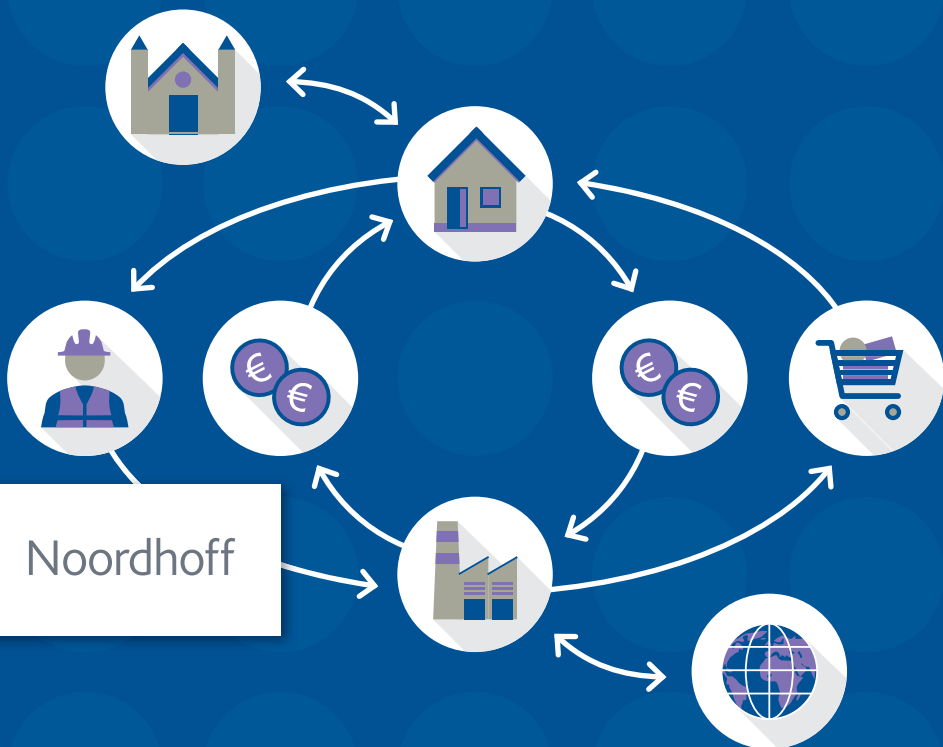


Economics and Business environment



Noordhoff

Ad Marijs
Wim Hulleman

Sixth Edition

Economics and Business environment

W. Hulleman

A.J. Marijs

Noordhoff

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Any comments concerning this or other publications should be addressed to Noordhoff Uitgevers bv, Afdeling Hoger onderwijs, Antwoordnummer 13, 9700 VB Groningen or via the contact form at www.mijnnoordhoff.nl.

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Preface

The economic business environment has a considerable influence on company turnover and returns. An increase in the degree of competition, a period of economic decline or a strong increase in the exchange rate of the euro involve risks for European companies. These risks are discussed and analysed at length in the annual reports of many European companies.

What should students who will be taking up future managerial positions within European companies know about the business environment of these companies?

This book offers a twofold answer to this question.

In the first place, in their future careers, students will need to be able to independently follow and analyse economic developments. They will need to be able to do such things as interpret the economic and financial pages of newspapers, as well as relevant economic publications by banks, national governments, the European Union and global international organisations. To do this requires a basic knowledge of the terminology generally employed in these publications. For this reason, this book avoids complicated economic jargon and mathematical analyses as much as possible. The theoretical perspectives contained in this book are concerned with the analysis of industries as well as macroeconomic and international economic developments. The theory is well illustrated by means of tables, figures and case studies that give an impression of recent developments within the European economy.

In the second place, students will need to have an insight into the way in which the business environment influences the company returns. Companies run risks that may be associated with developments within the industry (industry risks), or be the result of developments within the national or the global economy (such as business cycle risks, interest rate and exchange rate risks and country risk). In order to analyse these risks, the managers of companies will firstly need to determine the extent to which companies' results are exposed to economic developments and, secondly, they will need to be able to make a prognosis of future developments in the industry and in the national and global economy. The material in this book will provide the student with both these skills.

Educational material for a tertiary institution has to conform to a number of criteria. Firstly, it must allow independent processing of the subject matter. Secondly, the material must be practical and directly applicable to professional practice. Tertiary institutions often take thematic approaches to education, where the emphasis is not on the individual disciplines but

on themes or practical problems. This book fits in with that approach, because it takes the business environment as its basis and only to a lesser degree economic theories. Nevertheless, the emphasis is still on the economic elements of the business environment. This is in keeping with the philosophy of Adam Smith, the founder of economics, who saw a certain amount of specialisation increases productivity within society (which includes the field of education).

In the sixth edition, text, tables and figures have been updated. Also attention is paid to recent developments like the growing influence of China within the world economy, the increased importance of sustainability and wellbeing, and the departure of the United Kingdom from the EU.

We thank all those colleagues and students who have given their opinions on the study material, whether invited or not. Their remarks have been an incentive to improve on the educational material.

