1. Role, organisation and infrastructure of capital markets

1.1 Definition of the terms "market", "capital" and "capital market"

Economic theory defines the '*market*' for goods or services as being the 'place' where supply and demand for those goods or services meet. This can be a physical location, such as 12, Rue des Belles Filles, or a virtual space where economic agents meet by telephone or via an electronic system.

Those supplying and requesting goods or services can meet directly or through an intermediary who will act on their behalf. For example, a household that wants to buy a house can look for suppliers (potential vendors) of the house itself, or contact an intermediary whose task will be to identify these suppliers and, if necessary, negotiate the terms of the transaction with them on behalf of the household.

A transaction can take place only if the supplier's terms correspond to the buyer's terms, usually after negotiation. The key terms of the transaction concern the price of the goods or services, the currency of settlement, the quantity exchanged, the date and the method used to settle the transaction. In addition to these terms, the counterparties must also negotiate other clauses which are specific to the goods or services concerned, such as the quality of the oil to be delivered, or the colour of the car to be supplied.

The settlement of the transaction – in other words, the effective exchange of the goods between the buyer and seller in return for money[1] – can take place immediately after the transaction (e.g. when buying a loaf of bread from a bakery), or scheduled for a later date, such as three days' time, decided on by the parties at the time of the transaction. If the transaction is not settled immediately, the parties must agree specific clauses which will govern their contractual relationship until the effective settlement of their transaction.

For a market to function correctly, it must have the infrastructure and organisation to allow economic agents to meet easily, to negotiate their transactions fairly and to proceed with the settlement of their transactions on the scheduled date without incident. The market infrastructure and organisation must also help to minimise the risks and costs of exchanges between participants.

The term '*capital*' is used in several contexts. For example, we talk about 'human capital' when referring to 'the knowledge, qualifications, skills and personal traits that facilitate the creation of personal, social and economic well-being'[2]. Without human capital it is difficult, if not impossible, to produce goods or services, a source of added value for an economy. This is not what we mean when we talk about the capital market.

[1] The transaction can also be settled through the exchange of goods (services) for other goods (services).

[2] According to the OECD definition.

In economics, we talk about 'physical capital' when referring to physical goods produced in the past and which now allow other goods and services to be produced. Real estate, industrial machinery, computers, etc. are all physical capital. Economic theory considers physical capital as a production input in the same way as land and labour[3]. This is not what we mean when we talk about the capital market.

In finance, the concept of capital is used in several contexts. For example, we talk about 'capital' when we are referring to the capital of an enterprise. This is composed of shareholder contributions and the company's profits and reserves. We also talk about 'capital' when referring to the assets of economic agents, particularly households. This capital may be composed of:

- money held in the form of cash[4] or demand deposits which will be allocated by economic agents to paying for goods and services, taxes, etc.;
- physical assets, such as real estate, works of art or any other tangible property which can generate future cash flows for economic agents. These flows, which come from the income generated by these assets or from their sale, are a source of funding for the future consumption and savings of economic agents[5];
- financial assets composed of equities, debt instruments, claims, insurance policies, savings deposits, pension fund entitlements, investment fund units, structured products or any other financial instrument which can give rise to future cash flows.

This is not what we mean when we talk about the capital market.

We also talk about 'capital' when referring to money and to the financial assets issued by the economy which entitle their holder to a future cash flow[6]. *This is what we mean when we talk about the capital market*. It is on this market that economic agents come together to exchange money in return for financial assets, money in return for other money, or financial assets in return for other financial assets.

Using our economic definition of a market, the market where supply and demand for capital meet is known as the 'capital market'.

1.2 Introduction to the functions of capital markets

The aims of this chapter 'capital markets' are twofold. The first aim is to study the role of capital markets for an economy, and to identify the main segments and participants. The second aim is to understand the role of financial intermediaries by describing their principal roles within capital markets.

