

Chapter 1: Some Basics of International Financial Markets

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The financial markets are part of the financial system. We therefore start by having a look at the financial system as a whole.

The financial system in turn is one of the topics studied within the field of finance.

→ Problem 1 of the exercises to § 2

→ Problem 2 of the exercises to § 2

§ 2 The Financial System

2.1 The financial system and its functions

In the literature, there are various definitions of the financial system and several classifications of its elements; see, e. g., De Haan/Oosterloo/Schoenmaker (2009), p. 4; Bodie/Merton (2000) p. 2. Let us start by a quotation of Bodie/Merton (2000), p. 2, 22:

“The financial system encompasses the markets, intermediaries, service firms, and other institutions to carry out the financial decisions of households, business firm, and governments.”

(1) Financial markets as part of the financial system

The following graph illustrates that financial markets are but one element of the financial system:

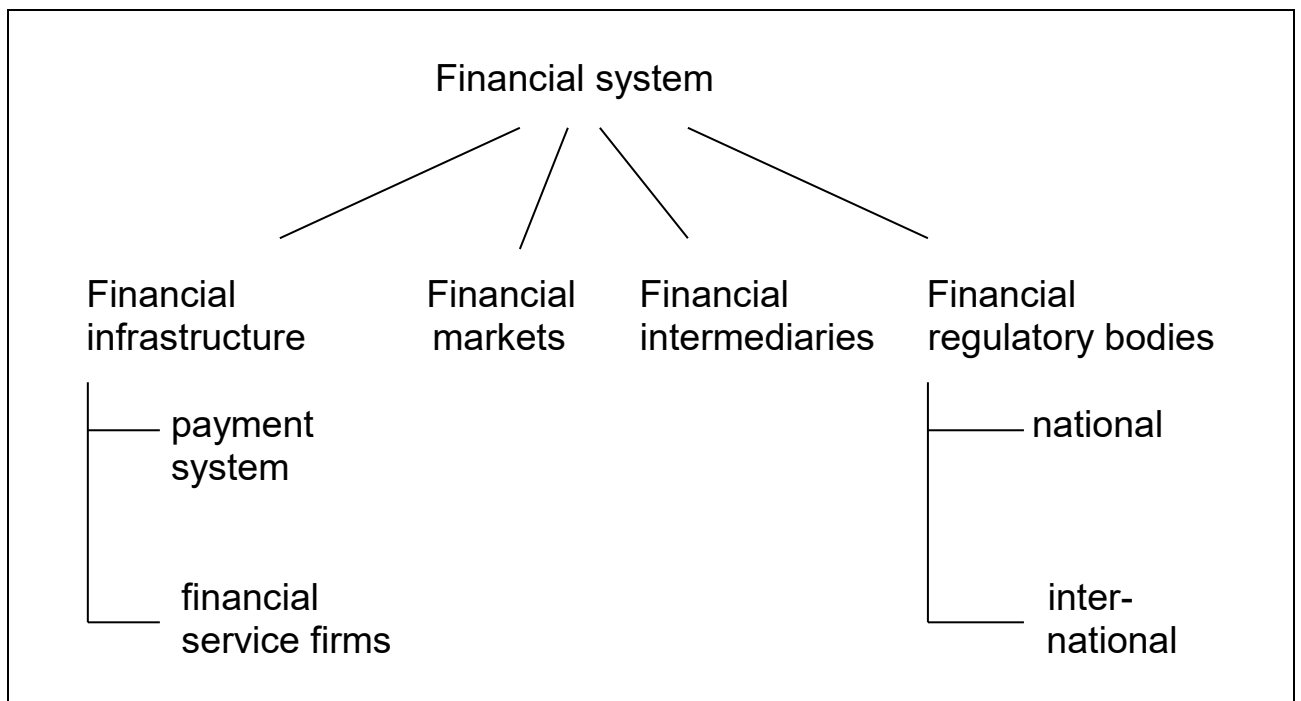


Figure 2.1 (1): Elements of the Financial System

De Haan/Oosterloo/Schoenmaker [(2009), p. 5] give a definition of financial infrastructure:

“Financial infrastructure is the set of institutions that enables effective operations of financial intermediaries and financial markets”.