Zwolle, Hattem, Spring 2021

A.J. Marijs

W. Hulleman

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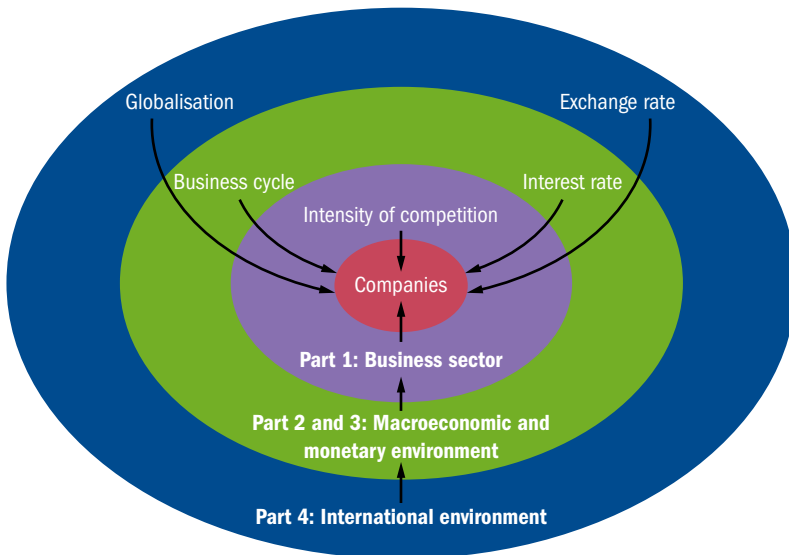
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Study guide

Central to this book is the issue of what influence the business environment has on company results. Chapter 1 discusses the concept of the business environment and the role that economics as a science can play in analysing the business environment.

The rest of the book is made up of four parts. Each of these deals with a particular aspect of the business environment (see figure).

Companies and their environment



Part 1: The company in the business sector

Part 1 deals with the immediate environment within which companies operate; that is, the particular industry. Chapter 2 deals with price formation within markets. Market price is a function of supply and demand. The factors that determine supply and demand will also be treated. Any change in supply or demand will have an effect on the degree of competition between businesses. However, even in industries with a high intensity of competition, there will always be businesses which will succeed in making good profits. They will have succeeded in doing so because of their competitiveness. Those factors which determine the competitiveness of companies within an industry will also be treated in Chapter 3.

Part 2: The macroenvironment of companies

Central to Part 2 is the macroenvironment. Chapter 4 deals with the supply side of the European economy. Some of the issues that will be dealt with include how production within the economy is organised, how production is gauged and over what sectors of the economy production is carried out.

Chapter 5 discusses the demand side of the economy. To what destinations do the products of an economy go? What relative amounts are purchased by private consumers, businesses, government authorities and foreign consumers? Developments within macroeconomic demand have a repercussion on the business cycle. Those factors that affect the business cycle are dealt with in Chapter 6. The business cycle has a considerable effect on the both government income and expenditure and on business results. As such, Chapter 6 also deals with the government and business policies in relation to business cycles.

Part 3: The monetary environment of companies

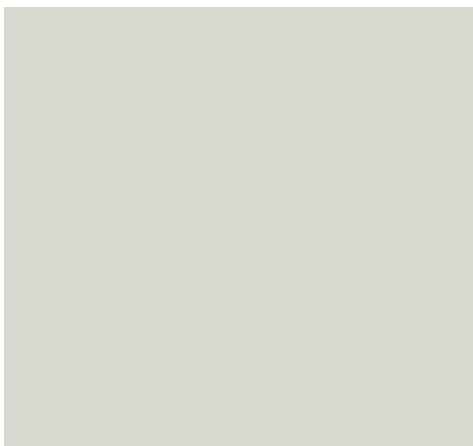
Part 3 deals with the monetary environment of companies. Chapter 7 deals with money supply and demand. Too rapid monetary growth can have the effect that private consumers and companies start spending too much, with inflation as the result. The monetary policy of the European Central Bank is directed towards preventing inflation. The means at its disposal are also dealt with in Chapter 7.

Interest is the price one has to pay in order to borrow money. Chapter 8 deals with the factors that determine the money market and long-term interest rate within the Euro zone. Interest rate fluctuations can have a considerable effect on company profits. As such, Chapter 8 also deals with interest rate risk.

Part 4: The international environment of companies

Liberalisation of international trade and capital flows and improvements in transportation and telecommunication technology are meaning that the distances and borders between countries are increasing less important than they used to be. Chapter 9 deals with the main trends in global economy as well as the background against which international trade has arisen and what effects it is having. This chapter also deals with how trade and capital flows are reflected within the balance of payments.

International trade and investment involve currency market transactions. The exchange rate is set by the currency market. Chapter 10 deals with the factors that determine the exchange rate. Exchange rate fluctuations have a considerable effect on business profits and turnover. As such Chapter 10 also deals with exchange rate risk. Companies that intend to internationalise their operations face the problem of finding a suitable sales market. Central to Chapter 11 are country selection procedures according to the so-called filter method. These procedures allow a suitable target market to be selected from a large number of potential sales markets. Chapter 11 also deals with one of the main risks of doing business outside Europe, namely, country risk. This is the risk that business partners of European companies will not be able to fulfil their international obligations in hard currency as a consequence of government measures.