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3 Labour is the term used in economics to refer to human capital. Note that some economists consider 'business initiative' as a fourth production input. This refers to the ability of management to determine the best allocation of other production inputs of a company.

4 Cash includes notes and coins.

5 These can also be subject to tax.

6 This flow may be certain or uncertain.

Capital markets play a vital role in an economy and must therefore function correctly. To do so, they must have the infrastructure and organisation to allow economic agents to meet easily, to negotiate their transactions fairly and to proceed with the settlement of their transactions on the scheduled date without incident. The market infrastructure and organisation are also important to minimise the risks and costs of transactions between participants.

The aim of this section is to demonstrate the importance of the role of capital markets for the prosperity and growth of an economy by describing their main functions.

The *primary function* of any capital market is to allow economic agents to **obtain funds** for their activities and investments from other economic agents who are looking to invest their savings or temporary cash surplus. Economic agents can be householders, companies, governments or supranational authorities. For example, a company that wants to build a new factory to increase its production can turn to the capital market to obtain the necessary financing for this investment. In exchange for money, the company issues a financial asset, in the form of debt or equity, which it gives to its funders either physically or scripturally.

The economy is funded by the *primary capital market*. Each class of financial asset, and in some cases each financial instrument that belongs to this asset class, has its own organisation and infrastructure to allow buyers and sellers of newly issued financial assets to meet and negotiate the terms of their transactions.

The *second function* of the capital market is to allow economic agents to exchange financial assets already in circulation; in other words, assets which were previously issued on the primary market. This function is extremely important, since it **guarantees the savings liquidity** of economic agents, a prerequisite for the primary market to function correctly. An economic agent would not be prepared in fact to invest in a financial asset with a clause stipulating repayment in 30 years if the capital market did not allow the possibility of exchanging this asset in return for money before maturity should the agent wish to satisfy consummation needs.

Savings liquidity is provided by the *secondary* capital *market*. Each class of financial asset, and in some cases each financial instrument that belongs to this asset class, has its own organisation and infrastructure to allow buyers and sellers of financial assets which are already in circulation to meet and negotiate the terms of their transactions.

The *third function* of the capital market is to allow economic agents to **transfer their risks.** For example, an economic agent who owns real estate will turn to the capital market to transfer the financial risk linked to the damage caused by fire. The agent's objective is to identify another agent who would be willing to take on this risky exposure in return for payment. Similarly, a European investor who holds a portfolio of US corporate equities will turn to the capital market to transfer the risk of a fall in USD against the EUR. The aim is to identify an agent seeking exposure to a fall in USD against the EUR.

The risk transfer function of the capital market is mainly assumed by the 'derivatives' market and the 'insurance' market[7]. Each class of financial assets, and in some cases each financial instrument that belongs to this asset class, has its own organisation and infrastructure to allow buyers and sellers of hedging to meet and negotiate the terms of their transactions.

[7] Note that the secondary market also allows investors to liquidate their financial assets if they no longer wish to be exposed to the price risk of that asset.

The *fourth function* of the capital market is to provide the organisation and infrastructure to allow economic agents **to make payments and settle transactions**. For example, companies need an organisation and infrastructure to pay the wages of their employees (householders), to buy the goods and services used in their production[8], to pay taxes to the government and dividends to their shareholders, and so on. Householders need an organisation and infrastructure to allow them to pay for goods and services, to pay taxes to the government, and so on. Similarly, economic agents need an organisation and infrastructure to allow them to pay for subscriptions or purchases of equities, debt instruments or any other financial asset with minimum cost and risk. Capital markets answer these needs by offering economic agents the organisation and infrastructure enabling them to transfer money and financial assets.

