CORPORATE RESTRUCTURING IN THE UNITED KINGDOM AND WEST GERMANY: RECENT DEVELOPMENTS IN LARGE NON-FINANCIAL COMPANIES

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Abstract

This thesis investigates recent corporate restructuring trends among large non-financial companies from the UK and West Germany.

Following an introduction in chapter 1, chapter 2 examines the structure of firms, both historically, and from a transaction cost economic perspective.

In chapters 3 to 5, empirical evidence on corporate restructuring in large non-financial companies in the UK and West Germany is provided. Chapter 3 reports on the results of a questionnaire survey in which a total of 116 UK and West German companies took part. It is found that, from 1986 to 1996, companies from both countries have engaged in restructuring, but that corporate restructuring has started earlier, and has been taken further, among the respondents from the UK than among the respondents from West Germany.

Chapter 4 focuses on changes in the degree of diversification of companies. The measurement of diversification is discussed. Two data sets are used to calculate diversification indices for companies from the two countries. Evidence is found that companies from the UK have decreased their degree of diversification between 1988 and 1995. West German companies have started to reduce diversification only after 1992.

In chapter 5, a comparative case study of two large chemical companies, ICI plc in the UK and Hoechst AG in West Germany, is presented. It is found that corporate restructuring has started earlier at ICI than at Hoechst. Various reasons for the difference in the onset of corporate restructuring are discussed.

In Chapter 6, an interpretative approach to the cross-national differences in the timing and the extent of corporate restructuring in the two countries is developed. It is argued that country-specific institutional and economic factors account for these differences, and four sets of these factors are explored.

Finally, the findings of the investigation are evaluated and future directions of research outlined.

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Glossary of German Terms

German Term	Abbreviation	English Term
Abteilungsleiter		Head of department
Aktiengesellschaft	AG	Public limited company
Aktiengesetz	AktG	Law Governing the Operation of Joint-Stock Companies
Arbeitsgericht		Industrial tribunal
Aufsichtsrat		Supervisory board
Bereichsleiter		Head of function
Betriebsrat		Works council
Betriebsverfassungsgesetz	BetrVG	Workplace Labour Relations Act
Bundeskartellamt	BKartA	Federal Cartel Office
Christlich-Demokratische Union	CDU	Christian Democratic Union
Christlich-Soziale Union	CSU	Christian Social Union
Freie Demokratische Partei	FDP	Liberal Party in Germany
Geschäftsführung		Management of private companies in Germany
Gesellschaft mit beschränkter Haftung	GmbH	Private limited company
Gesetz gegen Wettbewerbesbeschränkungen	GWB	Act Against Restraint of Competition
Grundgesetz	GG	Constitution of the Federal Republic of Germany
Handelsgesetzbuch	HGB	Code of Commercial Law
Handelshochschule		Higher trade school
Handelsschule		Trade school
Hausbank		House bank
Jahresabschluß		Annual statement of accounts
Kommanditgesellschaft auf Aktien	KGaA	Company limited by shares, but having one or more general partners
Kündigungsschutzgesetz	KSchG	Dismissal Protection Act
Land (Länder)		Regional State(s) within the Federal Republic of Germany
Leitender Angestellter		Employee with supervisory and managerial tasks
Mitbestimmungsgesetz (formally called *Gesetz über die Mitbestimmung der Arbeitnehmer*)	MitbestG	Co-Determination Act
Mittelstand		Sector of small- and medium-sized firms
Montanindustrie		Coal and steel industry
Sozialdemokratische Partei Deutschlands	SPD	Social-Democratic Party in Germany
Sozialplan		Social plan
Sprecherausschuß		Representation committee

Sprecherausschußgesetz (formaly called *Gesetz über Sprecherausschüsse der leitenden Angestellten*)	SprAuG	Representation Committee Act
Tätigkeitsbericht		Operating report
Universalbank		Universal bank
Verbundproduktion		Integrated production
Vorstand		Management board
Wertpapierhandelsgesetz	WpHG	Securities Trading Act

Other Abbreviations Used

Abbreviation	Meaning
ch. (chs.)	chapter (chapters)
e.g.	for example
empl.	Employment
FT	*Financial Times* Newspaper
HO	head office
i.e.	that is / that means
IT	Information technology
LBO	Leveraged buy-out
M&A	Merger(s) & acquisition(s)
MBI	Management buy-in
MBO	Management buy-out
n.a.	no answer / no information
obs.	observation(s)
para	Paragraph
p. (pp.)	page (pages)
Q	question
R&D	Research & development
SIC	Standard Industrial Classification
Std. dev.	Standard deviation
tce	Total capital employed
WW	world war

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The thesis is dedicated to my wife Dorothee.

1. Introduction

Over the past 10 to 15 years a wave of corporate restructuring has been under way in many industrialised countries. Evidence from the United States indicates that the 1980s and early 1990s have been characterised by an unusually large number of mergers and acquisitions (Blair and Uppal 1993, p. 63; Stearns and Allan 1996, p. 700), by a significant reduction in corporate diversification (Lichtenberg 1990; Markides 1993, p. 3 and 1995, Ch. 4) and by a large number of divestments and leveraged buy-outs (Graebner 1991, p. 13 and pp. 37-39), to name but a few indicators of this restructuring wave.

Concomitant with these developments, public interest in corporate restructuring has risen. Between 1983 and 1996 the use of the term 'corporate restructuring' in the *Financial Times* Newspaper increased sevenfold (Richter 1997b, p. 3). The business press reports daily about takeovers, divestments and buy-outs, but also about changes in the internal organisation of companies, such as de-layering. Much of the popular business literature takes a normative view on particular types or aspects of corporate restructuring. For example, Ries (1996), following Peters and Waterman (1982), strongly recommends companies to de-diversify and 'refocus', while Sadtler, Campbell, and Koch (1997) think that a 'break-up' should be on the agenda of 66% of the top 100 UK companies. On the other end of the spectrum, Heuskel (1996) of the Boston Consulting Group argues that conglomerates should be maintained if potential synergies are managed carefully, and that a 'break-up' of these 'premium conglomerates' may destroy rather than create value.

What is far from clear, however, is *when* and *to what extent* corporate restructuring has actually taken place, and *how non-financial companies in the UK and West Germany compare* in this respect. The popular literature provides hardly any *evidence* of the development of corporate restructuring over time. The academic literature so far refers primarily to the US. Less is known about the UK, and, with a few exceptions, very little about West Germany. This may be partly due to the fact that the corporate restructuring wave which is the focus of this study is a relatively recent phenomenon, and that – as will be argued below – West German industry in particular has only started very recently to restructure on a wider scale. Another characteristic of the academic literature is that it is primarily concerned with *particular aspects* and

techniques of corporate restructuring, mainly from a financial point of view. Hardly any of this literature continues the line taken by Chandler, Channon, Hannah, Dyas and Thanheiser and others who analyse the *overall development of corporate structure* in the industrialised countries, focusing mainly on the US, Britain, Germany and France. Following their line of analysis, *this study aims to give an overview of corporate restructuring in non-financial companies in the UK and West Germany since the mid-1980s and to provide a partial explanation for some of the differences between the two countries regarding the extent and the timing of corporate restructuring.*

The following section sets out the aims of this study in greater detail. Section 1.2 provides a working definition of corporate restructuring. In section 1.3 the further course of the study will be outlined.

1.1 Purpose of the Study

The purpose of this study is *not* to develop a theory of corporate restructuring in order to test the predictions derived from such a theory, a method which could broadly be described as 'deductive'. On the other hand, the study is *not purely* descriptive, although it contains a strong empirical, and largely descriptive, section (Chapters 3-5) on which thereafter, in an 'inductive' way, an interpretation of corporate restructuring is developed (Ch. 6). Drawing on both deductive and inductive techniques, the aim of this study is threefold:

(1) First, *to set out a framework which makes it possible to analyse the structure of firms as a coherent whole and to identify the crucial dimensions of firm structure.* Two perspectives on firm structure, the historical and the transaction cost theoretic one, are laid out (Ch. 2); these are mutually enriching. The rationale for doing this is that there is no commonly established definition of corporate restructuring (see section 1.2). The aim of the study is to spell out clearly which perspective of the phenomenon under consideration is adopted here. This aim is carried by the belief that empirical observation is directed and influenced by the perspective of the observer, so that the resulting observation can be understood only in the context of that framework.

(2) Second, *to analyse and compare corporate restructuring trends and developments in non-financial companies in the UK and West Germany between the mid-1980s and the mid-1990s,* using the concepts developed before. The study aims to establish whether and to what extent the structure of large non-financial firms has changed, and which dimensions of firm structure have been particularly affected. If general trends among firms within or across countries can be established, the 'timing' of corporate restructuring (its onset, development, and possible slow-down or end) is also of interest. Moreover, the study aims to establish commonalities and differences in the timing, extent, and character of general corporate restructuring trends among companies in the UK and West Germany. Overall, this part of the study endeavours to extend the historiography of the structural development of large non-financial firms in the two countries to a very recent period.

Without detailing the results of this part of the study here, a major finding is that companies in both countries have restructured, but that this process (a) *has started earlier* and (b) *has been taken further* in Britain than in Germany.[1] This forms the background for the third aim of this study, which is

(3) *to provide a partial interpretation of the cross-national differences in corporate restructuring.* The factors that cause corporate restructuring can be decomposed into firm-specific, industry-specific, and country-specific factors. As this study consists of a cross-national comparison, its emphasis is deliberately on the *country-specific factors* that influence changes in corporate structure. The aim of this part of the study (ch. 6) is to establish whether any factors specific to the UK and to West Germany can be identified which could at least partially account for the differences in the corporate restructuring trends and developments in the two countries. In keeping with the earlier structure of the thesis, a framework in which this problem can be analysed is set out first. This framework draws on the institutional economics tradition represented by Douglass C. North. In this perspective, it is argued that a combination of country-specific institutional and economic factors influences the balance of power among the parties who transact with a firm and who determine its structure. On this basis, four exemplary sets of institutional and economic factors are identified, and the differences between the UK and West Germany with respect to these factors are elaborated upon.

It has to be emphasised that these country-specific factors may explain only a minor part of the corporate restructuring waves in the two countries. Many authors (e.g. Bowman and Singh 1990, pp. 9ff.) argue that corporate restructuring is primarily a result of industry-specific phenomena, in particular increased competition within those mature industries on which Britain and Germany have thrived for much of the period since the industrial revolution (e.g. chemicals). On the other hand, Blair and Schary (1992, p. 178) provide evidence that from 1979 to 1989 in the US, industry-specific factors account for only 9-12% of the variance in various types of restructuring events, including private buy-outs of publicly traded companies, and leverage increases. They conclude that "a great many firm-specific, highly idiosyncratic factors were at work in addition to the industry-level and macro-economic factors" (Blair and Schary 1992, p. 184). Also, if industry-level factors were the only determinants of corporate restructuring, it is hard to see why cross-national differences between firms within the same industry persist, as is evident from the results reported in chapters 3 to 5. With respect to firm-specific determinants of corporate restructuring which are emphasised by Mueller and Hall (in Blair [ed.] 1993, pp. 195-197), it is obvious that a company's history influences its subsequent development (see also Fligstein 1991, p. 311). For example, in chapter 4 evidence will be provided that a company's degree of diversification at any point in time has a strong impact on subsequent changes in diversification. On the other hand, if *only* firm-specific factors were at work, it is unclear why corporate restructuring should take place in wave-like fashions, affecting many companies across many industries simultaneously. It is the general country-specific trends in corporate restructuring which are the focus of the literature reviewed in section 2.2 below, and in chapter 6.

Three aspects of this study's scope require further explanation:

- With respect to the reference period of the study, the initial idea was to study corporate restructuring since the beginning of the 1980s. This consideration was driven by the fact that changes in industrial structures are often seen in relation to the political events during this period: The beginning of the Thatcher-, Reagan- and Kohl- governments in Britain [1979], the US [1980], and West Germany [1982] respectively, and the onset of more liberal economic policies at least in the Anglo-Saxon countries. However, it became clear that a balance between the breadth and the depth of the study had to be struck. Moreover, the data base for

the time before the mid-1980s proved thin, both with respect to the publicly available data used in this study (Chapter 4), and to the data from individual companies and managers (Chapters 3 and 5). As a result, it was decided to concentrate on the period from the mid-1980s, without a fixed starting point. Information on the years before this period is provided insofar available.

- The study focuses *primarily* on large, non-financial companies. Again, this was partly driven by data availability, but partly also by the impression gained from the business press that financial companies may have undergone very different forms of restructuring than non-financial companies. However, some of the data used in this study (see in particular Ch. 4) do not allow a breakdown by industry, so that a few financial companies may be included in those instances where this is clearly indicated.
- Thirdly, the study is on large companies *in the UK and West Germany*, i.e. companies whose head offices are located in these two countries, as opposed to *British- or German-owned* companies. Three reasons account for this decision, which has practical implications mainly for the sample selection for the questionnaire survey on which chapter 3 reports. First, through acquisitions and divestments, the ownership of large companies changes hands (and nationality) at an increasing pace (see for example section 3.3.5), so that a focus on German- and British-owned companies seemed inappropriate. Second, companies increasingly invest globally, so that corporate structures become more and more international. Third, information on particular restructuring phenomena – such as mergers and acquisitions – becomes more easily available, so that companies have a greater opportunity to emulate the structure of foreign firms, if they wish to do so.

1.2 Working Definition of Corporate Restructuring

'Corporate restructuring' is a broad, non-technical term, referring to *changes in the structure of firms*. As a firm-level phenomenon, it has to be distinguished from *industrial restructuring*, i.e. changes in the composition of particular industries (Roe 1984, pp. 3-4; Statt 1991, p. 124) and *economic restructuring*, i.e. changes in the industrial structure of countries or regions (e.g. Green 1989, p. 5). However, both terms are used occasionally to refer to firm-level changes (e.g. Smith and Walter 1990

who describe corporate restructuring under the heading of economic restructuring; similarly Abercrombie and Warde [2]1994, p. 18), in which case they are of interest to this study.

In the literature, a variety of changes in the structure of companies are described as corporate restructuring. Bowman and Singh (1990, p. 9) and Bowman et al. (1996, p. 5) distinguish between three forms of corporate restructuring[2]:

(1) Financial restructuring: changes in the capital structure of companies;

(2) Portfolio restructuring: changes in the composition of companies' assets, activities or business lines;

(3) Organisational restructuring: changes in the organisation structure of companies.

Some authors (Weston et al. 1990, p. 3; Wright, Thompson and Robbie 1990, pp. 1ff.) list changes in companies' ownership structures as a separate form of corporate restructuring, while others subsume it under financial restructuring.

Most of the literature on corporate restructuring is concerned with the first or the second of these aspects (Donaldson 1994; Stewart and Glassman 1988a and 1988b), or a combination of the two (Bethel and Liebeskind 1993, p. 15). Far less evidence is available on the changes in the *organisation structure of firms*, Useem (1992; 1993) being an exception. Another aspect of much of the extant literature on corporate restructuring is that it is concerned with particular *restructuring techniques* or *events*, such as mergers and acquisitions, buy-outs and the like, rather than with the *resulting changes in corporate structure*. Some authors describe corporate restructuring simply by enumerating particular restructuring events, such as "the reshaping of a business through mergers, acquisitions, divestitures, and internal reorganizations" (Kanter 1989, p. 88). Others stipulate the restructuring events on which they focus (e.g. leveraged buyouts and acquisitions as in Hall 1991a) for the purpose of their studies, without putting these events into a wider context.