1

Economics and the business environment

- 1.1 Economic activity and economics**
- 1.2 Business environment**
- 1.3 Absolute and relative data**

What is economic activity and what academic discipline studies it? What is the relationship between the business environment and economics? Economic phenomena are regarded as belonging to the so-called business environment.

This chapter will address the following key question: what role does economics play in the business environment?

On the next page, a situational sketch is used by way of an introduction to these issues.

People always have needs of one form or another, and they fulfil these needs with available resources. This is termed economic activity. Economic activity is the subject of many branches of economic research, and is dealt with in Section 1.1.

Section 1.2 deals with the objectives of economics within the framework of the business environment. It delineates that business environment with these objectives in mind. The main issue is what external factors determine business results. Political developments in market areas, technical innovations, major shifts in customer demand and changes in work ethics all have a major effect on companies. The contribution that economics could make to analysing these aspects is illustrated in a diagram.

Section 1.3 treats the relationship between absolute and relative changes in variables. The importance of the absolute change in economic variables will always be manifestly evident (for example, the employment figures over a number of years). However, the relative changes to these variables are often just as significant (for instance, the percentage of employment growth during a specific year).

CASE

The economic conditions under which the management of an airline have to operate are crucially important. Knowing these conditions can be the key to success. The top management level may have to find answers to the following questions: if there is an economic slump, what is the effect on tourist spending likely to be? What will happen to the oil prices? Will the prices of American competitors' tickets drop dramatically if the exchange rate of the dollar drops? Can we still afford our pilots' wages, or will we have to buy bigger planes instead? Should we invest in new machines if the interest rate rises and lending becomes more expensive? The top management needs to make sure there is sufficient expertise in these fields to understand those symptoms and developments that have a direct bearing on the company's achievements. They will need to ask themselves whether there are ways and means of avoiding negative effects.

1.1 Economic activity and economics

Prosperity
Resources
Scarcity

Human beings need things like food, warmth, shelter, safety and self-development. These needs can be partly fulfilled by the supply of goods and services. The ready availability of goods and services to fulfil needs is termed prosperity. Human needs are virtually unlimited, while production is limited by the availability of resources like land labour, and capital. The excess of human needs over what can be produced is termed scarcity. Resources such as raw materials, machines and labour, which are used in the production of goods and services can be used for a variety of purposes. Labour can, for example, be used for the production of food, consumer electronics, education or safety (the judiciary and police). Raw materials and machines can also be put to a variety of uses. Since they can be put to a variety of purposes, they can be described as scarce or in short supply.

Economic activity

Economic activity occurs when people (consumers, managers) make choices to maximise their prosperity using scarce resources. Economic activity occurs everywhere in society: consumers obtain an income by going out to work; a company buys products, uses them to make other products and sells them; a bank employee buys shares on behalf of a customer; a town planner makes plans for a new city suburb for the city council; a sales employee of a company obtains a big international order.

Science of economics

Economic activity takes place within and between various organisations. In the examples mentioned, there is an interaction between consumers and companies, government institutions and companies and companies interacting with companies in other countries.

The science of economics is concerned with the study of economic activity. The field is so complex that it has had to be divided up into several subdisciplines. These can be roughly divided into two groups: those that study the internal process within companies (such as financial accounting, management accounting) and those that study the relationship with the environment or the environment itself (such as marketing and macroeconomics).

Company employees are rarely able to resolve the problems they encounter merely by having a knowledge of one of these fields alone. A problem often has both internal and external causes. This is illustrated in Example 1.1.

EXAMPLE 1.1

A sales employee has noticed that the sales of a product are increasing at a lesser rate than was anticipated. There may be a number of reasons for this. Perhaps competitors have brought a similar product but with a better price-quality ratio onto the market. Maybe the costs have become too high because of inefficient production methods (which may then constitute an economic, a business management or even a technical problem). Perhaps competitors have increased their advertising or improved their distributing organisation (aspects that are investigated in marketing). Perhaps the product is sensitive to cyclical trends and the economic growth in the sales area is suffering a setback. Sometimes customers abruptly change their spending pattern, which will affect sales. A product may have suddenly become too expensive for buyers in certain countries because of changes in the exchange rate. These are all aspects of the problems that fall under economics.

All these factors could play a role and may even exert a simultaneous influence on sales.

The sales employee would like to take measures to turn the tide.

To do that he will first have to find out what the causes of declining sales are.

TEST 1.1

What measures could the company in Example 1.1 take to reduce costs that are the result of a wage rise?

Economic activity in a country can be studied on various levels. One way of doing it is to study the options open to all the companies and households within a country. Another is to analyse the economic activities of a group of companies or households who make or buy a similar type of product. The relationship with other countries is also important for the economic processes within a country.

All these topics belong to the field of economics. A distinction needs to be made between the following:

- Industry analysis
- Macroeconomics
- Monetary economics
- International economic relations.

Economics

Industry analysis is the study of the characteristics of markets and business sectors that companies come into contact with, the supply and demand of goods and the changes that occur in supply and demand when prices change. These subjects are dealt with in chapters 2 and 3.