The *fifth function* is the function of the 'foreign exchange market'[9].Given that each country (or group of countries) has its own currency, the capital market must also allow economic agents **to exchange one currency for another** to make payments denominated in another currency than their own. For example, a European company which receives income in EUR must exchange EUR against USD to settle an invoice payable in USD. A Japanese tourist must exchange JPY for CHF if he/she wishes to buy goods and services during his/her stay in Switzerland. An Australian investor who buys equities listed in EUR must exchange AUD against EUR in order to settle the transaction. The capital market must therefore have the organisation and infrastructure to allow economic agents to meet, negotiate the terms of the exchange of one currency for another, and settle their transactions.

1.3 The main segments of capital markets

Capital markets are divided into several segments characterised mainly by the function and maturity of the financial assets traded on them.

The *first segment* of the capital market is the **money market[10]**. This can be defined as the market where the supply of and demand for short-term financial assets meet; in other words, where the maturity is generally less than one year.

The money market is in turn divided into several segments, characterised by the financial assets traded in that segment, for example:

- the foreign exchange market, where participants exchange currencies;
- the interbank market, where banks[11] lend each other money for a very short period, generally less than a week;
- the market in debt register claims, T-bills, or any instrument issued by a government to fund its short-term activities;
- the repurchase agreements (repo) market, which allows economic agents to obtain cash for a given period by selling a financial asset to a counterparty at t and simultaneously undertaking to buy back that asset at a later date at a price set at t[12];

[8] Known as 'intermediate goods', in financial jargon.

[9] The organisation and functioning of the foreign exchange market are described in a separate chapter of this course.

[10] The money market is covered in a separate chapter of this course.

[11] Including central banks.

- the commercial paper (CP or asset backed CP) market, where for-profit and not-for-profit entities obtain liquidity for a given period by issuing debt.

Each segment of the money market has its own organisation and infrastructure to allow economic agents to meet and negotiate the settlement terms of their transactions.

The *second segment* of the capital market is the **credit market**. Credit is a process[13] whereby an economic agent, known as the lender or creditor, makes a certain amount of money available to another economic agent, the borrower or debtor, in exchange for a promise to pay periodic interest and to repay the amount borrowed at a later date[14]. The credit can be guaranteed by a third party, physical or financial assets offered as pledge or by any other agreement that allows the borrower to have legal recourse to obtain repayment of the loan in the event that the borrower defaults on its obligations.

Credit is generally granted by specialist institutions such as banks[15]. In this context, the participants of the capital market tend to distinguish between credit according to how the funds obtained by the borrower are used. For example, we talk about consumer credit if the debtor uses the funds to purchase goods or services, for example to buy a TV or fridge. We talk about mortgage credit if the debtor uses the funds to buy property which is then mortgaged to the lending bank. We talk about Lombard credit if the credit is underwritten by financial assets pledged by the borrower (debtor) to the lender (creditor).

Note that if the amount of the credit is very high, it is customary on the market for borrowers to organise themselves into a syndicate (loan syndication). With this type of arrangement, the borrower appoints one or more *arrangers* who are responsible for advising the borrower on the type of credit, coordinating the borrowing process and identifying other lenders who are part of the syndicate. If the credit requires security, it is generally one of the syndicate lenders, known as the *security trustee*, who is responsible for keeping the security.

Credit can be exchanged on a secondary market. For example, a mortgage granted by bank A to agent XYZ can be sold to bank B provided that the sale complies with the regulations and the legal conditions relating to the exchange. These conditions might require the prior consent of the borrower, backing of the debt according to national legislation, transfer of the mortgage, etc.

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[12] The repo market is covered in a special chapter of this course.

[13] This process is not covered as part of this course.

[14] Note that credit is specifically granted by companies to their customers if the conditions stipulate payment of goods or services after delivery. For example, a company which allows its customers 30 days to pay for goods is implicitly granting credit to its customers.

[15] Historically, lending was carried out by banks, and regulated and supervised financial institutions. However, for the past few years, this activity has also been carried out by non-banking institutions such as investment funds and special purpose vehicles (SPV). In financial jargon, these financial institutions are part of the 'shadow banking sector'.