As indicated above, this study sees itself in the tradition of the literature that analyses the overall development of corporate structure from a *historical* and *transaction cost theoretic perspective* (see chapter 2). Within this literature, two crucial dimensions – each containing various elements - of the structure of firms are identified: The *boundaries* of firms and their *internal organisation. For the purpose of this study,*

corporate restructuring is therefore defined *as changes in these two dimensions of corporate structure*. This means that, in contrast to much of the recent literature on corporate restructuring, the study is only to a secondary degree concerned with changes in the financial or ownership structure of firms. As an example, financial transactions such as acquisitions are not analysed as restructuring events or techniques on their own, but with respect to the resulting changes in the boundaries (and potentially also in the internal organisation) of firms. It would therefore be of interest whether such acquisitions have taken place on a vertical, horizontal, or diversifying basis, and whether they have led to a shift in the geographical focus of the company's operations, if such data can be obtained.

When firms undergo corporate restructuring, substantial changes along the various dimensions of their structure occur within a compressed time frame (Cibin and Grant 1996, p. 283), so that episodes of corporate restructuring stand out in the overall development of companies.

1.3 Further Course of the Study

The main purpose of the study is to give an overview of corporate restructuring trends and developments in non-financial companies in the UK and West Germany. At the heart of the study are, therefore, three chapters in which empirical findings on corporate restructuring in the two countries are presented.

Before that, chapter 2 develops the framework in which corporate restructuring is analysed more fully. The way in which business historians since Chandler have described the overall development of large companies is set out, and material on corporate development in Britain and Germany is presented. In addition, the transaction cost economic approach to the crucial dimensions of corporate structure is developed. This allows setting out the key elements of the structure of firms – various aspects of their boundaries and their internal organisation - more clearly, which will be done in the concluding section of the chapter.

In chapter 3, an overview of corporate restructuring trends and developments in British and German industry is given on the basis of a questionnaire survey which covers the 1986-1996 period. The chapter also contains an additional section (insert 3.3.4), in which data from public sources on a particular corporate restructuring technique (management buy-outs) are presented.

On the basis of a statistical analysis of two data sets, chapter 4 focuses on a particular aspect of corporate restructuring, namely on changes in diversification in British and Germany industry. A literature review on recent changes in diversification is presented as well.

Chapter 5 consists of a case study of corporate restructuring in the German chemicals and pharmaceuticals company Hoechst AG and compares its case with the one of ICI plc in the UK.

Each of the three empirical chapters uses its own, distinctive methodology, and is based on self-compiled data sets from a variety of information sources. A copy of the questionnaire used in the context of chapter 3 is presented in the appendix.

Chapter 6 provides an interpretative approach to the observed cross-country differences in the timing and the extent of corporate restructuring. The approach presented is supported by empirical data on the forces that are hypothesised to underlie corporate restructuring trends.

In the conclusion, the research questions are revisited, and future directions of research are identified.

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[1] For much of the study, the terms 'UK' and 'Britain' are used interchangeably, as the geographical distinction between the two does not affect issues such as sample selection etc. Also, for reasons of brevity, 'Germany' is often used instead of 'West Germany'.

[2] Similarly Gibbs 1993, p. 51.

2. Corporate Structure: Historical and Theoretical Perspectives

2.1 Introduction

The aim of this chapter is to identify the crucial elements of corporate structure. These elements are developed in a twofold way.

First, taking a historical perspective, section 2.2 summarises the analysis of the development of corporate structure in the industrialised countries in general provided by Chandler (1962; 1977; 1990) and by business historians in his tradition. Chandler argues that the historical evolution of corporate structure involved changes with respect to

(a) the 'boundaries' of firms,

and

(b) their internal organisation.

This approach has been adopted widely, although later authors do not always follow Chandler's line of argument with respect to the *reasons* for changes in corporate structure. Section 2.2 also traces the development of corporate structure in large industrial companies in Britain and Germany, although the empirical evidence in particular on the internal organisation of firms is patchy.

Second, section 2.3 outlines transaction-cost theoretic approaches to the key dimensions of corporate structure as developed in section 2.2.

Based on the historical and the theoretical approaches to corporate structure, the chapter concludes by defining corporate restructuring as changes in the boundaries of firms and in their internal organisation and outlines five major elements of each of these two key dimensions of corporate structure. This provides the analytical tool set that is applied in the following chapters of the study.

2.2 The Historical Perspective: Corporate Structure and Corporate Development

2.2.1 Chandler's General Argument

The business historian Alfred Chandler (1962; 1977; 1990; for a summary see Teece 1998, pp. 281-317) identifies the improvements in production, transportation and communication technology in the 19th century as decisive factors for the emergence of large business organisations in the US, Britain and Germany. The increasing geographic reach of companies, the emergence of mass markets, and the invention of mass production technologies triggered the building of plants of hitherto unknown size. The examples given by Chandler include the railway companies, the emergence of mass distributors and retailers, and of mass producers in the refining, distilling, and chemicals manufacturing industries. According to Chandler (1990, p. 37), four dimensions of the growth process of business enterprises can be distinguished:

(1) horizontal growth, often through the combination of already existing operations via merger or acquisition;
(2) vertical integration;
(3) diversification;
(4) geographic expansion.

As a crucial reason for horizontal integration, i.e. the increase in the scale of a company's already existing business line, Chandler regards the invention of production technologies which showed significant *economies of scale*. Economies of scale occur where the average costs of production decrease as output increases. Put formally, economies of scale occur where the marginal costs (MC) of producing an additional unit of output are less than the total average costs (AC): $MC < AC$. Over the range of output for which returns to scale are constant, $MC = AC$, whereas over the range of output for which there are diseconomies of scale, $MC > AC$ (see Besanko et al. 1996, pp. 3-10; pp. 77-79).

Chandler argues that the emergence of new production technologies, such as fuel- and electricity-powered engines, led to the substitution of capital intensive for labour intensive production. The new production facilities required large fixed investments, leading to high fixed costs relative to total costs. Increases in efficiency could be

achieved by spreading fixed costs over larger amounts of output, resulting in economies of scale. In addition, the investments in transportation technologies had made it possible to exploit economies of scale in manufacturing by enabling companies to distribute and sell their products on a large geographic scale. The minimum efficient scale of production in many businesses increased, requiring entrepreneurs to build larger production facilities to compete effectively.

Vertical integration, according to Chandler (see Williamson and Ouchi 1981, pp. 356ff.), followed in part from horizontal integration. The new large-scale operations demanded a constant throughput ('stockturn') in order to avoid downtime and to maximise the return from investment in large production facilities. Therefore, the incentive increased for companies to integrate vertically, i.e. both 'backwards' into the procurement of supplies and 'forward' into distribution, marketing, retailing and related services such as insurance and finance. At the same time, the incentive for small and independent intermediaries to provide these services decreased because of the greater need for buyer-specific (and therefore risky) investments. From the perspective of the large corporations, in the oligopolistic markets in which they were mostly active it was also more dangerous to rely on the services of intermediaries who could work for their competitors and thereby exploit their strategic position. This left the bigger corporations little choice but to carry out intermediary services or to procure supplies on their own. Vertical integration also served as an insurance against unforeseen increases in supply prices which could severely affect producers that had made large capital investments into production processes dependent on particular inputs (e.g. reliance on coal in the steel industry). Large companies also integrated vertically into their own support activities, for example into the maintenance of their production facilities and into the provision of social services for their employees.

Another rationale for vertical integration, but more importantly for diversification, consists, according to Chandler, of economies of scope. These occur where the costs (C) of the *joint* production of given quantities of two or more types of output (q_x and q_y) are lower than the costs of their *separate* production (Teece 1980, pp. 223-225; Spulber 1992, pp. 544-545):

$$C(q_x, q_y) < C(q_x, 0) + C(0, q_y)$$

In other words, economies of scope are achieved where unit costs decrease with an increase in total output across different production lines. Economies of scope may occur, for example, where two product lines share the same production facilities, leading to a greater spread of the costs for the production facilities.

According to Chandler, economies of scope in production increased in conjunction with increasing economies of scale. Large operations almost always involved some spare capacities in particular parts of the production process, which could then be used for the production of related products. Results of research could be applicable to a variety of production processes. Competencies and skills acquired in one area could be useful in other activities. An example of this phenomenon is the move of dyestuffs producers into pharmaceuticals (chapter 5). Many of the drugs developed during the late 19th and early 20th century were based on the compounds invented by synthetic organic chemistry producers.

In addition, the emergence of general managers who were needed to organise and to monitor the constant production of goods created an additional incentive to deploy any free managerial capacities on additional production processes. In the same way, product diversification created an opportunity to deploy existing facilities (R&D laboratories, warehouses etc.) and free personnel (sales staff, etc.) across a broad range of products. The emergence of conglomerates was also advanced by the fact that barriers to exit, such as sunk costs (i.e. costs that "cannot be recovered upon exit" [Schmalensee 1989, p. 969]), prevented companies from leaving their traditional activities even under unpromising market conditions. Furthermore, diversification into unrelated areas helped to pool the risks arising from cyclical downturns, price variations and the like. Empirically, Gort (1962) finds that between 1929 and 1954 the degree of diversification of 111 large American manufacturing companies increased substantially, in particular during the last 7-8 years of that period. During the 1960s and early 1970s, diversification by American firms - mainly driven by acquisitions - increased even further, as documented by Fligstein (1991, pp. 326-332).

The fourth dimension of corporate growth identified by Chandler is the increasing geographic reach of organisations. Three aspects of this process are important: First,

the geographic size of the market which companies were able to supply increased due to improvements in transportation[1] (railroads, ships) and communication (telegraph, telephone) technology. This put the companies into a position to exploit economies of scale and scope in production, by building large distribution and sales networks and employing staffs for sales and technical support services. These also served as providers of information about new technologies and customer demands and thereby helped to reduce transaction costs. Second, in particular since the end of WW II, production itself became geographically dispersed. Multinational corporations started to set up operations in various regions and countries (see Chandler and Tedlow 1985, Ch. 27), so as to produce 'close to their markets'. Consequently, they developed corporate structures based on the geographically specialised division of labour. In doing so, they could exploit particular firm-specific assets (e.g. patent rights) on a wide geographic scale and take advantage of country-specific factors (e.g. resource endowments). Multinational corporations also benefited in other ways from their widespread presence, for example by circumventing import quotas and other national restrictions. Third, as companies aimed at integrating their supply functions in order to secure the procurement of raw materials and reduce transaction costs, they established operations in those countries where the raw materials were found. Stopford and Turner (1985, p. 47) argue that during the 'cosmopolitan era' before WWI, British manufacturing firms established operations in the countries of the empire in their move to integrate their raw material supplies; horizontal integration followed later and was driven by defensive motives (ibid., pp. 50ff.). Vernon (1979) provides quantitative evidence for the establishment of international subsidiary networks by American- and European-based multinational corporations (MNCs):

Proportion of enterprises with subsidiaries in	**181 US-based MNCs**		**135 MNCs based in the UK and Europe**	
	1950	**1970**	**1950**	**1970**
1-5 countries	76.2%	5.0%	85.9%	23.0%
6-20 countries	23.8%	70.7%	11.9%	55.6%
> 20 countries	0.0%	24.3%	2.2%	21.4%

Table 2.1: The Foreign Manufacturing Subsidiary Networks of 316 MNCs in 1950 and 1970.
Source: Adapted from Vernon (1979, p. 258); see also Clarke (1985a, p. 13).

These data provide evidence for the rapid establishment of large multinational subsidiary networks by both American and European companies. The process of the emergence of multinational corporations was related to the emergence of regional and global brands, such as in cars (e.g. VW Beetle), and consumer goods (e.g. Coca Cola). With respect to the relationships between companies, new transportation technologies enabled companies to trade over increasing distances and thereby to capture the gains from specialisation resulting from the division of labour.

In sum, Chandler finds that the emergence of large business enterprises since the second half of the 19th and throughout the 20th century has taken place along the four dimensions of corporate boundaries identified above.

According to Chandler, the growth process with respect to the 'boundaries' of firms was complemented by developments in their *internal organisation*. As a *result* of external growth, but also in order to *facilitate* this process, companies developed complex organisational hierarchies of professional managers to a hitherto unknown extent. The characteristics that Chandler identifies include the following:

(1) Increasing employment of professional, salaried managers, and the emergence of hierarchies with several *layers* of management;
(2) Increasing separation of distinct corporate functions, of line and staff, and the emergence of corporate headquarters;
(3) The emergence of distinct organisational forms, in particular of the multidivisional (M-) form, which increasingly replaced unitary (U-) form organisations;
(4) The development of administrative instruments for controlling, planning, and resource allocation.

In connection with the increased scale and complexity of operations as described above it became harder for individuals, families and partnerships to manage the firms in the way they had been used to. They had to employ professional administrators, with little or no ownership stake, who could specialise in control and decision-making. This created a demand for professional managerial education which, in the US, was met relatively quickly by the emerging business schools which opened from 1881 (Wharton) onwards.[2]

In connection with the increasing number of salaried managers and supervisors, the need to manage and monitor their activities themselves increased. Organisations responded to this need by establishing administrative hierarchies with multiple layers. Chandler and Daems (1980, p. 1) estimate that, by 1975, around 20% of industrial workers in the US and Europe worked in hierarchies with at least six management levels. As only a small proportion of the managerial personnel could occupy top positions, this development entailed in particular the emergence of large numbers of middle managers. It also implied an increasingly distant relationship between top management and shop floor employees, long communication channels, and the need for greater standardisation of corporate policies and rules. In sum, in connection with the increasing horizontal differentiation in companies (specialisation of labour and of production processes, departmentalisation of activities, etc.) a process of hierarchical differentiation took place.

Within the emerging administrative hierarchies, specialisation set in quickly to capture the economies of scale from investments in particular into managerial skills. In the geographically dispersed US railways, the distinction between 'line' and 'staff' functions was first drawn, which spread quickly to businesses in mass production and distribution. Line officers were responsible for the day-to-day running of the local operations, while staff managers were geographically concentrated to co-ordinate the various operations (e.g. train scheduling) and provide uniform standards (e.g. security standards, pricing decisions)[3]. Around the turn of the century, firms began to concentrate various functions within departments that would be managed and co-ordinated from a corporate head office. In larger departments the line-staff distinction could be drawn *within* a department. This development marks the emergence of the functional or unitary (U-) form business organisation. Within the U-form, activities were 'bundled' and delegated to particular departments, but remained firmly under central control from the head office which by and large retained decision-making power.