Industry analysis

Macroeconomics deals with economic activities at a national level, such as the total consumption, all company investments, company imports and exports and the government of that country. These subjects are dealt with in chapters 4, 5 and 6.

Macroeconomics

Monetary economics is concerned with the phenomenon of money and the role that banks play in the economy. The extent of lending and the interest rate are variables that monetary economics tries to explain. The tasks of monetary authorities are also part of the field. These subjects are dealt with in chapters 7 and 8.

Monetary economics

International economics

International economics is the study of the international trade between countries, international capital flows and monetary relations between countries. These subjects are dealt with in chapters 9, 10 and 11.

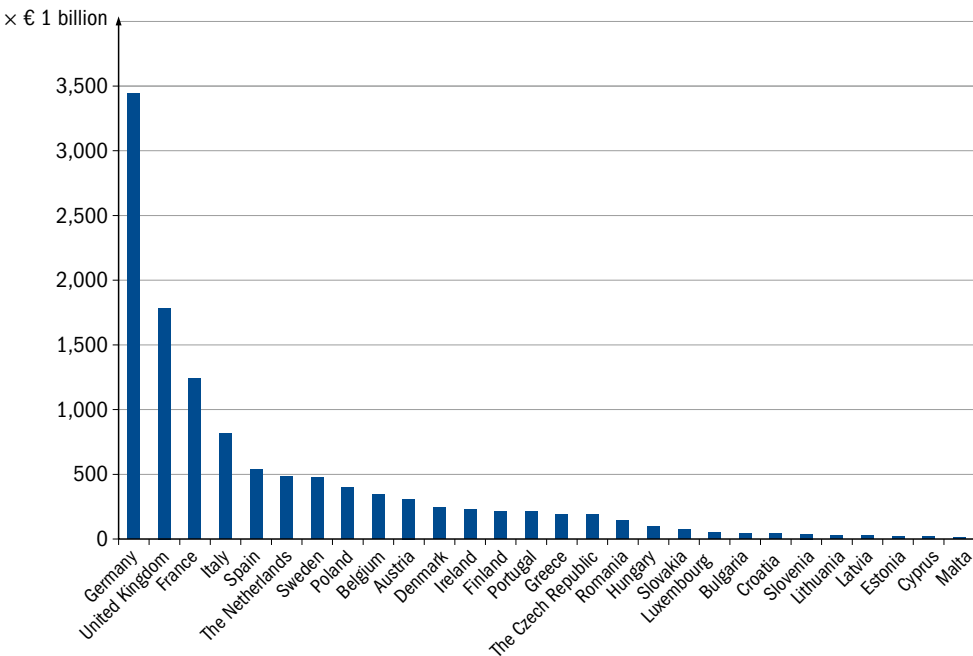
European Union

Much of the data in this book is concerned with the 27 countries that make up European Union (EU), and with the 19 countries that use the Euro as their common currency.

In 1957, six countries came together to form the predecessor to the EU, the European Economic Community (EEC). These countries were Belgium, France, Luxemburg, Italy, the Netherlands, and West Germany. They were joined in 1973 by Denmark, Ireland, and Great Britain, at which point the collaboration became known as the EU. Subsequent additions to the EU were Greece in 1981, Portugal and Spain in 1986, Sweden, Austria, and Finland in 1995, many countries from the east and south of Europa (being Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovenia, and the Czech Republic) in 2004, Romania and Bulgaria in 2007, and Croatia in 2013. There exists a lot of tension within the EU. In June of 2016, the population of the United Kingdom, by a small majority of the votes, elected to withdraw from the European Union. The government adopted this position and the United Kingdom left the European Union at the end of 2020. The future relationship with the EU has to be given substance in a negotiation process. This concerns trade relations, the rights of EU citizens in the UK and vice versa, as well as the situation on the border between Ireland and the UK.

Figure 1.1 shows the EU member countries by their share in the EU's total production in 2018. Total production in the EU in 2019 comes to approximately 14,000 billion Euros against approximately 12,000 billion in

FIGURE 1.1 Gross domestic product in the EU, 2018



Euroland. In comparison, production in the US is close to €17,400 billion; production in Japan is €4,200 billion (2018). The four largest countries in the EU are responsible for approximately 64% of the total EU production (see Figure 1.1).

1.2 Business environment

Having a general overview of the business environment is essential to understanding how economic variables affect companies. Section 1.2.1 deals with this issue. Section 1.2.2 gives an overall view of the connections between the economic environment and the business economic variables.

1.2.1 The business environment

The term ‘business environment’ covers all the changes in the environment of a business that can have an effect on the company results. These effects can relate to buying, selling, market developments, competition, staff management and the like.

The factors relating to the business environment that can have an effect on the results of a company are usually presented in a standard way, based on the extent to which the company can influence the environment. A distinction can be made between factors relating to the direct environment, indirect factors and macroenvironmental factors (*see* Figure 1.2).

TEST 1.2

List the factors that are likely to affect a large company in the food retail sector under direct, indirect and macroenvironmental factors.

