to undertake a particular financial transaction.
  - **Regulatory arbitrage**. It is sometimes possible to circumvent regulatory restrictions, taxes, and accounting rules by trading derivatives.

# Perspectives on Derivatives

- End users
  - Corporations
  - Investment managers
  - Investors
- Intermediaries
  - Market-makers
  - Traders
- Economic Observers
  - Regulators
  - Researchers



# Perspectives on Derivatives (cont'd)

- End users:

  They enter into derivatives contracts for the reasons listed in P.8.

- Market-makers:
  - They will buy derivatives from customers who wish to sell, and sell derivatives to customers who wish to buy.
  - They make money by charging a spread (buy at low price and sell at higher price.

- Economic observers:

  They look at the use of derivatives, the activities of the market-makers, the organization of the markets and the logic of the pricing models and try to make sense of everything.

# Transaction Costs and the Bid-Ask Spread

- Buying and selling a financial asset
  - Brokers: commissions.
  - Market-makers: bid-ask (offer) spread

    ask (offer) price: price that you buy the stock from market makers.

    bid price: price that you sell the stock to market makers.

# Transaction Costs and the Bid-Ask Spread (cont'd)

- Example 1.1: Buy and sell 100 shares of XYZ
  - XYZ: bid = $49.75, offer = $50, commission = $15
  - Buy: (100 x $50) + $15 = $5,015
  - Sell: (100 x $49.75) - $15 = $4,960
  - Transaction cost: $5015 – $4,960 = $55

# Futures Market

- Shanghai Futures Exchange
- Hong Kong Exchanges and Clearing Limited
- Chicago Mercantile Exchange
- ….

# Reading Price Quotes

Daily *low*

Daily *high*

The *open* price

Expiration month

Settlement price

Daily change

Open interest

FIGURE 2.1

Index futures price listings.

| | Open | Contract High | hilo | Low | Settle | Chg | Open Interest |
|---|---|---|---|---|---|---|---|
| **Index Futures** | | | | | | | |
| **DJ Industrial Average (CBT)**—$10 x index | | | | | | | |
| June | 10981 | 11070 | ▲ | 10977 | **11065** | 102 | 6,972 |
| Sept | 10977 | 10977 | ▲ | 10977 | **11002** | 103 | 13 |
| **Mini DJ Industrial Average (CBT)**—$5 x index | | | | | | | |
| June | 10979 | 11072 | ▲ | 10975 | **11065** | 102 | 84,086 |
| **S&P 500 Index (CME)**—$250 x index | | | | | | | |
| June | 1195.30 | 1207.00 | | 1194.50 | **1206.60** | 13.50 | 313,917 |
| Dec | 1193.00 | 1197.60 | ▲ | 1192.00 | **1197.10** | 13.50 | 3,301 |
| **Mini S&P 500 (CME)**—$50 x index | | | | | | | |
| June | 1195.50 | 1207.25 | ▲ | 1194.50 | **1206.50** | 13.50 | 2,412,904 |
| Sept | 1190.50 | 1202.00 | ▲ | 1190.00 | **1201.75** | 13.50 | 11,460 |
| **Nasdaq 100 (CME)**—$100 x index | | | | | | | |
| June | 2010.00 | 2027.00 | ▲ | 2007.25 | **2026.50** | 25.25 | 16,139 |
| **Mini Nasdaq 100 (CME)**—$20 x index | | | | | | | |
| June | 2009.8 | 2026.8 | ▲ | 2006.8 | **2026.5** | 25.3 | 308,163 |
| Sept | 2005.8 | 2024.0 | ▲ | 2005.0 | **2024.3** | 25.5 | 377 |
| **Mini Russell 2000 (ICE-US)**—$100 x index | | | | | | | |
| June | 706.50 | 721.00 | ▲ | 705.80 | **720.10** | 15.40 | 373,776 |
| Sept | 706.70 | 718.00 | ▲ | 706.30 | **717.70** | 15.40 | 2,835 |
| **Mini Russell 1000 (ICE-US)**—$100 x index | | | | | | | |
| June | 661.50 | 665.70 | ▲ | 659.50 | **665.30** | 7.50 | 19,004 |
| **U.S. Dollar Index (ICE-US)**—$1,000 x index | | | | | | | |
| June | 80.56 | 80.52 | ▲ | 80.14 | **80.29** | –.33 | 44,534 |
| Sept | 80.81 | 80.86 | ▲ | 80.51 | **80.57** | –.34 | 2,231 |

Data from the *Wall Street Journal*, April 15, 2010, p. C-7.

# Reading Price Quotes (cont'd)

- Open Interest

  Number of contracts outstanding. (Since each trade of a contract has both a buyer and seller, a buyer-seller pair counts as one contract).

# Options Market

- Shanghai Exchange
- Hong Kong Exchanges and Clearing Limited
- Chicago Mercantile Exchange
- ….

# Read Price Quotes

UBS HK Warrants

Non-collateralized nature of structured products
Hotline: +852 2971 6668 ol-hkwarrants@ubs.com

繁 | 簡 | EN

Home | Warrants | CBBCs | Market Statistics | Market Info | Education | About UBS

Search: Stock / warrant / CBBC code

Please select | Please select

**12499** PUT Tencent (0700) Share Refresh

| | | | |
|---|---|---|---|
| Bid / Ask | $0.315 / $0.325 | Last | $0.315 |
| High / Low | $0.345 / $0.300 | Change | 0.050 / 13.70% |
| Open | $0.340 | Previous Close | $0.365 |
| Board Lot | 10,000 | Turnover (HKD) | $10.2m |

Updated: 2018-08-03 16:01

| Moneyness | Implied Volatility | Days to Maturity | Eff. Gearing |
|---|---|---|---|
| ITM 8.23% | 22.82% | 49 days | 9.04x |

| | | | |
|---|---|---|---|
| Type | Put | Maturity | 2018-09-21 |
| Strike Price | 378.58 | Last Trading Date | 2018-09-17 |
| 30 Historical Volatility (30-days) | 24.55% | Premium | 0.8% |
| Outstanding Quantity | 52.0m | Conversion Ratio | 100 |
| Delta | 81.40% | Time Decay Per Day | -0.34% |

**Tencent (0700)**

**349.80** 4.800 1.39%

| | |
|---|---|
| Open | 348.20 |
| Previous Close | 345.00 |
| Turnover (HKD) | 10,587.8m |
| Volume (shares) | 30.3m |
| Day Range | 346.60 - 354.60 |
| 52 Week Range | 305.38 - 476.60 |

Updated: 2018-08-03 16:20:00(15 min delay)

## Stock Info

| | |
|---|---|
| Result | 2018-08-15 |
| P/E | 37.827x |
| P/B | 10.660x |
| Maket Cap. | 3,285.2b |
| 1 Month Avg. Turnover | 7,619.6m |

Information Provided by DB Power Online Limited

# Read Price Quotes (cont'd)

- Conversion ratio

  The number of warrants required to be converted into a unit of the underlying asset at the strike price on the expiry date.

- Moneyness

$$\text{Put}: \frac{\text{Strike} - S_0}{S_0}; \quad \text{Call}: \frac{S_0 - \text{Strike}}{S_0}$$

# Read Price Quotes (cont'd)

- Effective gearing

  Effective gearing is the relative % change of the value of the option for 1% change in the price of the underlying stock.

$$\text{Effective gearing} = \frac{S_0}{\text{Conversion ratio} \times \text{Warrant bid price}} \times \text{Delta}$$

- Implied volatility & Delta

  Will be discussed in "Chapter 12 The Black-Scholes Formula"