As a result of the growth of organisations, and in particular of increased diversification and greater geographic reach, corporations became increasingly unable to cope with the amount of information that accumulated at their higher administrative echelons. Chandler describes the development of the multidivisional form (M-form)

as an organisational response to this problem of 'information overload'. In M-form organisations operations were assigned to the various divisions by product lines or geographic criteria. The divisions had their own management and administrative structures; they were divided into sub-divisions or were organised by functional criteria as U-forms. The first US companies to adopt the M-form in the late 1920s were Du Pont and General Motors (product line divisions) and Sears Roebuck (regional divisions). An aspect important to the discussion below is that, with the substitution of the U-form by the M-form, the functions of the corporate head office were redefined. Whereas in the U-form relatively many decision-making processes had remained concentrated on head-office level and only mundane functions had been pushed down to line managers, in M-form organisations decision-making became more decentralised as far as the relationship between the head office and the divisions was concerned. It then depended on the organisational structure of the divisions to what extent they were centralised or decentralised. Although the functions of head offices varied, operational decisions became the prerogative of divisional management, and head offices did not get involved in the day-to-day operations of the divisions except for unforeseen or critical situations. The crucial functions of the head office included (a) strategy-making and planning, e.g. portfolio planning; (b) monitoring functions, mainly through accounting and financial controlling; (c) resource allocation, overseeing of internal transfers, and incentive provision for the various organisational units [Mintzberg 1983, pp. 222-224; Chandler 1996, pp. 348f. combines functions (b) and (c)]. In addition to these, head offices became involved in various functions which, in their view, would give rise to synergies and benefit the overall organisation. For example, personnel management and marketing became HO functions in many firms, and marketing managers came to dominate many American M-form companies during the inter-war period (Fligstein 1987, pp. 44ff.). Also, the head office could install central functions (such as R&D) which may or may not have formed part of the HO, but which provided services for several of the firm's operations. As a third organisational form apart from the U- and the M-form, the holding company structure (H-form) developed in which relatively small head offices controlled the activities of legally independent subsidiaries on a financial basis, without providing central services or attempting to create synergies between the units below head-office level. Head office managers in H-form organisations served

primarily as portfolio managers, thereby substituting the function of the external capital market.

Central administrative control from geographically, materially, and hierarchically 'remote' operations afforded the development of specialised analytic tools. These were preferably of quantitative rather than of qualitative nature so as to allow easy communication and processing and to facilitate comparisons across departments or functions. A number of accounting and financial measures were developed which fulfilled these criteria. In accordance with the increasing need for a constant throughput of goods in capital-intensive productions, companies defined operating ratios (e.g. in the railways) and measures of 'stockturn' (e.g. in department stores). They also developed more sophisticated operating statistics and cost accounting systems and defined stringent performance criteria (Chandler and Daems 1979, pp. 9ff.). With increasing standardisation of such analytical tools, accounting and financial controlling became topics that could be studied at business schools, thereby supporting the development of a set body of knowledge for the emerging class of general managers. The 1930s also saw the development of group accounts in which the financial results of the constituent parts of complex corporate groups were consolidated (Hadden 1983, Ch. 1).

The changes with respect to the external boundaries of firms and to their internal organisation identified by Chandler are related to the wider development from *family* or *entrepreneurial* towards *managerial capitalism*. The capital demands of larger firms increasingly exceeded the financial means of individuals, families or smaller partnerships. Companies were incorporated as joint stock companies and their shares traded on the stock exchanges. As a result, corporate ownership became more dispersed. In addition, professional managers were employed with little or no ownership stake in 'their' companies. This led to a greater division of ownership and control of companies as described by Berle and Means (1932; see also Berle 1954)[4], with managers rather than owners controlling the firm. This overall development has been described by Burnham (1942) and Chandler (1977, pp. 484-500) as the 'managerial revolution' of the 20th century. It entailed the possibility of divergent interests between managers and owners. In order to reduce the effect of the resulting

agency problems, governance structures were developed which aimed at mitigating principal-agent conflicts.

To summarise the argument so far, Chandler's general account of the development of large firms since the later part of the 19th and throughout the 20th century highlights reciprocal changes in the external boundaries of firms and in their internal organisation. He sets out various dimensions of both classes of changes: Horizontal and vertical integration, diversification and increased geographic reach with respect to the boundaries of firms; the establishment of extensive administrative hierarchies with features such as vertical differentiation, and the division of work between corporate head offices and operating businesses, with respect to the internal organisation of companies.

2.2.2 The Development of Corporate Structure: The Case of the UK

Focusing on the UK, Hannah (1983) documents the rise of large industrial companies, emphasising the relationship between corporate structure and size on the one hand and industrial structure and competition on the other. He identifies three big merger waves[5] which brought about the modern industrial structure: The first one at the turn of the century, the second one in the 1920s, and the third one beginning in the 1950s and reaching its peak in the late 1960s and early 1970s. Reasons for the first merger wave include the advantage of full amalgamation over the formation of unreliable cartels which resulted from increased competition in the manufacturing industries in the late 19th century, and the factor that merged companies found it easier to raise capital in the stock market ("economies of scale in financing"; Hannah 1983, p. 20). The first motive in particular points towards increasing *horizontal integration* as the primary form of corporate combination during the first M&A wave. Payne (1967, p. 524f.) also argues that, before 1914, many British firms pursued a policy of product differentiation and specialisation rather than diversification. Gourvish (1987, p. 24) contends that, as compared to the US, the adoption of large-scale organisation in British firms before WW I proceeded relatively slowly.

The second M&A wave in the 1920s took place in a climate of the 'rationalisation', an ideology rather than a coherent business policy, which favoured the concentration of production in large-scale producers over smaller and more fragmented businesses

(Hannah 1974, p. 253). In addition, mergers were a reaction to the deep world-wide recession that culminated in the 'Black Friday' in 1929, and over-capacities in some industries. Horizontal combination was aimed at reducing price-eroding competition. Another reason for horizontal integration was the search for economies of scale in production, marketing and other corporate functions. Interestingly, Hannah regards not only Americans, but also German industrialists as influential in the British 'rationalisation movement', suggesting that similar developments, possibly at an even larger scale, took place in Germany. For example, the merger of the four leading British chemicals companies in 1926 to form ICI - the largest merger in the inter-war years - mirrored the amalgamation of the two large chemical cartels to form IG Farben in Germany in 1925.

The years between 1930 and 1950 stand against the general trend towards greater conglomeration that characterises much of the 20th century. For these two decades, Hannah finds actually a slight *decrease* in industrial concentration in the UK, the disruption caused by WW II being one of the influential factors. However, this trend was fully reversed during the period between 1950 and 1970. This may be surprising as the UK had established the Monopolies and Restrictive Practices Act in 1948 and the Restrictive Trade Practices Act in 1956. However, these laws aimed at protecting the public interest against monopoly power and price-fixing agreements, but were permissive with respect to mergers, which were first regulated through the Monopolies and Mergers Act of 1965. *Census of Production* data (Kirby 1994, p. 157) shows that during this period industrial concentration increased rapidly, mainly due to mergers and acquisitions (see also Geroski and Jacquemin 1984, pp. 344-347). The 1950s saw the emergence of the takeover bid as an instrument to force the amalgamation of companies even when incumbent management was not interested in combining (Wilson 1995, pp. 201-203). With respect to the *character* of acquisitions, Hannah finds that horizontal matches were increasingly complemented by *diversification* moves. This analysis is confirmed by Prais (1981, pp. 16-21) who finds that concentration and diversification in British industry rose significantly faster between 1958 and 1963 than between 1935 and 1951. Channon (1973, pp. 35-38) provides additional quantitative and qualitative information on the extent of this merger wave and on how it translated into rising diversification. He finds that from 1957 to 1968, the 2024 largest British manufacturing companies were reduced to 1253 by amalgamations. In the context of this process, the proportion of single

business firms among the 100 largest industrial enterprises fell from 20% in 1960 to 6% in 1970, while the proportion of related diversifiers on the Rumelt and Wrigley scale (section 4.2.2) increased from 41% to 54%, as the following table shows:

	UK		
Year	**1950** (n=92)	**1960** (n=96)	**1970** (n=100)
Single business	34%	20%	6%
Dominant business	41%	35%	34%
Related business	23%	41%	54%
Unrelated diversified	2%	4%	6%

Table 2.2: **Diversification among the Largest Industrial Enterprises in the UK**
Source: Channon 1973, p. 67.
Note: For an explanation of the diversification categories used here see section 4.2.2, table 4.1.

This data shows that large British companies diversified substantially in the post-war period. Comparisons with the data for Germany (table 2.4) show that by 1970 big business in the UK was more diversified than German industry.

The 1970s saw a slowdown of the conglomeration and diversification wave of the earlier post-war period. Companies became more cautious in their spending decisions after the first oil shock in 1973/74 (Hannah 1983, p. 152), and the effect of the remaining M&As was to some extent counterbalanced by a rising number of demergers and divestments. Nevertheless, the 'net effect' of these merger / acquisition and demerger / divestment movements was still a *slight increase in diversification* of big companies.

With respect to changes in the *geographic reach* of companies, the UK's particular historical background as a colonial power has to be taken into account. This meant that many British companies had international trade connections to colonial countries at a very early point in time, and often they were sheltered from outside competitors. During the 20th century, Britain's former colonies became independent, and began to foster their own industries or to open their markets for competitors from other countries. Many British firms lost their privileged status in the former colonies. Broadberry (1997, p. 292) suggests that the UK's belated entry into the European Economic Community in 1973 also limited the expansion of multinational enterprises, although some firms acquired continental companies in order to have better access to the European market. In fact, British direct investment into Western Europe increased

throughout the 1960s to reach a peak in 1971, and declined thereafter (Stopford and Turner 1985, p. 70). With respect to trade, the United States, rather than the much closer continental countries, was Britain's most important trade partner until 1973 (see the statistics by Mitchell 1975, pp. 571-574).

Channon (1973, Ch. 7) and Hannah (1983, Ch. 6) also provide evidence for changes in the *internal organisation of British firms*. Before WWI, head offices had been relatively small administrative units for individual factories and were mostly based at their sites, i.e. in the province. Hannah dates the emergence of extensive corporate head offices, and of larger managerial hierarchies in British firms in general, to the inter-war years. Whereas in 1907 only 7.6% of the total workforce in the manufacturing industries had been administrative or non-operational staff, this figure increased to 19.7% by 1948 (Hannah 1983, p. 72). In addition, the automation of routine information gathering and processing, the specialisation of managers in areas such as cost accounting, and the build-up of communication networks (through telephone lines etc.) set in (Hannah 1974, pp. 256-259). Many of the enlarged head offices moved to London, and thus became separated from the operational base of the company.

With respect to changes in the *organisational form*, Chandler (1990, Ch. III) contends that until WWI British companies were much slower in investing into managerial hierarchies than their German and American counterparts. During the inter-war period and after WWII, however, this situation changed (Pollard [4]1992, p. 254). One of the first British companies to follow the example of American firms in adopting the M-form was ICI during the 1930s. Other examples of British firms that adopted the M-form in the inter-war years include Spillers, Turner & Newall, and Dunlop (Hannah 1983, p. 85). Other companies remained loose confederations of diversified businesses.

More generally, Franko (1974, pp. 493-495) shows that the switch from the U-form to the M-form was much slower in diversified European companies than in America, where this development had already started in the 1920s. Among the European countries, however, the UK was the fastest in following the American example and adopting the M-form, while Germany was much slower (Dyas and Thanheiser 1976, Ch. 8). Hadden (1983, Ch. 1-2) also provides evidence for the relative organisational complexity of many large British companies. As of 1976, the average number of

subsidiaries of British multinational firms was 44, as compared to 19 in other European countries (Commission of the European Communities 1976, p. 29). As of 1979, the number of subsidiaries of five large companies in the UK ranked between 170 (Rank Organisation) and 1300 (British Petroleum[6]). In the case of Bowater, 200 of its 420 subsidiaries were located overseas, while 100 were dormant. Hadden finds that for a variety of reasons - among them managerial self-interest[7] - many British companies were inclined to leave dormant or functionally redundant companies incorporated, thus leading to highly complex corporate structures. He argues that divisionalisation represented an attempt to simplify corporate structures to some extent, but that this did not fully resolve the organisational problems of many British firms. Among the areas that he regards as problematic is the complex system of internal transactions and finance provision both among subsidiaries and between subsidiaries and their holding companies.

In sum, the available evidence suggests that the rise of the corporate economy in Britain involved many of the features identified by Chandler. Large industrial enterprises emerged since the industrial revolution and throughout the 20th century. One of their most distinct features was their high degree of diversification, which was fostered in particular through the post-WW II M&A wave that reached its peak in the late 1960s. While the evidence on internal organisation is sketchy, it suggests that large British firms adopted complex organisational structures. While the move towards greater professionalisation of management, in particular with respect to management education, was generally slower in the UK than in the US and in Germany, British companies evolved extensive administrative hierarchies and developed particular head office cultures.

2.2.3 The Development of Corporate Structure: The Case of Germany

With respect to Germany, Kocka (1980, pp. 77ff.) distinguishes between two industrialisation phases[8]. The first one began around 1840 – i.e. about 50 years later than in Britain – and ended with the German-French war in 1870/71 and the recession in the early 1870s. The second phase took place between 1873 and 1914. During this period, big German companies emerged in particular in technologically advanced manufacturing sectors such as the electro-technical (e.g. AEG) and chemical (e.g.

Hoechst, Badische, Bayer) industries. German industrialists invested heavily in their operations, thereby making up the large productivity disadvantage that had existed during the 1870s as against British manufacturing companies by the turn of the century (see Broadberry 1997, p. 68). The capital requirements for these investments could not be satisfied any longer by owner-families. In contrast to the Anglo-Saxon countries, however, it was not primarily the stock market which responded to this need, but banks which developed long-lasting relationships with their clients and became the main outside finance providers. Germany's biggest banks, the Deutsche Bank and the Dresdner Bank, were founded in 1870 and 1872 respectively (Jaeger 1988, p. 110). In addition, German companies relied more on internal finance than their Anglo-Saxon counterparts.

After the late start of the industrialisation in Germany, large German companies expanded relatively quickly (Pohl 1982, pp. 97-99)[9]. They integrated horizontally as well as vertically, for example by building their own sales networks. They also increased their degree of diversification, in particular to exploit their technological know-how in a wide variety of productions. Kocka (1980, pp. 95-110) estimates that shortly after the turn of the century, the 100 largest German industrial companies were more diversified than their American and their British counterparts. A further characteristic of German industrial development was the tendency towards cartelisation which was actively promoted by the state (Feldenkirchen 1988, p. 113-116). In a judgement in 1897, "the German supreme court explicitly determined that cartels were in the public interest and therefore enjoyed legal protection" (Jaeger 1988, p. 112; translation A.R.). Until after WW II, cartelisation in Germany served as a partial substitute for full mergers, so that Germany did not see M&A waves to the same extent as her Anglo-Saxon counterparts.

It may be mentioned that the years up to WWI also saw the establishment of much of the social, legal and economic framework that remained highly influential in the inter-war period and after WW II until today. Many of the trade associations and chambers were founded around the turn of the century (see Jaeger 1988, pp. 116-117). Economic concentration, cartelisation, and the formation of trade associations have been described as the basic pillars of Germany's 'organised capitalism' that emerged between 1873 and 1914 (Jaeger 1988, pp. 107-118).

The period between the two world wars is described by Dyas and Thanheiser as one of consolidation and rationalisation, although James (1986, pp. 146-156) argues that

rationalisation was confined to the automobile and the coal-mining industries. Various companies formed horizontal and vertical cartels, notably IG Farben (chemicals) and Vereinigte Stahlwerke (steel). However, Germany did not see a merger wave of the scale of the Anglo-Saxon countries.

German industry was deeply hit by the recession that started in 1927 (Balderston 1993, p. 212) which led to sharply rising unemployment and thereby contributed to Hitler's election in 1933. Between 1933 and 1945 German industry was under the control of the Nazis, who favoured large-scale organisations over smaller and more fragmented ones (Pohl 1982, p. 100; for the war-related process of 'rationalisation and concentration' between 1942 and 1944 in particular see Overy 1994, pp. 356-366). During the war, the German economy lost about 50% of its productive capacity, although this was due to a greater extent to the destruction of the infrastructure than to the destruction of plants (Jaeger 1988, p. 211).