Among the financial service firms, we have, for example, financial advisory firms, credit information bureaus, and collateral registries. The European Central Bank [(2011d)] calls these institutions “financial auxiliaries”, which includes insurance brokers as well as corporations providing infrastructure for financial markets.

(2) Functions of the financial system: a survey

In the sequel, we will see that the function of the financial system is ...

- ... to support the “real” economy
- ... by facilitating transactions
- ... via the provision of financial assets.

(a) Ultimate objective

The ultimate purpose of the financial system is to help increase the well-being of individuals. In order to make this ultimate objective more operational, take into consideration that private (economic) welfare depends above all on consumption. We therefore follow Bodie/Merton [(2000), p. 2] in saying that ...

“...the ultimate function of the system is to satisfy people’s consumption preferences, including all the basic necessities of life, such as food, clothing, and shelter”.

Notice right at the beginning that the financial system is seen as a supporting system rather than as an end in itself!

Accordingly, the financial system should contribute to the following two intermediate goals.

→ Problem 3 of the exercises to § 2

(b) Intermediate goals: supporting consumption choices and the production of consumption goods

Consumption and production are the outcome of a complex process of ...

- ... individual decision making
- ... coordination of individual plans in a system of markets,
- ... joined by unilateral transfers, most of all those from the government.

In order to achieve its ultimate object (raising individual welfare), the financial system should therefore help to improve the workings of the “real” economy, i.e. the process and level of consumption and production. It is in this spirit that Bodie/Merton [(2000), p. 24] attribute to the financial system the “single primary function of efficient resource allocation”.

(c) Tasks of the financial system

How does the financial system support the workings of the real economy? We will see that it does so primarily in the transaction process, i.e. by facilitating transactions between individual economic agents:

- intratemporal transactions: goods transactions
- intertemporal transactions: capital transactions

(we will see in the sequel that capital transactions include financial transactions).

To get an intuitive feeling of the relevance of this, let us go back to the support of consumption in the broad sense mentioned in subsection (b):

(i) Supporting consumption choices:

- The financial system should help individuals to make and to carry out their consumption decisions. In an economy with labour division and exchange, these decisions involve the exchange of two consumption goods today (e. g. wine against clothing). The financial system should facilitate this intratemporal exchange.
- In addition, the financial system should support intertemporal consumption choices, i.e. the exchange of consumption today for consumption tomorrow (in more general terms: the exchange of consumption possibilities today – income – against consumption possibilities tomorrow).

(ii) Supporting the production of consumption goods:

Again, we have an intratemporal as well as an intertemporal aspect:

- Within a period, transactions involving factor services are facilitated.
- Over time, the growth of production must be supported by helping to provide companies with real capital.

→ Problem 4 of the exercises to § 2

→ Problem 5 of the exercises to § 2

(3) The instruments of the financial system

How does the financial system achieve its task, i.e. how does it facilitate transactions? It does so by providing financial assets (money and other assets) and by supporting their use:

- (i) In order to “lubricate” any exchange (intertemporal as well as intratemporal) the financial system has to run a payments system. This involves ...
 - ... the provision of a means of payment that is generally accepted: “money”
 - ... the clearing and settling of payments.

- (ii) In order to ease intertemporal exchange, the financial system provides easily transferable stores of value other than just money. (It thereby also simplifies intertemporal decision-making and choices.)

The following figure summarizes the preceding arguments and to some extent anticipates the next sections. In the upper part of the figure, we have the financial system and its elements. The lower part shows the various types of transactions in an economy, both financial and non-financial.

We realize the pertinent role of the payment system in all kinds of transactions.