The direct environment is made up of the buying or selling markets on which the company operates. Entrepreneurs are in ongoing contact with market players (suppliers, distributors and final customers), collecting information to effect as advantageous a quality-price ratio for their raw materials and products as they can. They continually collect information to improve the reliability of their delivery of the products. One of the ongoing tasks of the sales department is to try to obtain as much information about the sales market as it can in order to improve on the effectiveness of advertising campaigns. A lot of different departments are involved, all of which have to put a lot of energy into detecting any tendencies within the direct environment. It is the only way a company can exert a favourable influence on it.

Direct environment

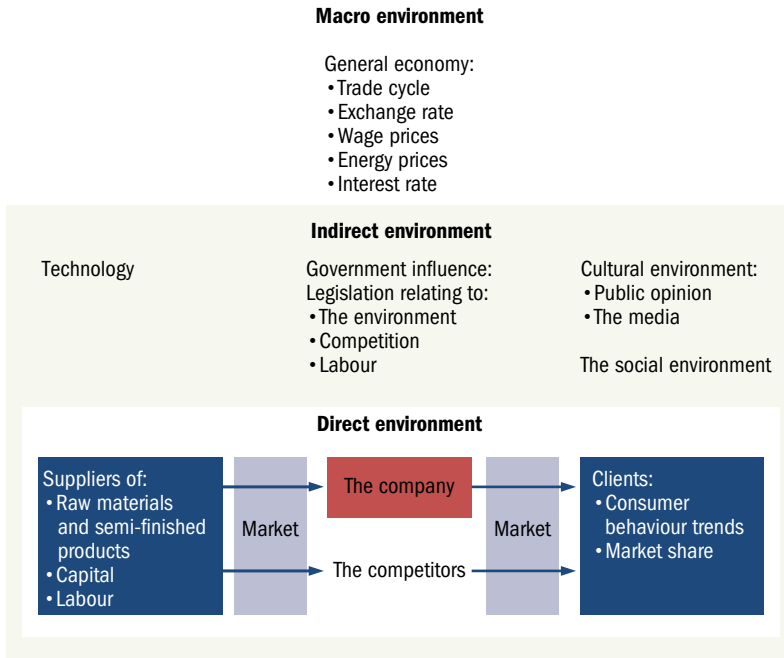
Ongoing contact
Market players

Every company has an incoming flow of goods and services: raw materials, labour and capital, each with their own buying market. Every company also has an outgoing flow: the products or services that are supplied to the various sales markets. Depending on the company, these markets will have different characteristics in terms of the nature of the competitors and the type of clients. This also means that the company itself has to constantly adapt its approach. If there are many companies operating within the same business sector and competition is stiff, there will be less margin for stipulating the price than in a situation where there is little competition. If the clients are consumers, a different promotional approach is required than if the clients are other companies. The indirect environment consists of employer and employee organisations, the government and cultural elements such as public opinion and the media. There is usually no need for company departments to keep a daily check on its indirect business environment. The company will be represented by one or more of the employer organisations, who in turn lobby

The nature of competition

Indirect environment

FIGURE 1.2 The business environment



with the government on behalf of the employer organisations. The company can exert little influence on the indirect environment, but the influence of the indirect environment on the company can be very great indeed.

Little influence**Public opinion**

Companies are increasingly having to take public opinion into account. This is a task for the public relations department or the public relations manager. The media can easily sway public opinion one way or another and as such, the task should be approached warily. Many companies have issued directions on how to handle situations where public opinion might play a role, such as environmental calamities or product safety. Public opinion may have an immense influence on a company, whereas the effect that a company can have on public opinion is usually very small.

Social environment

As one would expect, the social environment exerts a considerable influence on a company, as the following illustrates.

Many companies have difficulty finding staff. For a long time a poor coordination between supply and demand on the labour market was held responsible for this. It was thought that the education and mentality of the working population was insufficiently geared to the requirements of employers. It has now been shown that the company's working conditions can play an important role in how successful a company is on the labour market. Improvement of working conditions and the company's image can help to improve the situation.

TEST 1.3

When applying for a job, would you take note of the working conditions in a company? Would you also want to find out about the rate of turnover of the company's products?

Technology exerts a powerful influence on competition. Products are replaced at a rapid rate. A product lifecycle of a few months is no longer unusual in industrial markets. Technological advancement is accelerating, as are the associated risks.

For those companies that provide their own technological advancements through research and development, this factor is one that belongs to the direct business environment. For those companies that rely on other firms for new technological developments, technological advancement is an indirect business environment factor.

The macroenvironment belongs to the wider company environment. This environment takes in economic trends, variations in exchange rates and the price of raw materials and demographic developments. While these factors can have a major bearing on a company, individual companies cannot exert any influence on them: they are virtually uncontrollable. Because of the disastrous effects they can have on company results, an economic slump or lowering of the exchange rate of an important export country are the entrepreneur's nightmare. There is however no way in which an entrepreneur can influence these variables.

Consequently, it is important that managers have an idea of the influence macroeconomic variables can exert on returns, costs and profits. They can then more easily assess the competitive position of their own company.