After WW II, German industry in the zones occupied by the three Western allies was for several years in a state of paralysis. Economic reconstruction was helped between 1947 and 1952 by the Marshall plan (Abelshauser 1991, p. 409; Kramer 1991, pp. 148-156). At the same time, the allied forces broke up the German cartels. Economic recovery began after the German Mark had been introduced in 1948 and the Federal Republic of Germany had been founded in 1949. This recovery evolved into the 'economic miracle' of the 1950s and 1960s (Giersch et al. 1992, Ch. 3). These two decades were characterised by the establishment and rapid growth of integrated mass producers, such as in cars, chemicals and the like, which "attempted to combine specialization with volume production" (Herrigel 1996, p. 153 with respect to the example of Daimler Benz). An important factor that allowed the adoption of 'American' (Berghahn 1986, pp. 282ff.) mass production technologies was increasing demand due to the greater geographic scale of export markets following the foundation of the European Coal and Steel Community (1952) and the European Economic Community (1957). Herrigel (1996, Ch. 5) also argues that large German firms (e.g. MAN, Demag) integrated vertically to become more 'autarkic'. However, others (e.g. Bosch) remained integrated in what he describes as a system of decentralised industrial order, in which supplies, in particular of investment goods (e.g. machine tools), were provided through regional networks of *Mittelstand* (SME) firms.

In the post-war period, German industry saw a slow increase in the number of mergers and acquisitions, but not at the speed experienced in the Anglo-Saxon countries (see Cable 1979). This slowness was not primarily due to policy restraints against M&As. The Act against Restraint of Competition (*Gesetz gegen Wettbewerbsbeschränkungen*), enacted in 1957, did not contain any specific regulations concerning M&As until its 1973 reform. Cable[10] (1979, p. 5) provides data according to which the number of M&As increased from 15 in 1958 to just 65 in 1968. The years from 1969 to 1971 saw a sudden increase in M&As which resembled the situation in the UK and the US. After that, the number of M&As receded first, but then increased again to reach a relatively stable number of between 450 and 650 in the years between 1975 and 1985. According to Cable, most of the mergers took place on a horizontal basis, and were heavily concentrated in particular industrial sectors (notably chemicals, electrical engineering, machine tools, and iron and steel), as opposed to the service sector. Around 12% of all M&As were conglomerate ones.

As a result of M&As and of organic growth, German companies diversified, but not as quickly as their Anglo-Saxon counterparts. Schwalbach (1990) tracks the development of 284 large industrial companies with respect to diversification. Using a count of 2-, 3- and 4-digit activities of companies in the German system of industry classifications[11], he finds that diversification has increased significantly between 1950 and 1980.

Average number of activities (on holding company level)	**1950**	**1960**	**1970**	**1980**
2-digit level	1.8	1.9	2.1	2.1
3-digit level	2.6	3.0	3.4	3.4
4-digit level	3.7	4.3	4.9	4.9

Table 2.3: Average Number of Activities of 284 Industrial Companies in Germany
Source: Adapted from Schwalbach 1990, p. 28

Table 2.3 shows that diversification has increased at about an equal rate during the two decades 1950-1960 and 1960-1970, but not between 1970 and 1980. With on average 3-4 activities on the three-digit level, Schwalbach regards German companies in 1980 as still not overly diversified. On the other hand, he points to a large divergence in the degree of diversification due to a relatively small number of companies which were operating in a large number of industries, notably those

companies which had their base in chemicals (Hoechst, Bayer, BASF, Degussa) or steel and heavy machinery (MAN, Krupp, Linde, Brown Boveri, Deutsche Babcock, KHD). In the automobile industry he sees a relatively low degree of diversification (as of 1980).

A direct comparison between German and British companies for the period 1950 and 1970 is drawn by Dyas and Thanheiser (1976) who contrast their data on the largest German companies with Channon's data on British firms (table 2.2).

	Germany (n=78; only German-owned firms are considered)		
Year	**1950**	**1960**	**1970**
Single business	38%	26%	27%
Dominant business	22%	25%	15%
Related business	31%	38%	38%
Unrelated diversified	9%	12%	18%

Table 2.4: Diversification among the Largest Industrial Enterprises in Germany
Source: Dyas and Thanheiser 1976, p. 64.[12]
Note: For an explanation of the diversification categories used here see section 4.2.2, table 4.1.

These data suggest that while German companies started the post-war period with relatively diversified portfolios of activities (as compared to the British situation), their further diversification process was relatively slow and rather steady. The British companies in the sample diversified more rapidly, so that by 1970 big business in the UK was more diversified than German industry. The very low number of single business companies among British firms is particularly striking. On the other hand it is interesting that there were a number of highly diversified conglomerates, in Germany more so than in the UK at any of the three points in time.

It may be pointed out that Dyas and Thanheiser's data do not contain those companies which were founded during the 'economic miracle' of the German post-war era, some of which (e.g. in the construction industry) now belong to the top 100 German companies. It should also be said that the industrial structure in Germany is characterised by the prevalence of mostly family-owned, medium-sized companies along with smaller craft workshops which are generally less diversified than the large corporations that Schwalbach and Dyas and Thanheiser investigate. Broadberry (1997, p. 136) provides evidence that median plant sizes in the German manufacturing industry have been persistently below the respective British figures.

However, Channon's, Dyas' and Thanheiser's work permits to draw a first conclusion about the comparative development of diversification in German and British companies in the post-war period. While in British companies there was a widespread trend to diversify rapidly (starting at a relatively low basis of diversification), among German firms a 'bifurcation' with respect to diversification took place. A group of large companies diversified significantly to become conglomerates, while many other companies remained relatively specialised. This interpretation is consistent with Schwalbach's findings.

Concomitant with the relatively slow development towards greater diversification, organisational structures in German industry did not adopt the structure of managerial hierarchies as quickly as was the case in the Anglo-Saxon countries. For example, Dyas and Thanheiser find that German companies adopted the M-form structure more slowly than British companies. "Moreover, the structures which were put into place were less decentralised than their Anglo-Saxon counterparts. German firms also tended to retain stronger functional hierarchies and to be run by a larger group of managers subject to internal checks and balances at all levels" (Gospel 1997, p. 31). Some of these checks and balances originated from the particular labour relations system that developed in Germany in the post-war period (see section 6.3.2).

To summarise, business historians including Chandler, Hannah, Channon, Dyas and Thanheiser and others have analysed the growth of enterprises since the late 19th century in the industrialised countries. They find that the development of British and German companies has involved increases with respect to their *boundaries* as well as *changes in their internal organisation*. Changes on these two fronts were closely interrelated and involved a number of distinct characteristics, such as increasing horizontal scale and diversification with respect to the former dimension of corporate growth, and the establishment of complex administrative hierarchies with respect to the latter one. With respect to Anglo-German comparisons of corporate development, both similarities and differences are reported. British industry is found to have undergone a substantial concentration process, mostly through mergers and acquisitions, in the post-war period. In this context, companies diversified extensively, became more vertically integrated, and established substantial administrative hierarchies and large head offices. German companies had moved in this direction during the restructuring wave around the turn of the century, but after

WWII were more reluctant to do so. Despite an increase in mergers and acquisitions at the end of the 1960s, many companies which had grown out of the *Mittelstand* remained relatively specialised and did not built up administrative hierarchies to the same extent as their Anglo-Saxon counterparts.

2.3 The Theoretical Perspective: The Transaction Cost Economic Approach to Corporate Structure

In the previous section, the development of the organisational structure of large companies was set out from a historical perspective, and evidence for this development in the UK and Germany was provided. However, the historical perspective does not provide a sufficient *efficiency rationale* for other than horizontal forms of integration of economic activities in firms. Chandler argues that firms integrated activities on a horizontal basis due to the emergence of relatively capital-intensive modes of production which provided economies of scale, coupled with an increase in geographic reach through the emergence of advanced transportation technologies. However, his explanation of vertical integration (as a means to avoid bottlenecks in production) and of diversification (through the exploitation of economies of scope) disregards the fact that such activities can take place through contracting in the market between independent parties, i.e. without necessitating integration within hierarchies. They can also take place in intermediate ('hybrid') modes of organisation between markets and hierarchies. Transaction cost economics (TCE), as developed by Coase and elaborated by Williamson, focuses on the choice among different governance modes for different types of transactions. Furthermore, although it has not yet provided a complete theory of the internal organisation of firms, TCE provides the tools to analyse the internal organisation of firms from an efficiency perspective. In the following, the general approach of TCE to the choice among various modes of governing contractual relations is set out first. Thereafter, this approach is applied to the various dimensions of firms' boundaries and to their internal organisation.

2.3.1 Transaction Cost Economics (TCE)[13]

The classical exposition of the transaction cost economic argument is contained in Coase (1937) where he considers the question why transactions are shifted out of the market into the institutional framework of production within firms, thereby supplanting the market's price mechanism.[14] Coase defines transaction costs as the costs of using the price mechanism, which he sees in the costs of information (in his language, the costs of discovering what the relevant prices are), and the costs of writing (i.e. negotiating and concluding) contracts. In this way, Coase breaks with the neoclassical assumption of the availability of complete information at no cost, and introduces the notion of information asymmetries between the different parties. Secondly, implicit in Coase's argument that the writing of contracts will be costly is the idea - albeit not clearly spelled out in the 1937 article - that contracting may suffer from subjective or objective limits on information or from self-interest seeking by the parties to an exchange. If transaction costs were non-existent, the predictions of neoclassical theory would hold, and all contracts would maximise wealth regardless of the initial assignment of property rights (Coase 1960, pp. 15-19). In a world of non-zero transaction costs, however, the integration of activities into firms can be more efficient than the use of costly transaction mechanisms in the market place. What checks the integration of activities into firms, then, is the cost of organising different activities *within* hierarchies. Coase (1937, p. 395) argues that "a firm will tend to expand until the costs of organising an extra transaction within the firm become equal to the costs of carrying out the same transaction by means of an exchange on the open market or the costs of organising in another firm".

Following Coase, Williamson (1991, p. 6) argues that the choice between different modes of governing contractual relationships follows cost-minimising criteria (see also Whittington 1993, Chs. 1-2). Less cost effective governance modes would be eroded over time by the pressure of competition (Williamson 1993c, pp. 27ff.). He distinguishes between three principal governance modes: markets, hierarchies (firms), and hybrid forms of organisation between these two, such as networks, joint ventures and strategic alliances.

At the centre of the transaction cost economic approach is the notion that transactions, both within and among hierarchies, are costly to organise. This notion builds on three classes of assumptions which are discussed in turn.

(1) Behavioural Assumptions

(a) Bounded rationality refers to the notion that human behaviour is "intendedly rational, but only limited so" (Simon [3]1976, p. xxviii). This definition makes clear that bounded rationality has to be distinguished sharply from irrationality[15] which would obtain either if the bounds on rationality were absolute, or if the economic actors were not intending to behave rationally in the first place. On the other hand, bounded rationality marks a clear divergence from the neoclassical profit-maximisation assumption: While economic actors *intend* to maximise profits - i.e. they have an "economizing orientation" (Williamson 1985, p. 45) -, they are not always capable of doing so. Bounded rationality contributes to the difficulty of writing unambiguous contracts, due to which complex contractual arrangements are open to costly renegotiation and haggling.[16]

(b) The notion of opportunism refers to the strategic, self-interest seeking of actors with guile (Williamson 1991, pp. 7f.). While not all individuals may behave opportunistically in all instances, parties to a contract have to take into account the possibility that the other parties may misrepresent their intentions or even lie in an outright way, and that they may not honour their agreements. *Ex ante* and *ex post* opportunism leads to the possibility of adverse selection and moral hazard respectively, but also to outright cheating and stealing. The costs of information gathering about the true intentions of the parties to a contract, as well as of monitoring their performance during contract execution stage, are major elements of transaction costs. Opportunistic behaviour makes it particularly difficult to contract upon knowledge-intensive goods (e.g. patents) which suffer from 'information impactedness', i.e. whose value cannot be disclosed without disclosing the information itself (Arrow 1970, p. 152). The danger is that the other party would opportunistically exploit the information gained upon disclosure without paying.

(2) Environmental Factors

While bounded rationality refers to *cognitive*, i.e. *internal* limits in dealing with information, complexity and uncertainty pose *external* limits on the ability of human actors to determine the full range of contingencies and the appropriate responses at any stage of the contracting process. While under uncertainty the full range of

contingencies and options can simply not be generated, under complexity this range could be produced in principle, but doing so is prohibitively difficult (see Williamson 1975, pp. 23ff.). The argument also implies that information may be distributed asymmetrically across parties. While asymmetric distribution of information occurs frequently between the parties to an exchange in the market, it is also of major importance for the emergence of principal-agent conflicts *within* hierarchies (Arrow 1986, pp. 1183-1195). This indicates that all of the conditions that render market transactions hazardous and costly also raise the costs of the internal organisation of economic activities in firms or in intermediate ('hybrid') forms of organisation.

(3) Characteristics of Contractual Relationships

(a) Asset specificity refers to the extent to which contractual relationships require transaction-specific investment to be made, ranging from non-specific to idiosyncratic investments (Williamson 1979, pp. 240ff.). Of particular importance in the employment relationship is the acquisition of firm-specific skills (Becker [3]1993, pp. 40-51). In addition to such *human asset specificity*, Williamson (1985, pp. 95f.) distinguishes three other types of asset specificity:

- *site specificity*: proximity between different production processes economises on inventory and transportation costs;
- *physical asset specificity*: due to their physical design properties, certain goods have their full value only within a particular relationship;
- *dedicated assets*: general-purpose investments made explicitly in order to sell large quantities of output to a specific customer.

The particular problem associated with asset specificity – most importantly human asset and site specificity - is that under such conditions the partners to a contract are effectively locked into their contractual relationship. Specific assets have their full value only within the contractual relationship into which the investment was made, so that a breakdown of the relationship will entail a partial or complete loss for at least one of the parties concerned. The party that bears the risk of being opportunistically exploited by the other party will ask for additional contractual safeguards, but these will be difficult and costly to devise, given the impossibility of full contingent-claims contracts in the face of uncertainty and bounded rationality.

(b) Small-numbers conditions exist where the number of bidders on either side of a bargain is very limited. This restricts the ability of the other party to the deal to select the lowest cost supplier. The problem becomes severe when during the contract execution stage the number of bidders reduces even further, as the bidder who obtained the initial contract establishes a strategic advantage that is difficult to replicate for potential bidders in future deals. This is frequently the case where the current contract partner acquires information specific to the exchange relationship. Williamson (1985, pp. 61) calls the change in the character of the 'neutral' bargaining relationship at the outset to a relationship of greater unilateral or mutual dependency during contract execution the 'fundamental transformation'. Small-numbers conditions render opportunistic behaviour possible. If there were large numbers of bidders, opportunistic behaviour would not take place, because the opportunistic bidder would be excluded at the next contract renewal (Williamson 1975, p. 27).[17] However, long-term or frequently renewed contracts are in many cases desirable, in particular to render relationship-specific investments possible, but also to save the search costs resulting from incomplete information. Therefore, governance structures that check opportunism and allow for long-term contractual relationships are desirable.

(c) Transactions can also be characterised by the frequency with which they take place, and by their duration. While the latter condition has already been discussed implicitly in the last paragraph, with respect to the former Williamson (1979, pp. 246ff.) distinguishes between one-time, occasional and recurrent contract renewal. One-time contracts will usually not require any other governance mode than the market. Recurrent contracts, however, may require a relational governance mode (Kay 1993, pp. 55ff.; Williamson 1979, pp. 238ff.), as the identities of the parties matter to the contract. Generally, if parties transact frequently with each other, learning and reputation effects will decrease transaction costs; but the developing routine may also lead to incautious behaviour that can be exploited opportunistically, thus raising transaction costs. Partners to long-term contracts will aim at ensuring that the contracts are 'watertight' (i.e. that they take into account as many contingencies as possible), which – *ceteris paribus* – would imply high *ex ante* transaction costs. On the other hand, these costs may be regarded as investments which, with a certain likelihood, pay off in the form of lower *ex post* transaction costs for contract amendments and the like.

