We shall first review briefly the most important kinds of financial contracts, traded either on exchanges or over-the-counter (OTC), between financial institutions and their clients. For a detailed account of the fundamental features of spot (i.e., cash) and futures financial markets the reader is referred, for instance, to Duffie (1989), Kolb (1991), Redhead (1996), or Hull (1997).

1.1 Options

Options are standard examples of derivative securities – that is, securities whose value depends on the prices of other more basic securities (referred to as primary securities or underlying assets) such as stocks or bonds. By stocks we mean common stocks – that is, shares in the net asset value not bearing fixed interest. They give the right to dividends according to profits, after payments on preferred stocks (the preferred stocks give some special rights to the stockholder, typically a guaranteed fixed dividend). A bond is a certificate issued by a government or a public company promising to repay borrowed money at a fixed rate of interest at a specified time. Generally speaking, a call option (respectively, a put option) is the right to buy (respectively, to sell) the option's underlying asset at some future date for a predetermined price. Options (in particular, warrants\(^1\)) have been traded for centuries in many countries. Unprecedented expansion of the options market started, however, quite recently with the introduction in 1973 of listed stock options on the Chicago Board Options Exchange (CBOE). Incidentally, in the same year Black and Scholes and, independently, Merton have published the seminal papers, in which the fundamental principles of arbitrage pricing of options were elaborated. During the last thirty years, trading in derivative securities have undergone a tremendous development, and nowadays options, futures, and other financial derivatives are traded in large numbers all over the world.

\(^1\) A warrant is a call option issued by a company or a financial institution.
We shall now describe, following Hull (1997), the basic features of traditional stock and options markets, as opposed to computerized online trading. The most common system for trading stocks is a *specialist system*. Under this system, an individual known as the specialist is responsible for being a market maker and for keeping a record of limit orders – that is, orders that can only be executed at the specified price or a more favorable price. Options usually trade under a *market maker system*. A market maker for a given option is an individual who will quote both a bid and an ask price on the option whenever he is asked to do so. The bid price is the price at which the market maker is prepared to buy and the ask price is the price at which he is prepared to sell. At the time the bid and ask prices are quoted, the market maker does not know whether the trader who asked for the quotes wants to buy or sell the option. The amount by which the ask exceeds the bid is referred to as the *bid-ask spread*. To enhance the efficiency of trading, the exchange may set upper limits for the bid-ask spread.

The existence of the market maker ensures that buy and sell orders can always be executed at some price without delay. The market makers themselves make their profits from the bid-ask spread. When an investor writes options, he is required to maintain funds in a margin account. The size of the margin depends on the circumstances, e.g., whether the option is *covered or naked* – that is, whether the option writer does possess the underlying shares or not. Let us finally mention that one contract gives the holder the right to buy or sell 100 shares; this is convenient since the shares themselves are usually traded in lots of 100.

It is worth noting that most of the traded options are of *American style* (or shortly, *American options*) – that is, the holder has the right to exercise an option at any instant before the option’s expiry. Otherwise, that is, when an option can be exercised only at its expiry date, it is known as an option of *European style* (*European option*, for short).

Let us now focus on exercising of an option of American style. The record of all outstanding long and short positions in options is held by the Options Clearing Corporation (OCC). The OCC guarantees that the option writer will fulfil obligations under the terms of the option contract. The OCC has a number of the so-called *members*, and all option trades must be cleared through a member. When an investor notifies his broker of the intention to exercise an option, the broker in turn notifies the OCC member who clears the investor’s trade. This member then places an exercise order with the OCC. The OCC randomly selects a member with an outstanding short position in the same option. The chosen member, in turn, selects a particular investor who has written the option (such an investor is said to be *assigned*). If the option is a call, this investor is required to sell stock at the so-called *strike price* or *exercise price* (if it is a put, he is required to buy stock at the strike price). When the option is exercised, the *open interest* (that is, the number of options outstanding) goes down by one.

In addition to options on particular stocks, a large variety of other option contracts are traded nowadays on exchanges: foreign currency options, index options (e.g., those on S&P100 and S&P500 traded on the CBOE), and futures options (e.g., the Treasury bond futures option traded on the Chicago Board of Trade (CBOT)).