Financial innovation also allows credit to be sold on to a company specially created for this purpose. This company, known as a ‘special purpose vehicle’ (SPV), has no commercial activity, and therefore no employees. Its sole purpose is to buy credit[16], financing this by issuing other debt which will be subscribed by investors. In financial jargon, this process is known as securitisation. Debt issued by an SPV is referred to as a *structured credit product* and is traded on other segments of the capital market.

The *third segment* of the capital market is the **financial market**. This can be defined as the market where the supply of and demand for medium and long-term financial assets meet.

The financial market is in turn divided into several segments, characterised by the financial asset traded in that segment, for example:

- the equity market, where participants exchange equities for money;
- the bond market, where participants exchange debt instruments for money;
- the structured products market, where participants exchange structured products (usually debt instruments) for money[17];
- the investment fund market, where participants exchange investment fund units (equities or debt) for money[18].

Each segment of the financial market has its own organisation and infrastructure to allow economic agents to meet, negotiate and settle their transactions[19].

The *fourth segment* of the capital market is known as the **derivatives market**. It can be defined as the market where the supply of and demand for derivatives meet.

A derivative is a contract between two parties which sets out the conditions for a transaction which will take place in the future. For example, by entering into a *futures contract* on Nestlé, the contracting parties agree to trade Nestlé stock at a future date. This contract must specify the terms of the transaction, such as the price, the number of equities to be exchanged, the date and the settlement method for the transaction.

By entering into a derivatives contract, the parties are transferring risk. For example, Swiss Market Index (SMI) futures are derivatives which allow participants to transfer the price risk of this index to other participants. Credit default swaps (CDSs) are derivatives which allow the risk of default of an issuer to be transferred. Forward exchange contracts are derivatives which allow the foreign exchange risk of a pair of currencies to be transferred.

In general, the types of risk that can be transferred with derivatives mainly consist of market risk, credit risk and the risk of severe weather and natural disaster.

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[16] An SPV can also be created to buy any other type of asset, if that asset promises to pay cash flows in future.

[17] Although legally a structured product is usually represented by a debt instrument, it is distinguished economically from a bond by the origin of its cash flows. In fact, as we will see later on in this course, the structure of cash flows of a structured product comes from the combined cash flows of a portfolio of financial instruments.

[18] Units of exchange-traded funds (ETF) can also be exchanged in return for financial assets forming part of the underlying index.

[19] Each of these segments is covered in a separate chapter of this course.

Market risk can be defined as the risk linked to a change in market variables, such as interest rate, exchange rate, share price, volatility, and so on.

Credit risk can be defined as the risk linked to the 'ability' of debtors to honour their financial commitments. Economic agents are exposed to this type of risk when they are involved in lending (pure credit risk), when they hold a portfolio of financial assets (issuer risk,), when a transaction is not settled immediately after its negotiation (counterparty risk), if the settlement of a transaction by each of the parties does not take place simultaneously, for example if the buyer of a financial asset pays the amount due without having received the financial asset in return, or vice versa (settlement risk).

Each type of derivative has its own organisation and infrastructure to allow the buyers and sellers of the product to meet, negotiate the terms of the contract and to settle their transactions.

The *fifth segment* of the capital market is the **insurance market**[20]. This can be defined as the market where the supply and demand for insurance policies meets.

The insurance market is in turn divided into several segments, characterised by the type of risk transferred with the insurance policy; for example:

- the health insurance market, where participants transfer the risk of illness;
- the life assurance market, where participants transfer the risk of a person's death;
- the accident insurance market, where participants transfer the risk of an accident;
- the property insurance market, where participants transfer the risk of damage to property.

1.4 The main participants on the capital market

As mentioned earlier, the capital market plays a vital role in an economy. The diagram below is a simplified representation of a country's internal economic system. It allows us to illustrate its economic functions and its main participants.

[20] This segment of the capital market is not covered as part of this course.