(d) Regarded as a characteristic of contractual relationships, uncertainty and bounded rationality translate into the difficulty and costliness of monitoring and measuring the performance of contract partners. TCE argues that contractual arrangements will be made so as to reduce such costs.[18] In this vein, the new economics of personnel maintains that remuneration systems will be designed around those performance measures which are most easily and cheaply ascertained (Lazear 1995, p. 21). Anderson and Schnittlein (1984, pp. 392ff.) find support for the derived hypothesis that firms are likely to integrate those particular categories of personnel whose performance is most difficult to measure.

Transaction costs can be conveniently divided into *ex ante* and *ex post* transaction costs, depending on whether they arise during contract preparation stage or after contract completion (Kreps 1990, pp. 743f.). Another way of categorising transaction costs is to distinguish between external and internal transaction costs. The former refers to the costs of contracting *between* independent parties, while the latter is defined as the transaction costs associated with organising economic activity *within* identifiable organisational units.[19] These costs may include the costs of supervisory activity, of benefits paid as motivating devices on top of the normal wage, and other types of agency and influence costs (Milgrom and Roberts 1990, pp. 57-89; Milgrom and Roberts 1992, pp. 192-194). The distinction between external and internal transaction costs is important to the discussion below.

2.3.2 The Boundaries of the Firm

Vertical Integration

One of the main areas to which TCE can be applied is the extent to which firms integrate backward into materials procurement and supplies or forward into distribution, marketing, and retail, and into support activities. Decisions of this kind are often described as 'make-or-buy' decisions.

Earlier explanations of vertical integration have focused mainly on two factors. First, technological factors, particularly indivisibilities between two successive production stages, were held to render vertical integration necessary (as is the case when intermediate products cannot be transported to a remote stage of the production

process) or, at least, more cost efficient than the production of the respective goods in two separate companies; for a critique of these explanations see Holmstrom and Tirole (1989, p. 66). Second, it has been argued that vertical integration serves to achieve a degree of monopoly power by creating barriers to entry for potential competitors and by allowing price discrimination policies, as analysed in the industrial organisation literature (for an overview see Perry 1989, pp. 190-199).

The main explanatory factor in the transaction-cost economic theory of vertical integration is the asset specificity of investments into successive stages of production under conditions of complexity, uncertainty and bounded rationality. Where transaction-specific investments are needed, the partners to a contract have to deal with the problem of lock-in due to the 'fundamental transformation' from large-numbers bargaining conditions *ex ante* to a relationship of mutual dependency *ex post*. The underlying difficulty consists of the complexity and costliness of writing contracts under conditions of uncertainty, complexity and bounded rationality. *Ex-post* adaptations to a contract may not only be costly – and the costs cannot be estimated *ex ante* –, they may even prove impossible to the satisfaction of both parties. TCE argues that, *ceteris paribus* (i.e. holding production costs constant), the risks associated with asset specificity may render the integration of successive stages of production more transaction cost efficient than their non-unified ownership. The relative advantage of unified ownership increases with the degree of asset specificity, if complexity, uncertainty and bounded rationality are taken as given. It is in particular site specificity and human asset specificity that call for vertical integration. Dedicated assets usually do not require common ownership, while physical asset specificity requires common ownership only if the two production stages are immobile (in which case the problem can be expressed in terms of site specificity).
More formally, the costs of the three principal modes (market [M], hybrid [X], hierarchy [H]) of governing vertical transactions can be expressed as functions of asset specificity and uncertainty[20] (denoted by k and u respectively). For $u=0$, asset specificity does not raise contractual problems, as the possibility of opportunistic behaviour by the parties to a contract would be anticipated and taken into account in writing the contract. Therefore, for $u=0$ the governance costs of market procurement (C_M) would be a constant[21]. For positive values of u (i.e. $u>0$), the governance costs of market procurement (C_M) are increasing in k. It is plausible to assume – although this

is not essential to the argument below – that the governance costs of hybrid modes of organisation (C_X) and of hierarchical integration (C_H) are also positive functions of k. With respect to the latter governance mode, asset specificity between successive stages of production arguably increases the need for costly coordination *within* firms, thus raising internal transaction costs. Similarly, within hybrid modes of organisation (e.g. long-term supply relationships, joint ventures etc.) contract partners will also exert greater efforts to writing 'watertight' contracts, the greater the risks associated with the contract.

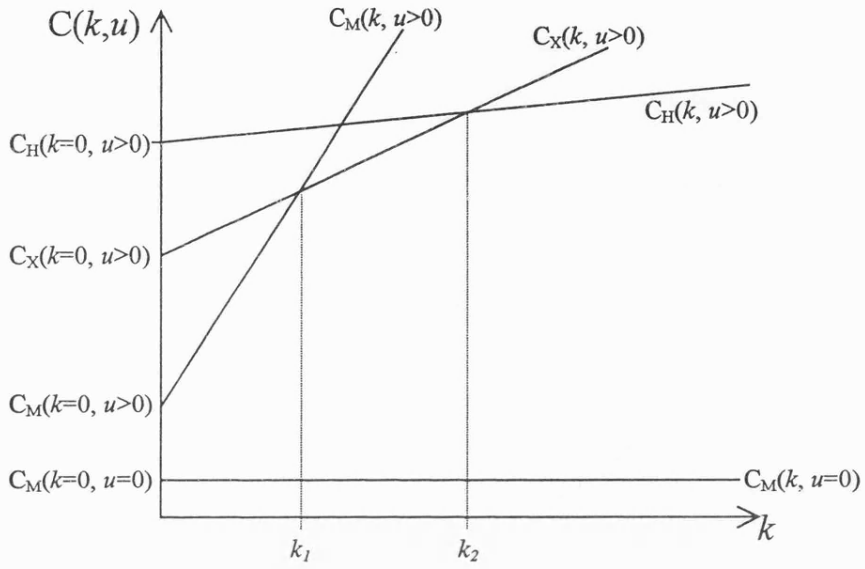
Assuming $u>0$, the marginal governance costs of market procurement will exceed the marginal co-ordination costs within hybrid modes of organisations, and these in turn will be greater than the marginal organisation costs in hierarchies. The reason for the latter inequality is that increasing co-ordination within hierarchies is less severely affected by self-interest seeking behaviour of the various parties (e.g. departments) which have little to gain, and may even lose, from contract re-negotiation. In contrast, in contractual relationships between independent parties lock-in due to asset specificity creates incentives to opportunistically alter the terms of the agreement to one's own advantage, knowing that the other party cannot step out of the agreement. The same consideration applies to the comparison between hybrid and market modes of procurement. Partners to long-term contracts realise that the short-term gains from opportunistic behaviour will be lost when it comes to contract renewal, and that their contract performance is more easily observable than in a typical market relationship where partners are indifferent to each other. The partial derivatives with respect to k are therefore

$$(1) \qquad \left(\frac{\partial C_M}{\partial k}\right)_u > \left(\frac{\partial C_X}{\partial k}\right)_u > \left(\frac{\partial C_H}{\partial k}\right)_u > 0$$

Furthermore, for completely general transactions (i.e. $k=0$) market governance will be of relatively low cost as the spot contracts typical for market procurement require lower setup costs than administrative hierarchies or long-term contracts. Similarly, hybrid modes of governance will incur an intermediate degree of setup costs, whereas full integration requires substantial provisions to be made regardless of asset specificity. Therefore,

$$(2) \qquad C_M(k=0, u>0) < C_X(k=0, u>0) < C_H(k=0, u>0)$$

For any particular degree of asset specificity, the cost-efficient mode of governing the transaction is the one for which $C(k)$ is lowest. Graphically, the schematic cost functions can be displayed as follows:

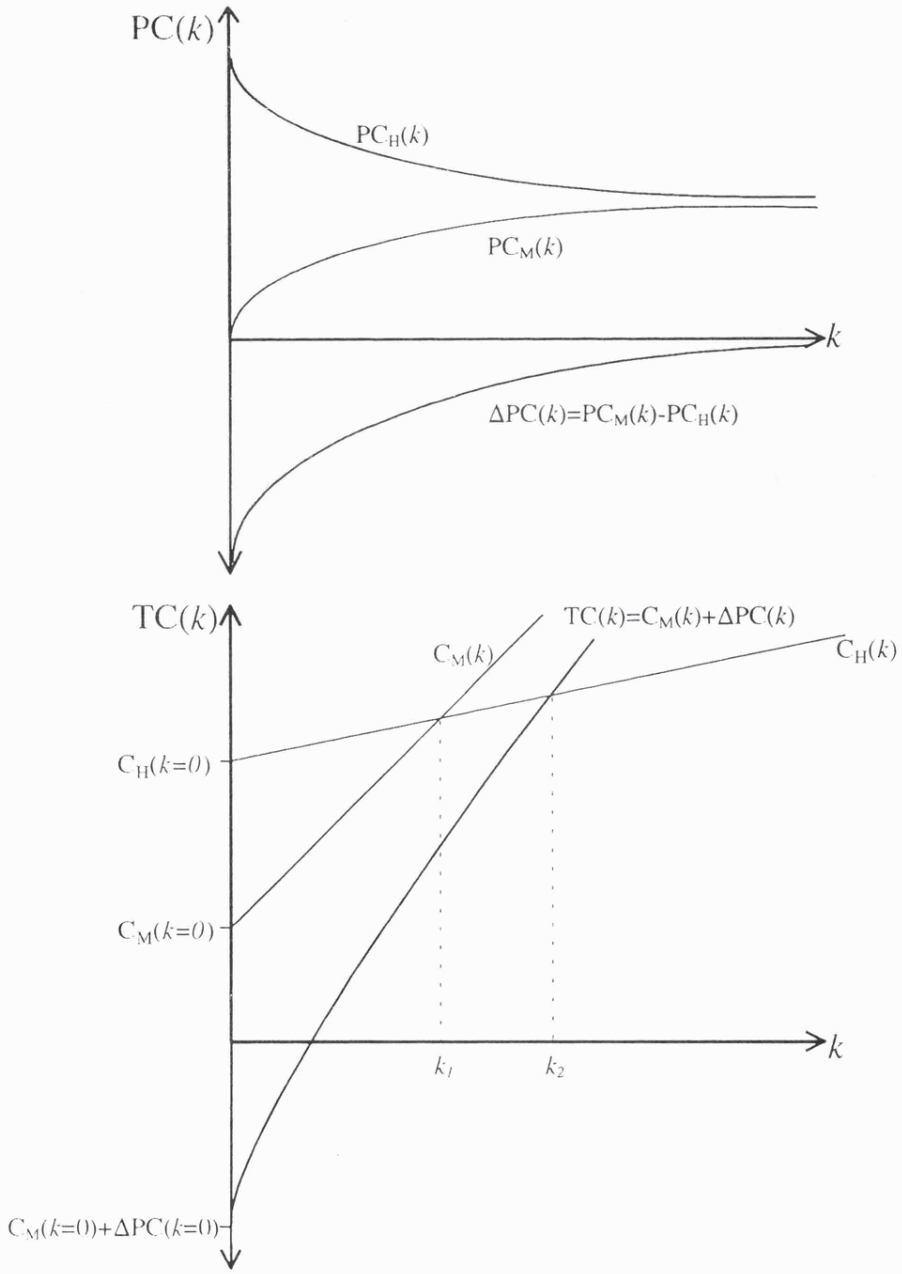


Graph 2.1: **The Costs of Market (M), Hybrid (X) and Hierarchical (H) Governance Modes as Functions of Asset Specificity and Uncertainty.**[22]

Source: Adapted from Williamson 1991, p. 24.

To summarise the argument so far, if complexity, uncertainty and bounded rationality are taken as given ($u>0$), for low degrees of asset specificity (i.e. for $0 < k < k_1$), market procurement will be the cost-efficient mode of governance. For intermediate degrees of asset specificity ($k_1 < k < k_2$), a hybrid mode of governing the contractual relationship will be efficient, while for high degrees of asset specificity ($k > k_2$), full hierarchical integration will be optimal.

Furthermore, the above *ceteris paribus* clause (p. 47) can be resolved to allow for the possibility that vertical integration may have production cost disadvantages against market procurement.[23] This may be so as a vertically integrated firm may be unable to exploit economies of scale to the same extent as an independent supplier firm that pools the demand of many buyers.[24] On the other hand, the potential to pool the demand of several buyers decreases as the specificity of investments made into the relationship with a particular buyer increases. Therefore, the production cost



Graph 2.2: Total Cost Function $TC(k)=C_M(k)+\Delta PC(k)$

advantage (ΔPC) of an independent supplier as against an integrated firm decreases with an increase in asset specificity (k). Aggregating the transaction and production cost functions of market procurement means that the resulting total cost curve $TC(k) = C_M(k) + \Delta PC(k)$ will, for any particular value of k, be lower than $C_M(k)$ on its own, which shifts the degree of asset specificity up to which market procurement is cost efficient from k_1 to a higher level k_2 (graph 2.2).

Considering the transaction and the production cost effects of asset specificity jointly, it becomes clear that for high degrees of asset specificity ($k > k_2$) the potential cost advantages of non-integrated production will not be enough to outweigh the transaction cost savings of integration. For low degrees of asset specificity - for example for standardised goods - the reverse is true, and the preferential mode of procurement is through market contracting. Intermediate degrees of asset specificity, around which the decision between the two modes of production is indeterminate, often make hybrid forms of organisations the most cost efficient modes of governance.
In sum, the degree of vertical integration can be analysed on the basis of joint consideration of transaction and production costs.

Diversification

In section 2.2.1, diversification was described as one of the main features of the growth of large companies since the late 19th century. Traditionally, it has been argued that a crucial rationale for diversification consists of its risk-reducing effects through hedging (e.g. Ela 1982, pp. 21-24; Clarke 1985b, pp. 209-212). However, this argument does not represent an efficiency-based explanation of diversification. Investors can diversify their portfolios much more easily than firms (see Donaldson 1994, Ch. 1). In addition, risk pooling raises the possibility of moral hazard by managers (Bhide 1990, p. 72).

An efficiency-based rationale for diversification must turn on synergistic effects among two or more production processes (or among the production factors involved therein), so that their joint operation in an integrated firm is more efficient than their

separate operation. In the following, two distinct sources of synergies are analysed with respect to their transaction-cost economic properties.

(1) Scale-effect Based Synergies: Scale-effect based synergies among two or more production processes arise where the joint operation of these production processes allows to exploit economies of scale of the production factors involved to a fuller extent than their separate operation. For this to occur, the production processes concerned must share in the use of at least one input factor (Besanko et al. 1996, pp. 242ff.). However, this condition on its own is not a sufficient rationale for diversification, as under perfect market conditions excess capacity in any factor could be sold freely in the market. Firms with shareable resources would sell surplus capacity in these resources to those other firms that could make the most efficient use of them. On the other hand, this may be difficult or impossible for firms which own assets

- that they cannot fully exploit profitably within their primary business line (Amit and Livnat 1988, p. 593);
  and
- the excess capacity of which is not perfectly tradable due to market imperfections. This is most likely in the case of knowledge-intensive assets (e.g. research and development capabilities), which are hard to trade due to the problem of information impactedness.