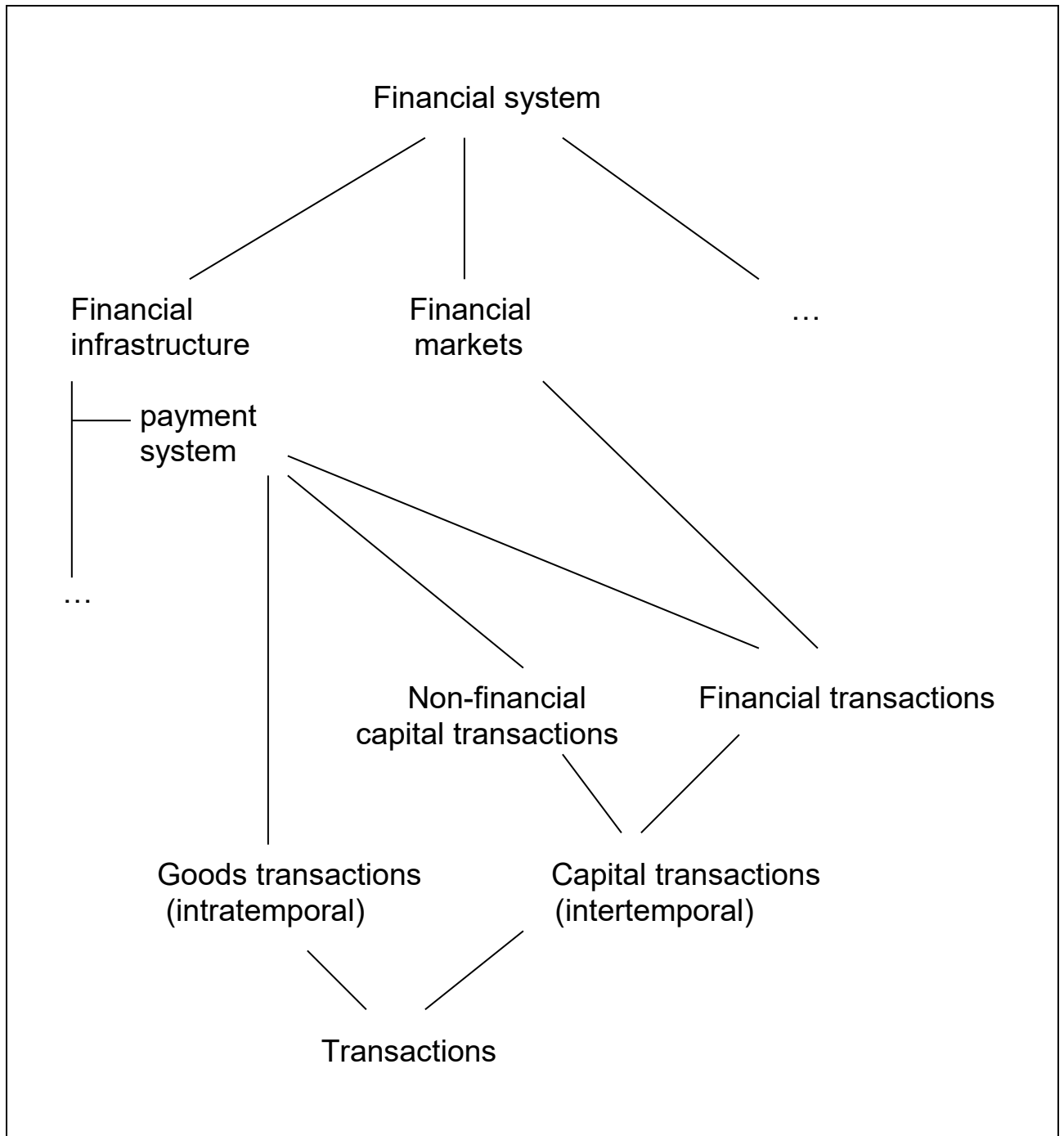


Exhibit 2.1 (2): The Role of the Financial System for Various Types of Transactions

2.2 The Role of the Financial System in the Economy

We wish to understand in somewhat more detail how the financial system contributes to maximizing welfare. We therefore recall in section (1) what we know about welfare maximization in a market economy. Then we will examine where and how the financial system can improve the market mechanism.

(1) Elements of welfare maximization in a market economy

(a) Efficient allocation and distribution

We know from general economics that welfare maximization in a market economy requires two elements:

- Efficient allocation: Pareto-optimal use of production factors, i.e. Pareto-optimal allocation of resources (labor, capital, and natural resources)
- Efficient distribution: Pareto-optimal use of the final outcome of the production process, i.e. Pareto-optimal distribution of consumption goods among households. This is achieved by an appropriate distribution of income generated in the course of production.