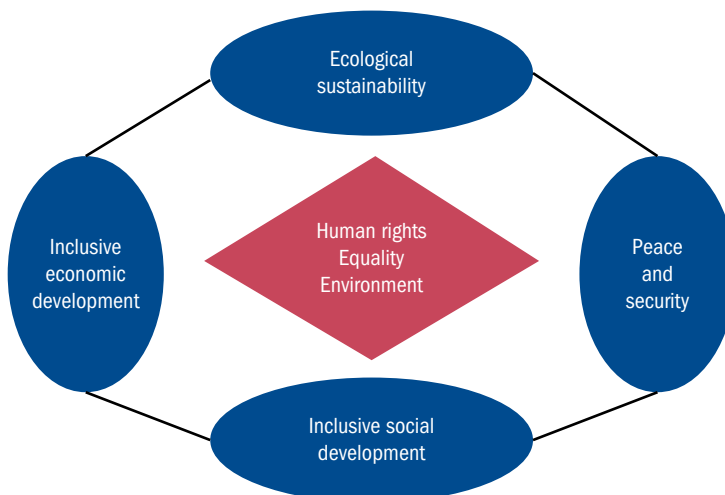
Sustainability

The United Nations (UN) makes a strong plea for a sustainable earth. Sustainability is one of the most important environmental variables for companies. The UN held a conference on sustainable development in Rio de Janeiro in June 2012, called Rio+, in which it laid down the basic aspects of sustainability.

Figure 1.3 summarises the UN's ideas on this subject.

FIGUUR 1.3 Basic aspects of sustainability according to the UN

United Nations



Technology

Macro-
environment

Basic values

Nearly every country in the world is a member of the UN. The UN has the extra task of looking after the interests of poor countries and continually points out that the problems that occur there affect basic values. Sustainable development cannot be achieved without taking care of the world's poorest people.

These basic values concern human rights, equality and the environment, or ecological sustainability, and are interlinked: the most vulnerable people often live in countries where disasters occur due to the deterioration of the natural environment, with little capacity to adapt.

Four elements of sustainability

The basic values touch on four subjects that include the elements of sustainability. Without these elements, the basic values are unattainable. The UN formulates social and economic sustainability in such a way that it highlights the interests of the world's poorest people. Sustainable development cannot be achieved without also involving the poor parts of the world.

Social development must be inclusive. By this, the UN means that poor people should also benefit from development. For them, there has to be real progress. This is possible if there is enough good food, education is possible, mortality rates are reduced, men and women are treated equal and people have access to clean water.

The same applies to economic development, which should also be inclusive. Economic development must be aimed at eradicating poverty and hunger, reducing inequality in the world and guaranteeing decent work and productive employment.

A sustainable physical environment means protecting biodiversity. A stable climate is also important: nature should be able to withstand major shocks and recover itself.

The UN focuses specifically on peace and safety. In a world of many conflicts, quality of life is under constant pressure. This is particularly the case in low-income countries. The UN has turned this into a special focus area so that people can be free from violence, conflict and abuse. Particularly poor people need conflict-free access to natural resources.

This is how the UN has sustainability in mind for all people.

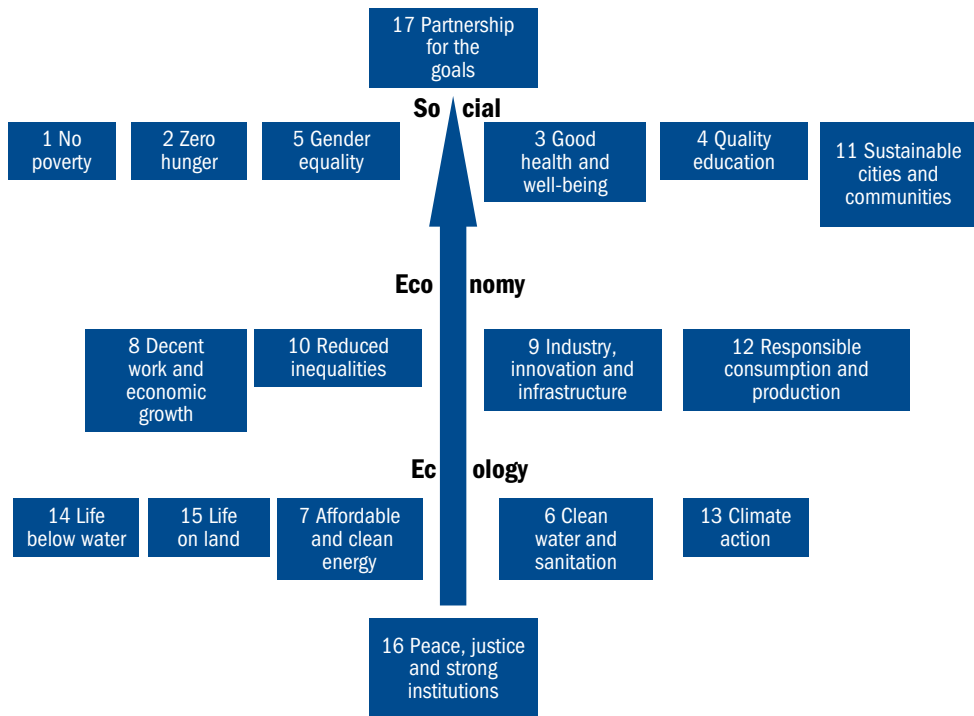
In 2015, member countries of the UN adopted the so-called Sustainable Development Goals. These are 17 goals based on the four elements of sustainability. They are shown in figure 1.4.