Through the exploitation of such 'synergistic' factors across several production processes, firms can decrease their average costs, so that Besanko et al. (1996, p. 205) describe synergies among businesses as "economies of scale waiting to be exploited".[25]

In order for production processes to share in the use of particular resources, the businesses concerned must be interrelated. Porter (1985, pp. 323-325) distinguishes between tangible interrelationships (e.g. shared use of distribution channels, as in Scott 1993, pp. 14-18), intangible interrelationships where managerial knowledge is transferred across production processes, and competitor interrelationships. If excess capacities in assets that give rise to such interrelationships are difficult and costly to

contract upon, firms may decide to integrate the activities in which they can be exploited, if the gains from doing so exceed the costs as detailed below.

The further a firm diversifies away from its initial 'core' business, the less tangible the relationships between its various businesses.[26] Therefore, *ceteris paribus*, the marginal returns to diversification decrease the further a firm diversifies afield from its existing business(es) (Montgomery and Wernerfelt 1988, pp. 623-632 and Wernerfelt and Montgomery 1988, pp. 246-250). In the extreme case of completely unrelated (conglomerate) diversification, a firm can only exploit particular managerial skills across its diverse business lines. Williamson (1975, Ch. 9) analyses the advantage conglomerate firms have over external investors in running an internal capital market. This advantage does not primarily consist of consulting services that head office managers might provide to their operating units, but rather of their superior information that allows them to allocate capital efficiently, to provide appropriate incentives, and to adopt incremental solutions to problems as they arise. In contrast, the controlling function of the external capital market through board replacement and takeover involves significant displacement costs, often comes late, and causes substantial disruptions in the operations of the firm concerned. The transaction-cost economic rationale for conglomerate diversification consists, therefore, of capital market imperfections due to the difficulties associated with the trading of managerial information.

(2) Superadditivity Based Synergies: Synergies between two production processes also arise where at least one of the production factors involved raises the productivity of at least one other production factor involved in the other production process. More often, two production factors across different production processes are mutually productivity-enhancing. For example, the co-existence of two research teams in a company may be productivity-enhancing for both of them even if the two teams work on distinctly different projects, so that no exchange of directly applicable information takes place. This may occur where the existence of research teams gives rise to a particular 'atmosphere' which positively affects the motivation of other researchers, or where the two research teams vie for the fastest output of results (reputation and internal competition effects). Similar examples can be provided for the co-existence of several management teams within organisations.

The transaction-cost economic rationale for the integration of production processes which involve factors with such synergistic properties is that integration allows to internalise their externalities in form of productivity-enhancing spillover effects. Contracting upon such effects – the alternative to integration - is extremely difficult for the following reasons. *Ex ante*, limited foresight - due to uncertainty and bounded rationality - means that it is difficult to anticipate the emergence of such effects, or to estimate their value if their emergence is to be expected. *Ex post*, it is difficult to check the potentially opportunistic behaviour of contract partners who have benefited from such spillover effects, and may walk away without having paid an adequate compensation.

Against the potential benefits of diversification that may arise from either of the two sources of synergies outlined above, the disadvantages and costs of diversification have to be weighed. These costs arise firstly from the inefficiencies and internal transaction costs involved in the build-up of large organisations with extended managerial hierarchies: "The optimal level of product diversity is that which balances economies of scope with diseconomies of organizational scale" (Rumelt 1982, p. 363). Secondly, diversification strategies involve the danger of neglecting or diluting the firm's 'core competencies' (Prahalad and Hamel 1990, pp. 79-91), if such strategies afford investments into secondary activities which are unrelated to the firm's existing business lines. Thirdly, the co-existence of diverse production processes may lead to *negative* externalities, in which case the productivity of at least one production factor is diminished by another production factor involved in the other production process. For example, low productivity of a small research team may go undetected as managerial attention is focused on the superior productivity of a larger research team in the same organisation.

Empirically, the performance effects of diversification appear to be poor. Rumelt (1974) was early to caution against unrelated diversification (see also Rotemberg and Saloner 1994, p. 1347), while more recently Schüle (1992, pp. 160-163) has provided a meta-analysis of 43 empirical studies on diversification, finding no clear relationship between diversification and corporate performance. Markides (1995, Chs. 2 and 7) suggests that for managerial reasons firms have often diversified beyond what he terms their 'optimal degree of diversification'. Porter (1985, pp. 352f.)

concludes that many "intangible interrelationships are forced, and represent more of an *ex post* rationalization of diversification moves undertaken for other reasons. [...] The difficulty of finding and implementing significant intangible interrelationships is one of the reasons synergy proved such a disappointment to many firms".

The Geographic Boundaries of Firms

As with vertical integration, a purely historical perspective on the development of large firms does not provide a sufficient *rationale* for the increase in geographic boundaries of firms through the spread of multinational enterprises (MNEs). Firms can exploit country-specific advantages, such as low factor prices due to resource endowments (Ricardo [1817] 1973, Ch. 7), and capture the additional demand in such countries through trade, i.e. contracting, without establishing foreign subsidiaries. However, geographic integration can offer transaction cost advantages if such contracting is hazardous or costly. The general idea is that firms will opt for integration across geographic boundaries if the associated transaction cost savings exceed the costs of integration. These costs consist of capital outlays for the establishment of foreign subsidiaries and the costs of the MNE's internal organisation (control costs[27], costs resulting from the internal transfer of knowledge, etc.), as Hill and Kim (1988, pp. 93-104) argue. Following Caves ([2]1996, Ch. 1 and 3), this general idea can be applied to horizontal integration as well as to vertical integration and to diversification across geographic boundaries:

- Firms may *horizontally integrate across geographic boundaries* in order to exploit their proprietary assets as fully as possible. Proprietary assets are firm-specific assets that are difficult to contract upon, such as patents or brand names and intangible assets such as information and organisational routines (Nelson and Winter 1982, Ch. 5). The latter assets in particular suffer from information impactedness as described above. Contracts regarding the sale or lease of proprietary assets may be difficult to enforce and to monitor. In the face of such contractual difficulties, companies may decide to establish subsidiaries in foreign countries if the gains from exploiting their proprietary assets internally exceed the costs of geographic integration.

- Firms may *vertically integrate across geographic boundaries* if the market for the intermediate good concerned is imperfect, for example in situations where contractual relationships with local suppliers or buyers would afford transaction-specific investments. Such situations can be analysed in the framework set out above, bearing in mind that in an international context the transaction costs of contracting may be particularly high (due to differences in languages[28], culture, national regulations and policies[29] etc.). On the other hand, such factors can also raise the costs of the internal organisation of MNEs. TCE does not neglect the fact that vertical integration may be favoured by location-specific advantages of foreign countries (e.g. low labour costs, etc.), but points out that for those factors to lead to integration, the alternative way of exploiting them (i.e. through contracting) must be beset by particular contractual difficulties.
- Firms may *integrate diverse activities across geographic boundaries* so as to exploit synergies among their various businesses if the particular assets that benefit these businesses are not or only imperfectly tradable. One such asset could consist of a firm's superior managerial skills that allow it to run an internal capital market more efficiently than the external capital market. Caves ([2]1996, pp. 19ff.) also discusses the possibility of spreading risk through diversification across geographic boundaries.

In sum, the expansion of the geographic dimension of the boundaries of firms has to take into account the *combination* of firm- or ownership-specific advantages, which can be difficult and costly to contract upon, and the location- or country-specific advantages to which geographic expansion may give access. If the transaction cost savings of internalising its firm-specific advantages between the home and the host country concerned exceed the costs of such integration, it is efficient for firms to extend their geographic boundaries to foreign countries (Dunning 1993a, p. 53).

Hybrid Forms of Organisation

It has already been pointed out above that transactions can be carried out not only through market-mediated and strictly hierarchical relationships, but also through hybrid forms of organisation. TCE permits to identify the extent to which firms engage in such hybrid modes of governing contractual relationships as a further aspect

of their boundaries. In doing so, account is taken of the fact that the boundaries of organisations are becoming increasingly blurred.

Hybrid forms of organisation refer to commercial relationships among a limited number of independent organisations that are of a less formal, more open-ended and more stable character than pure market relationships, yet do not amount to full integration. Prototypes of such hybrids include inter-firm networks such as the Japanese *zaibatsu* and *keiretsu* (Gerlach 1992, Ch. 3; Ouchi 1981, pp. 17-22; Sethi et al. 1984, pp. 21f.) and other supplier networks (Fruin 1994, Ch. 7), joint ventures (Hennart 1988, pp. 361-374) and strategic alliances (Bleeke et al. 1992, pp. 103-125; Henzler 1993, pp. 330-338).[30] Drawing on the example of the inter-relationships between small manufacturing companies in Northern Italy[31], Powell (1991, pp. 265-276) argues that in networks, the relationships among the constituent firms are informal and open-ended. While any particular transaction is completed upon fulfilment of the respective contractual obligations between the parties, the relationship itself does not terminate with the transaction. Parties contract repeatedly with each other, and adapt to the others' demands and preferences, thus deepening their relationship. While the relationships in a network allow for an occasional change of contractual partners, competitive bidding does not take place. Reputation, rather than the courts (as in the market) or the administrative *fiat* (as in the hierarchy) has authoritative power which helps resolve conflicts. Drawing on Granovetter (1985, pp. 488ff.), Powell (1991, pp. 265-276) and Casson and Cox (1997, pp. 177-180) argue that the reciprocity of relationships that characterises networks is underpinned by trust among the partners.[32]

The rationale underlying hybrid modes of organisations can be analysed more succinctly using the example of joint ventures and strategic alliances. Sieker (1997, pp. 1ff.) distinguishes between

- *contractual joint venture:* a wide array of joint undertakings by two or more partners, involving the fulfilling of the contractual obligations laid down in formal or informal contracts, without the foundation of an independent entity (example: franchising agreements).
- *equity joint venture:* the setting-up of a legally independent entity, in which two or more joint venture partners have an at least controlling ownership stake. While the

legal structure of equity joint ventures generally simplifies the distribution of profits, the transaction cost economic analysis outlined below applies to both equity and contractual joint ventures.

The term 'strategic alliance' is used primarily for informal arrangements between companies, without a clear distinction to either type of joint venture. Inter-firm alignments may often start as strategic alliances, for example in an agreement to share in the results of research efforts, and then evolve into a more formal relationship of a joint venture.

The transaction cost economic rationale for the establishment of joint ventures is that they permit "to bypass inefficient markets for intermediate inputs" (Hennart 1988, p. 364), while simultaneously avoiding the problems inherent in full-scale integration. With respect to the avoidance of market failure, joint ventures are the more likely to be advantageous the more difficult it is to contract upon the input concerned. As discussed above, the difficulties associated with contracting are particularly great with respect to intangible goods (e.g. brand names) and knowledge-intensive goods that suffer from information impactedness.[33] On the other hand, joint ventures retain at least a greater part of the incentive intensity of market transactions that is lost in hierarchies, and therefore have lower governance costs (in terms of losses due to bureaucratic inefficiencies) than the full integration of activities via merger. At the same time, they allow for more transaction-specific investments to be made than pure market transactions, as the risk of opportunistic exploitation of the weaker by the stronger party is alleviated in agreements which are struck in the expectation that (a) the undertaking will be of *mutual* benefit and (b) the venture will continue (Kay 1993, pp. 34ff.). However, hybrid modes of organisation do not support large, highly transaction-specific investments, as in this case the gain to one party from opportunistically exploiting the dependence of the party that has made the investments is likely to exceed its loss from the resulting breakdown of the agreement.

In sum, TCE shows that, in analysing the 'boundaries' of firms, account has to be taken of the fact that transactions can be mediated not only through markets and full-scale hierarchies, but also through hybrid forms of governing contractual relationships. TCE argues that such hybrid forms will be chosen if the nature of the underlying relationship renders them the efficient mode of organising the transactions

concerned. Table 2.5 summarises some crucial characteristics of contractual relationships and relates them to the market, hybrid and hierarchical modes of governance.

	Market	Hybrid (e.g. joint venture)	Hierarchy
Duration of relationship	Limited (until contractual obligations are fulfilled)	Variable, although termination of joint venture should be planned at the outset	Open-ended; depending on human asset specificity and the extent to which 'exit' solutions to conflicts are mitigated through the existence of appropriate 'voice mechanisms'[34]
Degree to which contractual rights and obligations are specified *ex ante*	As fully (explicitly) as possible in order to avoid post-contractual problems	Medium: joint venture contracts should be flexible enough to take account of new developments, but in principle have attractive adaptability properties (Williamson 1993c, p. 23)	Low; contracts are implicit rather than explicit; 'content' of a contract develops throughout the relationship
Identity of the parties to the exchange	Does not matter; prices alone are decisive	Does matter, as contingencies during the lifetime of the joint venture cannot be fully anticipated	Does matter, as contingencies during the employment relationship can hardly be anticipated
Administrative co-ordination and control of transactions (Williamson 1993c, p. 23)	Low (co-ordination is through prices)	Medium (higher in equity joint ventures than in contractual joint ventures)	High
Asset specificity supported by the relationship	Low	Medium	High
Conflict resolution mechanism	Appeal to court or private re-negotiation	Private re-negotiation; appeal to the court only as an ultimate resort	Authority / administrative fiat within a 'zone of indifference' (Barnard 1938, Ch. 12)

Table 2.5: Characteristics of Contractual Relationships in Relation to the Market, Hybrid and Hierarchical Modes of Governance

2.3.3 The Internal Organisation of Firms

TCE adopts a 'comparative contracting perspective' (Williamson and Bercovitz 1995, pp. 7ff.) in that it examines, on the basis of their cost properties, the various contractual arrangements through which transactions can be carried out. This efficiency-oriented approach can be applied not only to decisions regarding the boundaries of firms, but also to decisions regarding the organisation structures *within* hierarchies. TCE analyses particular structural features of large firms as mechanisms to minimise internal transaction costs, arguing that, *ceteris paribus*, more cost-efficient arrangements will outstay less cost-efficient ones in competitive markets ('weak-form selection'; see Williamson 1988, p. 573, following Simon 1983, p. 69). In the following, the reasons underlying the emergence of internal transaction costs are analysed firsts. Second, particular organisational arrangements are examined as responses to these inefficiencies.

TCE regards bounded rationality in particular, but also uncertainty and information impactedness, as the fundamental reasons for the existence of internal (i.e. intra-organisational) transaction costs. Due to these factors, communication processes between human agents involve distortion and loss of information. Time and effort is required to ensure that communication partners are well-informed about tasks, expectations, and standards, thus raising the costs of information and co-ordination. Bounded rationality also involves the 'forgetful nature' of humans, so that information needs regular updating. In the absence of complete information, information asymmetries can be exploited opportunistically. In order to limit such opportunistic behaviour, organisations incur costs for monitoring and sanctioning (punishing undesirable and rewarding desirable) behaviour. Williamson regards organisational structures as arrangements that emerge in order to minimise the costs of co-ordination, information transmission, monitoring and sanctioning behaviour within organisations.

Complex Organisational Forms: Multiple Layers and the Span of Control

With the growth of large firms, as described by Chandler and others (section 2.2), the development of differentiated organisational structures was required that would allow to manage the increasing complexity of large firms in a cost-efficient way. As a starting point, Williamson (1975, Ch. 3) analyses the peer group (team) as a simple organisational form, out of which more complex organisational arrangements evolved. He regards teams as groups of human actors assembled for the purpose of collective activity, in which the members co-ordinate their actions amongst themselves without recourse to a common authority (figure 2.1). In comparison with markets, such groups (and the more complex organisational arrangements as described below) have several advantages. First, they allow for specialisation through the division of labour, without incurring the difficulties and costs of market contracting upon specialised knowledge and skills (e.g. lock-in that gives rise to opportunistic exploitation, etc.). Second, they make it possible to extract the gains from joint production (e.g. through higher productivity due to involvement in a group). Third, they help overcome the problem of indivisibilities, in particular the indivisibility of information, and thereby allow scale economies to be exploited. Fourth, for their members, they represent an insurance against risk.