Bodie/Merton [(2000), p. 259] emphasize that ...

“... the ultimate function of the financial system is to help implement optimal consumption and resource allocation”.

(b) Efficient transactions

In an economy with labor division, allocation and distribution are the result of transactions. These can take the form of exchanges or unilateral transfers.

In a market economy, exchanges are at the forefront.

(c) Efficient matching of supply and demand

Exchanges take place in markets. They are the outcome of the matching of supply and demand.

Sector → Market ↓	Households	Firms	Result of the market process
Production factors	Supply	Demand	Allocation
Consumption goods	Demand	Supply	Distribution

Exhibit 2.2 (1): Allocation and Distribution as Result of the Market Process

(d) Efficient decision making

Supply and demand are the efficient outcomes of optimizing individual decision-making:

- Households maximize utility by choosing efficient combinations of demand for consumption goods and factor supply.
- Firms maximize profits by choosing efficient combinations of factor demand and supply of goods.

(e) Outlook

In the following sections (2) to (5), we will discuss the tasks of the financial system in order to support the process of allocation and distribution. In order to do so, we will take the above subsections (a) to (d) and examine the role of the financial system in each field of activity. We start with the last subsection (d); step by step, we then move back to (a).

→ Problem 6 of the exercises to § 2

(2) Task: support efficient decision making

Let us start with an example:

- A company has cost of inputs (labour, energy, raw materials, ...)
- It similarly has revenue from the sale of its output, e. g. cars.

As a prerequisite for decision-making, the company must compare revenue with cost. This requires that all costs and revenues are reduced to a common denominator, the so-called unit of account (“numéraire”). The company might take any one of its inputs (or outputs), e. g. a gallon of oil.

By providing money, the financial system offers a unit of account. In consequence, ...

- ... the company does not have to define its own numéraire and express the values of inputs and outputs in terms of this individual unit of account.
- ... comparisons across companies (and other decision-making units) are facilitated because they all use money as their unit of account.

(3) Task: efficient matching of supply and demand in goods markets

In principle, any economic object can be exchanged against any other one, i.e. ...

- ... it can be used to buy any other good
- ... it can be used as means of payment
- ... it represents purchasing power.

However, acquiring something is much easier if there is a generally accepted means of payment, which is what we call “money”. Money is a medium of exchange that ...

- ... is available to the buyer
- ... the seller is ready to accept as payment for the good he is offering for sale (because he knows that he will be able to use the medium for his own future purchases)
- ... both the seller and the buyer are familiar with, allowing them equally to appreciate its value, i.e. its purchasing power.

The existence of a generally accepted means of payment greatly simplifies the finding of an exchange partner so that the information costs of the exchange process are reduced considerably. Without a universal means of payment, exchange requires the so-called double coincidence of wants or a sequence (chain) of exchanges.

→ Problem 7 of the exercises to § 2

→ Problem 8 of the exercises to § 2

(4) Task: support efficient fulfilment of trades

The use of a generally accepted means of payment allows for a further reduction of transaction costs if the so-called clearing and settling of payments are well organized. These serve to fulfil the duties that arise from an exchange.

“Settlement” refers to the actual handing over of the economic objects exchanged, e. g. a car and the sum of money paid for it. “Clearing” is the netting of mutual claims and obligations between two or more exchange partners. It serves to reduce the volume of economic objects which have to be handed over, thus reducing transaction cost and making the exchange process more efficient.

→ Problem 9 of the exercises to § 2

(5) Task: support efficient allocation and distribution through space and time

In sections (3) and (4), we discussed the role of the financial system as a provider of an efficient payment system (which includes a generally accepted means of payment and a well-organized system of clearing and settling payments). In section (2), we sketched its role as provider of a unit of account which facilitates individual decision-making and thus the first step towards an exchange.

The allocation of goods and factor services as well as the distribution of factor incomes involve exchanges. They are thus made more efficient by the payment system!