Sustainable development

SDGs (Sustainable Development Goals) help achieve sustainable development. Sustainable development means that all economic activities are aimed at preserving the earth and promoting human well-being.

This requires that every human being can live an acceptable life without compromising the possibilities of others living acceptable lives, now and in the future. This situation does not exist today, sustainable development is therefore needed. Sustainable human action is aimed at achieving a sustainable situation. This is what the SDGs are about.

FIGUUR 1.4 Sustainable Development Goals



Source: www.sdgnerland.nl/, consulted March 29, 2020

Sustainable development goals

The SDGs are numbered 1 to 17. The list of the 17 SDGs published on the UN websites has little structure, which is why they are classified according to social, economic and ecological goals with a focus on peace and partnerships to achieve the goals (see figure 1.4). This classification is also reflected in similar ideas such as the preservation of the three capitals: the *Triple Bottom Line* of economy, social and natural environment. The theme of the three Ps is also based on this: people, planet, profit, as well as the ideas of corporate social responsibility (CSR).

169 sub-targets

The 17 goals are each subdivided into sub-targets. There are 169 in total, which is a lot. The advantage is that companies, governments and consumers can select concrete targets and adjust their behaviour accordingly. The disadvantage of so many different goals is that the whole thing is unclear. Companies have difficulty choosing the right one and comparing it with other companies in the same industry that have chosen slightly different sub-targets.

No clear distinction

The SDGs are all aimed at sustainable development, although the boundaries are sometimes not quite clear. Some goals can be set at different levels. For example, SDG 4, quality education, is classified under social goals but is equally important for economic development. The same applies to SDG 11, sustainable cities and communities.

1.2.2 The influence of economic variables on a company's results

Those aspects of the business environment that fall within the field of economics exercise a considerable influence on the results of companies. This is shown in Figure 1.5.

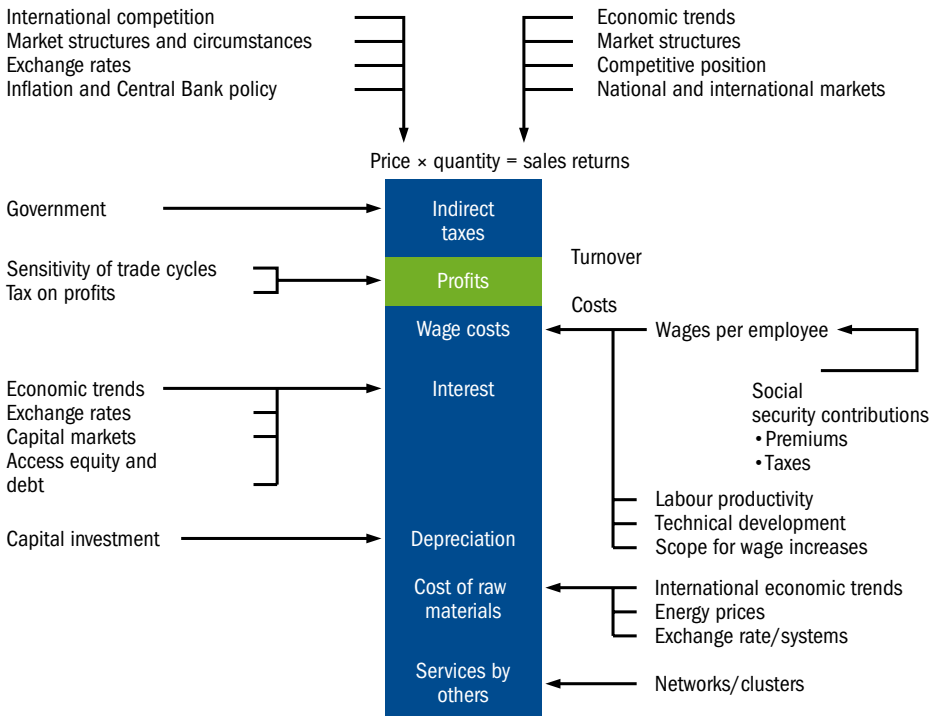
Many of the variables that are shown in Figure 1.5 are dealt with at length in this book. The illustration aims to show how varied the influence of economic variables is on businesses.

In Figure 1.5 the different parts of a profit and loss account have been related to economic variables. Some of these variables, such as the national and international economic situation, the wage and salary bill, government influence, the amount of capital investment and labour productivity are dealt with in the section dealing with the macroeconomy.

Exchange rates, exchange rate systems, interest theory, capital market, central bank monetary policy and the like usually fall under monetary economics or international economics. Managers operating in an increasingly internationally focussed environment should possess some knowledge of these matters.

Profit and loss account

FIGURE 1.5 The influence of general economic variables on business results



Apart from macroeconomic, monetary and international variables there are variables in Figure 1.5 that belong to the fields of business economics or industry analysis. Amongst these are various market structures and circumstances, the competitive position of companies and technical developments. The relationship between suppliers and customers and

especially the question of whether these relationships can be described as networks or clusters is a business economics issue. The competitive strength and the profitability of companies depend on this kind of variable.