On the other hand, given bounded rationality, the size of such teams is limited by the complexity of co-ordinating with multiple members and the distortion or loss of the information transmitted (which can be expressed in cost terms). The complexity of co-ordination in groups with n members is an exponentially increasing function of n, as the number of two-way communication channels between the team members is given by the formula $\frac{1}{2}(n^2-n)$ (see Williamson 1975, p. 46; Besanko et al. 1996, p. 663). Under bounded rationality, the ability of human actors to cope with complexity is limited. This places a finite, and relatively low, limit upon the size of organisations without a co-ordinating authority. More advanced structural features of organisations can be understood as means to overcome these limitations, if larger organisations are warranted for other reasons (e.g. economies of scale, etc.).

In simple hierarchies, co-ordination of activities is carried out from a single organisational centre (figure 2.2). If this is represented by the nth member of the organisation, the number of communication channels within the organisation is

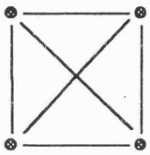


Figure 2.1: Schematic Model of a Team with Four Members

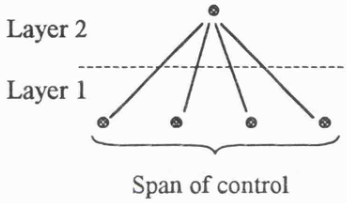


Figure 2.2: Schematic Model of a Simple Hierarchy

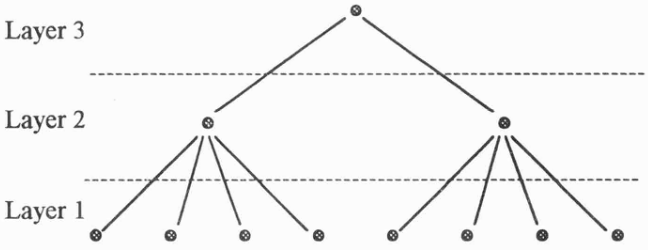


Figure 2.3: Schematic Model of a Complex Hierarchy

$(n-1)$.[35] All members except the nth one have to handle just one communication channel. Moreover, whereas the team as described above is not differentiated vertically by layers, in the simple hierarchy[36] two layers (the higher one on which the nth member of the organisation is based, and the lower one where all other members are located), can be distinguished.

The progression from simple hierarchies to progressively more complex hierarchical arrangements is due to the limitation of the span of control of the co-ordinating (i.e. supervising, advising, arranging) organisational member(s). The term 'span of control' is defined as the number of units or the amount of resources over which any superior unit has control. The span of control is often expressed in terms of the number of subordinates reporting directly to their immediate super-ordinate (Blau and Schönherr 1971, p. 16; Robbins ^{3}1990, pp. 87ff.), although other expressions can validly be defined.[37]

Bounded rationality means that any communication or co-ordination process between human actors involves a certain amount of control loss. As the number of units (e.g. workers) under the supervision of a super-ordinate increases, the problem of control loss becomes increasingly more acute. At a particular size threshold, the cost equivalent of the control loss incurred by a supervisor will outweigh the cost of employing an additional supervisor. As a result, the upper layer of the two-layer organisation will be staffed with several super-ordinates whose task it is to supervise their subordinates (vertical activity), but also to co-ordinate their own activities among their peers (horizontal activity). As the number of supervisors to be cost-efficiently employed increases progressively with organisation size, the activities of the supervisors themselves have to be co-ordinated and monitored. In consequence, further layers of management will be added, thus leading to the emergence of complex hierarchies (figure 2.3). Consequently, with increasing size organisations become increasingly vertically differentiated, although, as Blau and Schönherr (1971, Ch. 3) show, the *rate of increase* in vertical differentiation declines with increasing organisational size.

As stated above, complex hierarchies emerge as a result of the fact that the span of control of any individual is limited, due to the underlying problems of bounded rationality and uncertainty. The control loss that occurs when information is transferred from one layer of an organisation to another one can be reduced by narrowing the span of control of super-ordinates. However, at a given number of subordinates on the lowest level (l=1) of the organisation, the narrower the spans of control of the super-ordinates at level l=2, the greater the number of super-ordinates whose actions have to be co-ordinated and monitored in turn. This means that, *ceteris paribus*, the more managerial layers have to be added the smaller the span of control. The result is an inverse relationship between the span of control and the 'depth' of organisations, the latter referring to the number of managerial layers. Assuming a constant span of control (S) for all superiors in an organisation, the relationship between total organisational size (N), depth (L) and S is given by the formula $N = \sum_{i=1}^{i=L} S^{L-i}$.

While the control loss occurring in any particular subordinate – super-ordinate relationship could be minimised by narrowing the span of control of the super-ordinate concerned, several factors make it disadvantageous to increase the number of layers in an organisation:

- First, the employment of managers as supervisors incurs direct costs. Supervisors, together with other administrative staff, belong to the 'administrative component' of organisations, which in many companies represents a substantial proportion of overhead costs.
- Second, control loss within hierarchies increases as information passes through the various organisational layers.[38] Therefore, the total control loss incurred in an organisation is a positive function of the number of its layers.

Therefore, if organisation size is taken as given, a cost-efficient balance has to be struck between the span of control and the depth of an organisation. TCE-based organisation theory identifies the span of control and the number of hierarchical layers as crucial descriptors of organisations, arguing that the balance between these two parameters, *ceteris paribus*, can be analysed on the basis of efficiency considerations.

Centralisation and Decentralisation

The development of large and complex organisations as described above entails the centralisation of co-ordination and decision-making authority in the hands of a super-ordinate unit (e.g. chief executive), as compared to team arrangements without such a central authority. However, hierarchically organised firms differ widely with respect to the *degree* to which decision-making authority is devolved down the organisational hierarchy (decentralisation[39] of decision-making) or held closely at the top unit of the organisation (centralisation; see Pugh [4]1997, p. 18). TCE argues that efficiency criteria should be the basis upon which the degree of decentralisation in organisations is decided. Both centralisation and decentralisation have particular (dis-)advantages so that an optimal balance between the two has to be struck in order to maximise efficiency.

With respect to the *centralisation* of authority, its particular advantage lies in the coherence, efficiency, consistency and speed of the decisions made. The general advantage of hierarchies over groups in which decision-making takes place on the basis of constant bargaining processes among members is that hierarchical authority (administrative *fiat*[40] within a 'zone of indifference'; Barnard 1938, pp. 167ff.; Simon 1951, pp. 293-305; Williamson 1975, p. 101; Williamson 1993d, p. 8) avoids the inefficiencies of such bargaining and co-ordination processes. In the face of the comparative efficiency of hierarchy over bargaining, the question arises how hierarchical solutions can be implemented and what characteristics they should take. According to Arrow's 'impossibility theorem'[41], no non-dictatorial governance mechanism fulfils simultaneously all of the following minimally desirable characteristics of social choice that he identifies:

- Transitivity of preferences;
- Independence of any decision made from irrelevant alternatives;
- Pareto optimality;
- 'Universal domain' (i.e. any decision made through the social choice mechanism should be defined for any set of individual preferences) (Miller 1992, pp. 63-64).

Only a *central* authority (a 'dictator') can guarantee that hierarchical decisions are *simultaneously* unambiguous, non-contradictory, universally applicable, and efficient.

As an example for the potential deficiencies of other social choice mechanisms, Miller (1992, pp. 60-62) points to the emergence of majority rule cycles in 'democratic' (voting-based) systems.

Against the advantage of centralising hierarchical authority in terms of decision-making efficiency, one has to weigh the factual limitation of the decision-making *ability* of central authorities in the face of bounded rationality, complexity, and information incompleteness (see Hayek [1948, pp. 77-86] with emphasis on the latter factor, whereas Williamson and Bercovitz [1995, p. 7] focus on bounded rationality). The larger and the more complex an organisation, and the more varied the decisions to be made, the greater the need of the decision-making authority to rely on specialist expertise. Such expertise is required not only for the provision of factual knowledge (i.e. to counteract the problem of information incompleteness), but also for the handling of the decision-making process itself (i.e. to counteract bounded rationality). As a result, the growth and complexity of large organisations renders the decentralisation and delegation of decision-making authority necessary, so as to reap the efficiency gains of specialisation.

The behavioural literature (e.g. Morgan 1986, pp. 161f.) emphasises the notion that moves to centralise or decentralise decision-making in organisations represent power shifts which are effective only if backed by the transfer of resources as the sources of power. An important source of power in organisations consists of access to and control over financial resources. Shifts in the degree of autonomy of middle managers in relation to the central office can therefore be expressed in terms of changes in the degree of discretion in financial matters that these managers have. The corresponding question in the questionnaire survey (section 3.3.10) is phrased along these lines.

Head Office Size and Functions

In order to strike an optimal balance between the conflicting needs for centralisation and decentralisation of decision-making, firms also have to decide which particular functions they carry out from the corporate centre and which ones in the operating units or on some intermediate level (e.g. the division) between these two. Historically, the adoption of functional (U-form) organisation structures around the turn of the century represented a step towards greater decentralisation in the form of departmentalisation (Jennergren 1986, pp. 41ff.), as compared to earlier arrangements

where supervision and control had been exercised immediately by owner-managers (Chandler 1977, p. 3; Edwards 1979, pp. 25-27). While overall control in the U-form remained firmly with the head office, departmental managers received some autonomy with respect to issues such as the composition of teams within their departments. The close involvement of departmental managers in the day-to-day running of their functions also gave them specialist functional expertise on which head offices could draw. From an efficiency perspective, the advantage of the U-form structure as compared to earlier arrangements consists of the informational economies of scale that arise from pooling specialised functional knowledge. However, decisions with financial implications, as well as co-ordination and supervision of departmental activities, remained firmly in the hands of the head office.

Against this organisational set-up, the multidivisional structure (M-form) that emerged from the late 1920s onwards as a result of information overload due to increased corporate size and diversification (section 2.2) represented a further step towards decentralisation (Miller 1992, pp. 85f.). Divisions and their managers received their own budgetary control, as well as autonomy with regards to the day-to-day operating decisions.

With the emergence of (semi-) autonomous units such as divisions in the M-form and independent subsidiaries in the H-form, but even of further developed organisational structures such as matrices (Besanko et al. 1996, pp. 675ff.), the question of which services should be carried out at the organisational centre and which ones at decentralised levels becomes more acute. From an economic perspective, the 'bundling' of particular functions in head offices aims at alleviating the following inefficiencies that accompany the growth of large enterprises.

(1) The degree of incentive intensity tends to diminish with an increase in organisational size and complexity and with the degree to which an organisation is isolated from market pressures. This is because organisational hierarchies replace the high-powered incentive mechanisms of the market with hierarchically structured incentive schemes with a relatively low degree of flexibility (Williamson 1975, pp. 129-131). For example, high rewards for low-level staff are limited to the extent that they threaten the status of upper-level managers.

(2) In extended corporate hierarchies inefficiencies arise due to sub-goal ('partisan') behaviour by organisational sub-units, a form of opportunistic behaviour

(Williamson 1975, pp. 125ff.), which - in the absence of costly control mechanisms - goes unchecked.

(3) As a result of bounded rationality, managers who are involved in operating activities face capacity constraints with respect to functions and decision-making processes which concern the organisation as a whole, such as strategy-making and planning (Williamson 1971, pp. 358ff.).

(4) The creation of particular functions at sub-unit level (e.g. of departmental finance functions) in situations where other sub-units also require these functional services leads either to an inefficient duplication of these functions, so that potential economies of scale are not exploited, or to the need to cut across established organisational structures (Besanko et al. 1996, p. 670), thus leading to problems such as miscommunication, lack of unambiguous points of responsibility, and so on.

As a possible (albeit imperfect) solution to these inefficiencies, companies can assign particular managerial functions, e.g. strategy-making, financial control etc. to a group of managers who receive a superior position in horizontal and, more importantly, vertical respects. Furthermore, they are given an 'elite' staff charged with providing the information and the administrative resources necessary for an effective performance of the functions of the head office thereby created. Employees in the head office do not take on operational duties, so that the capacity constraints faced by operating staff can be circumvented, if head offices are staffed appropriately (problem 3). Also, head office employees are unlikely to engage in partisan behaviour in favour of particular operations, thereby addressing the problem (2) of sub-goal pursuit by operative staff. They may, however, engage in sub-goal behaviour in favour of their own functions, leading to 'blown-up' head offices. Third, monitoring and control functions of head offices, if backed by the ability to reward performance and sanction failure, and if combined with appropriate organisational structures, can help reduce the problem (1) of low incentive intensity. In order to do so effectively, the head office can act as an internal capital market, allocating resources to those units that engage in behaviour most closely resembling profit-maximising principles. In this way, head offices can use their information advantage to bypass the transaction-cost economic problem of information impactedness and uncertainty that hinders the external capital market from allocating resources most efficiently.[42] This is achieved most effectively if the operating units act in a quasi-autonomous way (regardless of

whether they are called 'profit centres' or else), and if inter-organisational transfers are organised on the basis of market principles, thus avoiding internal subsidisation. The organisation then 'mimics' the market with its superior degree of intensive intensity. Fourth, the establishment of *exclusive* head office functions circumvents the problem (4) of the duplication of functions on sub-unit level and provides for the creation of scale-effect based synergies (section 2.3.2). It also implies the horizontal division of labour among managers, thereby capturing the efficiency advantages of specialisation.

Against the 'positive', inefficiency-reducing effects of head office management, their disadvantages and deficiencies have to be balanced. First of all, their direct costs have to be taken into account. This problem is particularly severe in that it is difficult to subject head office management to checks and balances from within the organisation, so that head offices can become the realm of 'managerial empires' with resulting agency costs (section 6.2.1), unless checked by the external (product and / or capital) markets. Secondly, the creation of a head office that is hierarchically superior to the operating units implies the addition of a further layer of management, which is accompanied by information and control loss as discussed above. This problem impedes the effective performance of the functions with which the head office is charged. It can be alleviated by reducing the span of control of head office managers. This, however, leads to additional head office staff and, beyond a certain size threshold, the hierarchical differentiation of the head office structure itself. Finally, while head office management can help *reduce* particular transaction costs that may occur in its absence (e.g. the costs of market information), it cannot solve the problem completely. For example, the allocation of resources and the provision of incentives in internal capital markets cannot be fully efficient as long as bounded rationality, uncertainty and opportunistic behaviour *within* organisations exist. Head office management cannot fully solve the agency problems that led to its creation in the first place.

To summarise the argument so far, the formation of head offices with distinct functions results from the size and complexity of modern industrial enterprise. Whether particular functions should be centralised at head office level, or carried out by lower-level organisational units, or whether organisations should be structured (e.g. limited in size) so as to avoid the need for the functions concerned, should be decided on the basis of efficiency criteria.

In section 2.3.3, the principles of transaction cost economics have been applied to the internal organisation of firms. It should be pointed out that particular structural arrangements primarily serve the purpose of *limiting* or *reducing* the inefficiencies that accompany organisation size and complexity, which have to be weighed against the advantages that *may* arise from the integration of activities in hierarchies as analysed in section 2.3.2. In accordance with Coase's (1937, p. 395) above-quoted dictum, the optimal shape[43] of the organisation balances the transaction cost effects of integration against the transaction cost effects of internal organisation.