Unilateral transfers are likewise made easier by a well-functioning payment system. This is of utmost importance in modern economies as many transactions of the public sector are unilateral transfers.

(a) Space

By providing an efficient payment system, the financial system facilitates all of the involved transfers of purchasing power (income, resources) between economic units. As the agents are not all in the same place, the financial system supports allocation and distribution across space as well. In this respect, it should also facilitate transactions across borders.

The preceding reasoning is summarized – and extended – by Bodie/Merton (2000), p. 26:

“A financial system provides ways ... to facilitate the exchange of goods, services, and assets.”

In addition to goods and services, Bodie/Merton mention assets. Assets are stores of value and thus serve to transfer purchasing power into the future: we view them as future income in a condensed form. They can take two forms: real assets and financial assets. Both serve to support efficient allocation and distribution over time!

(b) Time: financial assets/financial funds

Financial assets represent claims to future transfer of purchasing power. They thus allow for intertemporal trade, where intertemporal literally means “between time”:

- agent A has an excess of income over consumption today, i. e. he is saving income
- he gives his saved income as a loan to agent B whose consumption today exceeds his income; B promises to pay back the loan in the future, probably with some interest
- the purchasing power lent to borrower B today is called “financial funds” or just “funds”; in practice, it is money that B then uses to purchase consumption goods right now
- B’s promise to A is called a “financial asset”.

The existence of the financial asset or “loan” thus allows for intertemporal decision-making in consumption: A can postpone consumption from the present to the future while B does the opposite. The financial system should therefore provide instruments to transfer spending possibilities ...

- ... not only (i) between economic units, (ii) through space, (iii) across borders
- ... but also (iv) through time; see Bodie/Merton (2000), p. 24.

In the international literature on finance and financial markets, the emphasis is on intertemporal exchange. As another example, we quote De Haan/Oosterloo/Schoenmaker [(2009), p. 5] who state that ...

“... the main task of the financial system is to channel funds from sectors that have a surplus to sectors that have a shortage of funds”.

We conclude that, in addition to the markets for goods and factors, there is a third group of markets: those for financial assets. They allow for payments and the just-mentioned types of transfer of purchasing power (i) - (iv).

Sector → Market ↓	Households	Firms	Result of the market process
Production factors	Supply	Demand	Allocation
Consumption goods	Demand	Supply	Distribution
Financial Assets	Supply & Demand	Supply & Demand	Allocation & Distribution of Claims & Obligations

Exhibit 2.2 (5): Allocation and Distribution as Result of the Market Process

Financial assets are non-material economic objects (or at least their material value is much lower than the purchasing power they represent). In addition, they cannot be used directly for consumption or production purposes. This is different with real assets.

(c) Time: real assets

Real assets, such as machines, buildings etc., are used in production. They thus serve to generate income. Financial assets (more precisely: non-monetary financial assets) represent claims on real assets or the income generated by them: they thus serve to distribute income. See Bodie/Kane/Marcus (2013), p. 3.

The instalment of a new real asset requires (i) a lot of resources (saved income) (ii) for many periods. The provision of a huge amount of resources requires the pooling of savings from many agents. These resources are given to the investing unit (company) against a claim on future payments (and, possibly, other rights, such as voting):

- The company installing the new machine is the investor in real assets; it borrows purchasing power from other economic units and gives them a claim on the future re-transfer of purchasing power, i. e. it gives them a financial asset.
- The economic units providing purchasing power today are the savers and lenders; they are the investors in the financial asset created (“issued”) by the company.
- The purchasing power lent to the borrowing company today is called “financial funds” or just “funds”; in practice, it is money that the company then uses to buy the new machine.

We conclude that the financial system should ...

“ ... collect savings and provide producers with the financial means that they need to invest in productive equipment and new operations”; Baldwin/Wyplosz (2009), p. 548 [2006, p. 428].

In doing this, the financial system should provide instruments to bridge the gap ...

- ... between the large volume of funds needed by the borrowing company and the small volumes of savings of the many individual savers/lenders; we may call this “the transformation of size”

- ... between the long period of time during which the company needs the funds and the shorter period of lending of the savers; this is called “the transformation of maturity”; see Baldwin/Wyplosz (2009), p. 549.