Managers should not try to solve business economic problems in isolation from other changes in the business environment. However, if environmental variables are seen as unchangeable, this sometimes happens. Costs, sales and interest are sometimes viewed as being constant for long periods (for instance, when an internal returns account is drawn up). Such an approach obviously simplifies the reality far too much. In reality, there may be major fluctuations in these variables. Managers would be far better off working with predictions relating to environment variables and taking their risk to the company seriously. A policy of reducing the effects of changes in economic trends, currency, prices of raw materials, wages and interest is essential for many companies. Companies are often able to determine their relationship to their suppliers and clients, the currency in which they lend their capital, where they are based, how they can make their range of products less susceptible to trade cycles, and so on.

Changes in the
business
environment

Predictions
relating to
environment
variables

Policy

1

1.3 Absolute and relative data

The concepts of volume, price and value are interrelated. The turnover of a company over a certain period consists of the sales multiplied by the price. Turnover is a variable that denotes a value and sales is a variable that denotes either volume or quantity.

It is not only the absolute amounts of quantity (volume), price and value that are interrelated, the changes within each of the variables are also related in a certain way. This can be illustrated as follows.

We will assume that the data in Table 1.1 applies to a certain company.

TABLE 1.1 Quantity, price and value

	Quantity (in tons)	Price (in euros per ton)	Value (in euros)
Period 0	1,000	20	20,000
Period 1	1,050	22	23,100
Changes in % compared to period 0	5	10	15.5

Both the quantity and the price have increased in period 1 as compared with period 0. Multiplying price and quantity gives the value per period. The percentage change to each variable is calculated by dividing the increase by the amount in period 0 and multiplying that by 100. This produces a percentage of change between period 0 and period 1 of 15.5%. There is also another (but less accurate) way of determining the value increase, namely by adding the percentage change in quantity and price together.

It is a rule of thumb that the relative change in a variable that is a product of two other variables is approximately the same as the sum of the changes to the component variables. If a variable is the quotient of two other variables, the relative change is the difference between the relative change to the

component variables. The reader can check this in Table 1.1, where price can, for example, be expressed as a quotient of value and quantity. The change in value obtained in Table 1.1 by adding the percentages of the changes in quantity and price together is 15%, a discrepancy of 0.5% compared to the calculated change in value of 15.5%. The smaller the percentages of change in quantity and price, the smaller the degree of inaccuracy, also known as the discount factor. If the degree of inaccuracy is very small, it can be disregarded.

Nominal increase

The increase in value of a variable is known as a nominal increase. The nominal increase in the example is 15%. The change in quantity is known as the real increase and is 5% in the example. The nominal increase is therefore equal to the real increase plus the price increase.

Real increase

With economic variables, it is equally important to make a distinction between nominal and real changes. The total wages can be defined as the number of employees multiplied by the wages per employee. A change in the total wages can be broken up into a change in the number of employees and in the wages per employee. If an increase in the total wages is the result of a rise in wages, a quite different economic picture emerges than if the increase is due to an increase in employment.

We will assume that Table 1.2 gives an estimate of the total wages for a certain year.

TABLE 1.2 Volume and price changes to the total wages (example)

	2020 in 2020 prices	Volume increase	2021 in 2020 prices	Price increase	2021 in 2021 prices
	(1)	(2)	(3)	(4)	(5)
Total wages	200	2%	204	5%	214.5

The first column gives the value of the total wages in 2020. From column 2 it can be deduced that there will be an increase in employment of 2% by 2021. The total wages would have been 204 if the wages per employee had remained constant. In that case the price increase would have been zero: the total wages in 2021 would have been the same as in 2020. This is why column 3 is headed '2021 in 2020 prices'. If the volume increase is added to the price increase (column 4) the result is the value of the total wages in 2018 (column 5). The wage per employee has risen by 5%.

In this case the rise in the total wages is approximately the same as the volume increase plus the price increase: $2\% + 5\% = 7\%$; 7% of $200 = 14$. If the percentage increases in volume and prices are small they may be added up to determine the increase in value. Here, the discrepancy is 0.2, which is 0.1% of 200, a negligible difference.

The relationship between total wages, wages per employee and number of employees

The relationship between total wages, wages per employee and number of employees can be expressed in an equation:

$$W = W_{\text{emp}} \times N$$

in which:

W = the total wages

W_{emp} = the wage per employee

N = the number of employees

The relationship between the changes can be expressed as follows:

$$g_W = g_{W_{\text{emp}}} + g_N$$

in which:

g_W = the relative increase in the total wages

$g_{W_{\text{emp}}}$ = the relative increase in the wage per employee

g_N = the relative increase in number of employees

Glossary

1

Business environment	The company environment that exerts an influence on the results of a company. Three types of environment can be identified: 1 Direct environment 2 Indirect environment 3 Macroenvironment.
Economic activity	The quest for maximum prosperity using limited resources.
EMU	The Economic and Monetary Union, consisting of those countries that have the euro as their currency.
Macroeconomics	Sub-discipline of economics, mainly concerned with the study of the connection between economic factors such as national income, employment, consumption, investments, inflation and the like.
Scarcity	The excess of human needs over what can be produced given the limited availability of resources.