(6) Task: support efficient risk management and risk allocation

The provision of funds to buy a machine against the promise of future payments requires a system of control in order to ensure a “good” use of the machine. Otherwise, the lender cannot be sure that the borrower will be able to make the promised payments. What is more, he may not even be willing to redeem the loan; see Baldwin/Wyplosz (2009), p. 548 [2006, p. 428].

The system of control includes “dealing with incentive problems”, such as moral hazard, adverse selection, and principal-agent problems.

In more general terms, the provision of purchasing power today (funds) against the promise of purchasing power tomorrow (financial asset) involves risk. By “risk” we mean the possibility that a future result may differ from what we expect it to be. In the case of financial assets, the future pay-off from an investment may be different from the expected one.

The financial system should then facilitate the management of risk:

- The risks arising from financial assets themselves
- The risks arising elsewhere in the economy: risks from real capital, unemployment, fire, illness, accident, ...

The preceding reasoning is summarized by Bodie/Merton (2000), p. 2, 22:

“ ... the costs and benefits of financial decisions are (1) spread out over time and (2) usually not known with certainty in advance by either the decision maker or anybody else. ... In implementing their decisions, people make use of the financial system, defined as the set markets and other institutions used for financial contracting and the exchange of assets and risks.”

The underlining in the quote is not in Bodie/Merton, but was added in order to emphasize the servicing character of the financial system (rather than being an end in itself).

→ Problem 10 of the exercises to § 2

(7) A short conclusion

From the preceding considerations we conclude that the financial system has the task of supporting the following steps necessary for welfare-maximization:

- Individual decision making
- Trade among individuals across space and time.

This support of the “real” economy requires that the financial system enables the economic agents to efficiently ...

- ... make payments
- ... engage and disengage in financial assets
 - at any time and
 - at the best possible combination of (i) size, (ii) maturity, (iii) return/price, (iv) risk.

2.3 Devices of the Financial System to Achieve Its Tasks

How can the financial system achieve the support of the “real” economy?

(1) Providing financial instruments

In the preceding discussion, we have emphasized that the financial system should provide instruments which facilitate individual decision-making as well as trade between agents:

- A unit of account
- A generally accepted means of payments, i. e. a means of payment that is accepted by every trading partner in the exchange of any economic good.
- Stores of value for trade over time (financial assets).

Which instruments fulfil these roles?

- Money: it fulfils all of the three roles
- Other financial assets: they represent claims on the future transfer of purchasing power
 - (i) they join money to enable trade over time
 - (ii) they complement real assets as income-distributing stores of value (“capital”).

(2) Providing the facilities/services that ease the use of financial instruments

The financial system should not just make the instruments mentioned above available. Rather, it should also support their use. This means foremost that it should ease the trade involving money and other financial assets:

- Help match supply and demand
- Help execute the resulting transactions.

In the case of money as a generally accepted means of payment, this was already indicated in section (4) of 2.2: There, we said that the financial system should provide for the efficient clearing and settling of payments.

According to the emphasis that is put on the various supporting systems, we can distinguish between different forms of financial systems.

(a) Direct finance: market-based systems

In order to ease the trade of financial assets, the system should establish a marketplace for each of these assets:

“The function of financial markets is to make savers and borrowers meet”; Baldwin/Wyplosz (2009), p. 549 [2006, p. 429].

If the non-financial suppliers of funds make direct financial contracts with the non-financial fund seekers, we call this “direct finance”. A financial system that relies predominantly on direct finance is called a “market-based system”.

(b) Indirect finance: bank-based systems

The matching of supply and demand for financial assets can be facilitated further if members of the “financial industry” stand ready to enter into financial contracts themselves. We call such members “financial intermediaries in the strict sense” or, more simply, just “financial intermediaries”. They step in between non-financial suppliers and buyers of financial assets so that we speak of “indirect finance”. As banks are the most important form of financial intermediaries, a financial system is called a “bank-based system” if it relies predominantly on indirect finance.

In practice, financial systems are a mixture of direct/market-based and indirect/bank-based finance. Most of all, financial intermediaries (in the strict sense) are active in financial markets, i. e. they act as buyers and sellers of financial assets side by side with lenders and borrowers. This is illustrated in the following figure.

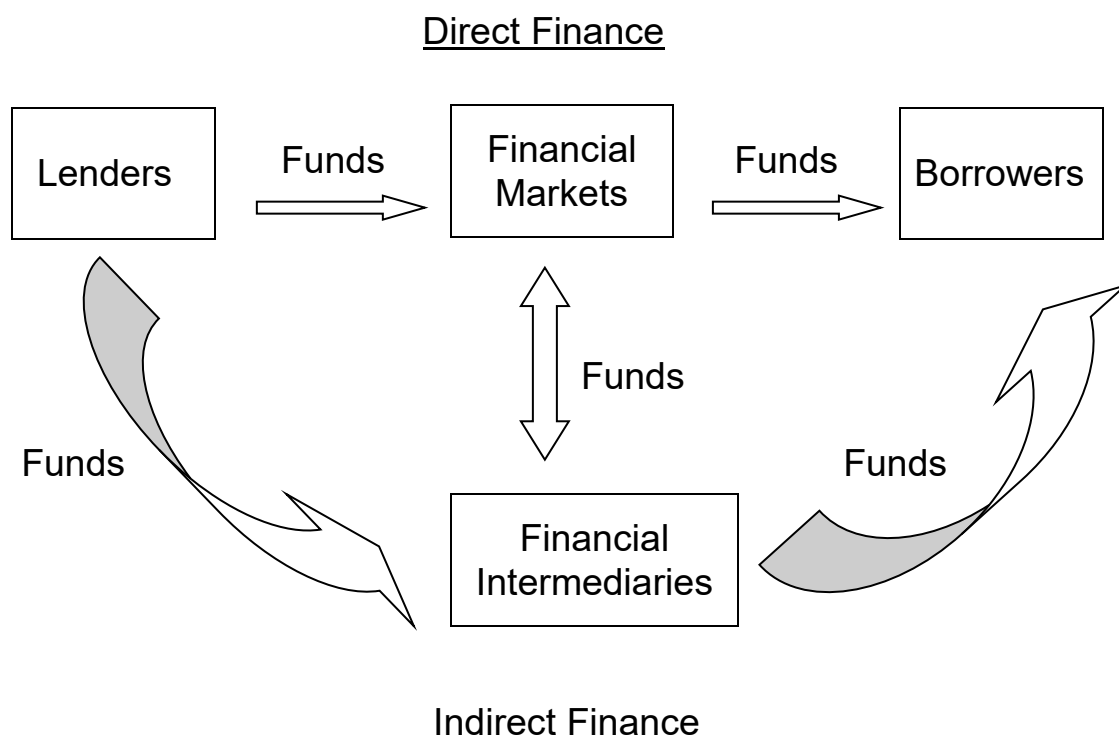


Exhibit 2.3 (2): Direct Versus Indirect Finance

Source: Adapted from European Central Bank (2011), p. 39.

→ Problem 11 of the exercises to § 2

(c) Providing services “around” financial contracts

So-called “financial service firms” offer a large variety of services to partners of financial contracts. We will call these firms “financial intermediaries in the broad sense”: in contrast to those “in the strict sense”, they do not engage in financial contracts, i. e. they do not buy or sell financial assets.

As an example, we mention brokers: they do not engage in financial contracts, but bring the orders to sell and the purchase orders of market participants to the market; see Baldwin/Wyplosz (2009, p. 550) [2006, p. 429]. Rating agencies are another example.

Thus, even in direct finance, there is a large variety of supporting services offered by the financial system.

2.4 Characteristics of the Financial System

Baldwin/Wyplosz [2009), pp 552; (2006), p. 431] emphasize the following features of the financial system:

(1) Scale Economies

→ Problem 12 of the exercises to § 2

(2) Networks

→ Problem 13 of the exercises to § 2

(3) Asymmetric Information

→ Problem 14 of the exercises to § 2