2.4 Chapter Summary and Conclusion

In this chapter, an overview of two approaches to corporate structure has been presented. In section 2.2, the historical perspective on the development of large industrial enterprise, as conceived by Chandler and by business historians in his tradition was outlined, and empirical findings on the UK and West Germany were detailed. In section 2.3, the transaction-cost theoretic approach to corporate structure was summarised. The two approaches are seen to inform each other.

Both in the historical and in the transaction-cost theoretic perspective, two key dimensions of corporate structure are identified: The boundaries of firms and their internal organisation. In the discussion of this chapter, the following major elements of these two dimensions are developed:

(a) Boundaries of the firm:

- Horizontal integration
- Vertical integration
- Diversification
- Integration of activities across geographic boundaries
- The degree to which a firm engages in hybrid modes of organisation (e.g. joint ventures and strategic alliances)[44]

(b) Internal organisation of the firm:

- Organisational complexity, e.g. through the division between operative and professional administrative staff ('administrative component')
- Vertical (or hierarchical) differentiation, e.g. through a multiplicity of managerial layers, and the establishment of head office management superior to the operating units of organisations
- Horizontal differentiation through managerial specialisation, e.g. build-up of specialised head office functions
- Span of control of super-ordinates or super-ordinate units at any particular level of the organisation
- Centralisation and decentralisation of decision-making

It should be pointed out that this chapter has focused on macro-organisational aspects of corporate structure, in contrast to substantive sociological and behavioural literatures which are concerned with micro-organisational issues such as team size, task standardisation and their effects on employees (e.g. alienation, etc.).[45] The analysis has been confined to those features of organisation structure which have been the subject of the historical and transaction-cost literature discussed above.
Moreover, the approaches discussed in this chapter are selective in that some features of organisational structure are emphasised, while others are given less importance. For example, less attention than is common in the literature has been paid to the three 'basic' organisational forms (U-, M- and H-form) and their derivatives (Hill 1985, pp. 740-749 and 1988, pp. 72ff.; Williamson 1970; Williamson 1975, Ch. 8). While the importance of these issues shall not be downplayed, it can be argued that the substantial empirical literature on organisational forms (e.g. Steer and Cable 1978, pp. 13-30; Hill and Pickering 1986, pp. 26-50; Whittington et al. 1997), to which little will be added in this thesis, has in turn neglected other aspects of organisational structure which are the focus of chapters 3-5.

On the basis of the discussion of this chapter, corporate restructuring shall be defined as changes with respect to the boundaries and the internal organisation of firms, taking into account the various elements of the two dimensions of corporate structure as outlined above. Changes in at least one, but more probably in several of these interconnected elements provide evidence for corporate restructuring processes.

Taking up the features of corporate structure elaborated so far, the following chapters provide empirical evidence on corporate restructuring in large non-financial companies in the UK and West Germany.

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[1] Chandler and Tedlow 1985, pp. 173-309.

[2] In the German-speaking region, universities and technical colleges also supplied important skills, in particular in engineering. Specific courses in business administration, law and economics were developed as well (foundation of the *Handelshochschulen* [higher trade schools] in St. Gallen, Vienna, Leipzig and Aachen in 1898 [Forrester 1993, pp. 78-82] out of the earlier accounting-oriented *Handelsschulen* [trade schools] that had existed since the second half of the 18th century [Penndorf 1913, pp. 228ff.]), although the educational base of managers remained more technically oriented than in the US (Lane 1989, pp. 86-96). In Britain, professional management education, marked by the establishment of the British Institute of Management in 1947 (Alford 1996, p. 219) and of the London and Manchester Business Schools during the 1960s, developed relatively late, although already in the inter-war period accounting qualifications had been developed. The proportion of industrial managers with academic (and in particular with postgraduate) education remained lower than in the other two countries, and only over the past 15-20 years has this situation begun to change significantly (Hannah 1992, pp. 51ff.).

[3] For a definition of the concepts of 'line' and 'staff' see Gulick 1937, pp. 30-31.

[4] Herman (1981, Ch. 1) shows that similar analyses existed already since the later part of the 19th century, before they were made popular by Berle and Means. The concept of the division of ownership and control emerged first from the analysis of the American economy, whereas European economies have been generally slower to adopt managerial capitalism. Even with respect to the US, the Berle and Means argument of the coming of managerial capitalism has not remained uncontested. As early as 1940 an official report said that Berle and Means had overstated the division of ownership and control (Herman 1981, pp. 12-13).

[5] The three M&A waves took place concomitantly in the UK and the US; for the latter country see Golbe and White (1988, pp. 265-309); Ravenscraft and Scherer (1987, p. 21); Weston et al. (1990, pp. 8-14).

[6] BP may be regarded as an exceptional case in that its subsidiaries included a large number of petrol stations, but even disregarding this particular case, Hadden shows that the number of subsidiaries of many large British companies was exceptionally high, as compared to continental European countries.

[7] "There is [...] a strong desire among executives to retain or gain the status of director, which can be met by leaving lower level corporate subsidiaries in existence even if they are functionally redundant" (Hadden 1983, p. 10).

[8] Tilly (1998, pp. 129ff.) describes the period from the late 18th century to the 1830s as the 'early industrialisation period' in Germany, during which the institutional *preconditions* (Prussian agrarian reforms, customs unions between various German states leading to the *Zollverein* of 1833) for Kocka's first industrialisation phase were created.

[9] See also the Anglo-German comparison of corporate size presented in Cassis (1995, pp. 216-217).

[10] Cable claims to have his data from the German Federal Cartel Office. However, his data from 1973 to 1975 is very different from the ones provided by the Cartel Office in more recent publications (see Deutscher Bundestag, 13. Wahlperiode, 1995, p. 148).

[11] For the current German system of industry classification see Statistisches Bundesamt (1995), pp. 9-37.

[12] Due to the small size of the sample, the percentages should be regarded as rough approximations only. The data does not add to 100% in all cases because of rounding errors.

[13] TCE is one of several approaches which fall under the category of the contractual theories of the firm. Other approaches in this category include the property rights approach (Grossman and Hart 1986; Hart 1989 and 1995), Klein's (1988) theory of vertical integration, and the approach by Alchian and Demsetz (1972).

[14] See also Coase's (1992) Nobel Prize lecture and Mueller 1986, pp. 1ff. – Predecessors of TCE include Knight (1933) who emphasises the relationship between uncertainty and the existence of profits

(see Demsetz 1992, pp. 12f.), and the legal theorist Commons (1934) who discusses the problems associated with any attempt to write complete contracts.

[15] For an elaboration of this point see also the *Introduction* in March and Simon [2]1993.

[16] Hart (1990, pp. 696-702) contests the view that bounded rationality is an important part of the theory of organisations, but see Kreps (1996) for a reply.

[17] Lyons' (1994, p. 266) finding that 'vulnerability' (dependence on one or a few contract partners) raises the probability that formal, rather than informal, contracts are struck corroborates this argument.

[18] Arrow (1986, pp. 1192ff.) analyses the need for simple contracts from a principal-agent theoretic perspective.

[19] Coase (1991c, p. 73) terms only the former cost class 'transaction costs' and the latter one 'costs of organizing', but the basic consideration is as described above.

[20] In the following, uncertainty (u) is meant to include bounded rationality and complexity.

[21] It has to be assumed that even without uncertainty some governance costs would be involved in contracting, e.g. the costs of writing the contract. Therefore, in graph 2.1 $C_M(k, u=0)$ is assumed to be a constant $a>0$.

[22] This is a schematic depiction in which – following Williamson – the three cost functions are assumed to be linear. It can be argued that the cost functions are more likely to be concave, but these considerations are not relevant for the above argument.

[23] In order to simplify the argument, in the following u is assumed to be a constant $c>0$, so that the various cost functions are displayed as functions of k only.

[24] See Williamson 1989, pp. 158f. - It is not immediately plausible why a vertically integrated firm should not be able to do the same as an independent supplier by producing intermediate inputs at large economies of scale to satisfy both its own demand and the demand of outside buyers. However, selling surplus supply to outside buyers may be difficult as these may be reluctant to buy from their own competitor. - Vertical integration can also have *indirect* production cost advantages. For example, by integrating successive transactions, which are not priced in a way that is transparent to external parties, companies remove these transactions out of the taxation and supervisory authority of governments.

[25] The scale-effect based explanation of synergies, according to which the diversification strategy is chosen to exploit excess capacity of productive factors for which market failure exists, is the 'classical approach' to diversification, which goes back to Penrose [1959] [3]1995, pp. 68-71.

[26] Following Arrow (1974, pp. 41ff.), it is arguable that the opportunities for sharing resources will be the greater the more closely related two business lines are.

[27] Hennart (1993, p. 174) points out that geographic distance raises monitoring costs (both between independent parties and within hierarchies), so that MNEs should design organisational structures so as to minimise such costs, e.g. through profit centres.

[28] For the relationship between language and the costs of trade see Coulmas (1992) and the author's review of Coulmas' book (Richter 1993, pp. 119f.).

[29] Henisz (1997) shows that the perceived political ability of governments to renege on promises to respect property rights has a strong influence on investment decisions by American firms to invest in foreign countries.

[30] Ouchi (1991, pp. 246-255) suggests 'clans' as an additional hybrid mode of organisation.

[31] A similar argument has often been made with respect to the network of manufacturing companies in Germany, notably in the region of Baden-Württemberg (Herrigel 1996, Ch. 5). However, Mueller and Loveridge (1995, pp. 555-582) argue that the importance of this particular and other regional networks is declining, as large buyers of industrial goods are increasingly using global rather than local suppliers.

[32] Against this view, Williamson (1993b, p. 469) argues that "trust is irrelevant to commercial exchange"; see the discussion between Craswell (1993) and Williamson (1993a).

[33] Nanda and Williamson (1995, pp. 119-128) argue that 'exit joint ventures' rather than straightforward disposals are often used in the context of corporate restructuring, as the continued involvement of the firm that wants to separate itself from a business makes it possible to pass on knowledge and expertise to the new owner.

[34] Hirschmann 1970, Ch. 2-3; Freeman and Medoff 1984, Ch. 6.

[35] Comparing the team with the simple hierarchy as described above implies that already for $n > 2$ the number of communication channels within the former type of organisation exceeds the respective number in the latter arrangement. – The formula (n-1) is true if one considers only the direct, two-way communication channels between the supervisor and the subordinates, neglecting potential interrelationships among the subordinates. If these are taken into account, it can be shown that the total number of relationships to be managed by the supervisor (the nth member of the organisation) is given

by the formula $(n-1)\left[\frac{2^{n-1}}{2}+n-2\right]$ (this is derived from Graicunas 1937, pp. 184-187), which implies an extremely limited span of control.

[36] Following Thompson ([2]1977, p. 58), hierarchy is here defined as a system of subordination, implying several hierarchical layers.

[37] In the questionnaire survey (section 3.3.9), participants are asked about the span of control of the head office of their company, defined as the number of heads of operating businesses reporting directly to the head office.

[38] Williamson (1967, pp. 130ff.) and others use the term 'cumulative control loss'. It has to be noted, however, that control loss is not an additive, but a multiplicative function of the number of organisational layers through which control is exercised.

[39] The term 'delegation' is closely related to 'decentralisation', the former being slightly more concrete as it implies specific tasks or decisions to be delegated (Jennergren 1981, pp. 39ff.).

[40] This notion is criticised by Alchian and Demsetz 1972, p. 777; against their view see Williamson 1994, p. 31.

[41] See Arrow [2]1963, pp. 59-60, where he formulates the 'impossibility theorem' as a 'possibility theorem', namely that a particular social choice function can be defined which satisfies the above criteria – but that function is the dictatorial one.

[42] Williamson (1975, Chs. 8-9) who puts forward the internal capital market hypothesis most prominently, associates it generally with the M-form organisation. The above argument attempts to generalise his conception, as other organisation forms with internal capital market properties are possible.

[43] The persistence of manifold organisational arrangements even within industries suggests there may be many equilibria. For this reason, the above analysis does not follow Weber's ([1922] 1978, pp. 956-1005) and Fayol's ([1916] 1967, pp. 19-42) search for the ultimately best shape of the bureaucracy (for a critique see Hill 1981, pp. 77ff. and Dawson 1986, pp. 114-118).

[44] These five elements of the corporate boundaries are also identified by N.M. Kay (1991, pp. 137-154), although his 'resource-based transactional approach' proceeds along very different lines than the analysis presented here.

[45] For an overview of 'macro-' versus 'micro-'organisational issues see Van De Ven 1981, pp. 253-258.

3. Overview of Corporate Restructuring in Non-Financial Companies in the UK and West Germany on the Basis of a Questionnaire Survey[1]

3.1 Introduction

The purpose of the questionnaire survey on which this chapter reports is to provide a descriptive overview of corporate restructuring trends among large non-financial companies in the UK and West Germany for the 1986 to 1996 period. In chapter 2, corporate restructuring was analysed as a multi-faceted phenomenon which cannot be captured by a single indicator or measure. Therefore, published data – which are available *on particular corporate restructuring issues*, e.g. diversification (chapter 4) – do not provide sufficient insight into *corporate restructuring trends as a whole* over an extended period of time. Original information from companies themselves has to be compiled in order to produce such an overview.

The use of questionnaire surveys in social science research has limits and disadvantages. It cannot be guaranteed that the responding individuals are well-informed and honest. In particular in questionnaires such as this one with closed, rather than open-ended questions, the responses are squeezed into predetermined boxes, and the resulting data are necessarily superficial (Robson 1993, p. 243). Moreover, the number of questions that can be asked without deterring the respondents from participating is limited. On the other hand, alternative research strategies (e.g. interviews) are susceptible to problems, too (for an overall discussion of the advantages and disadvantages of mail questionnaires and interview-based techniques see Moser and Kalton [2]1971, Chs. 11-12). The results of this chapter can be compared with the findings of chapters 4 and 5, in which other research methodologies are used.

The survey was carried out in co-operation with the *Financial Times* Newspaper.[2] While the questionnaire was drafted and designed exclusively by the author, the FT printed the questionnaires, and provided helpful points of contact. Moreover, the

editor of the FT, Richard Lambert, was of great assistance in signing the covering letters jointly with Sir Geoffrey Owen.

Section 3.2 describes the survey, including the selection of the target group, analyses the respondents and non-respondents, and discusses the methodology used in the evaluation of the results. Section 3.3 presents the results of the survey in an order that follows the structure of the questionnaire. Section 3.4 provides a critique of the survey. Finally, a summary is given in section 3.5. A copy of the questionnaire is contained in appendix 8.1.

3.2 Description of the Survey

3.2.1 Survey Preparation, Target Group Selection and Data Collection

The aim of the survey is to provide information on the largest non-financial companies in the UK and West Germany. Initially, the intention had been to collect information for the entire 16-year period from 1980 to end-1995. The target group was therefore selected on the basis of lists of large companies from 1980 onwards as described below. Discussions with academics, senior managers and FT journalists led to the conclusion that it would be difficult to obtain information for any period longer than a decade. The results of the survey show that many respondents found it difficult to supply data, in particular on issues relating to the internal structure of their organisation, for the period prior to the 1990s. Extending the time period covered by the survey would have led to a serious reduction in response rates, as managers might have 'given up' on the questionnaire.

The aim was to identify the largest non-financial companies in the two countries, roughly 100 in each, over the period covered by the survey. To this end the 106 largest non-financial companies by turnover in both countries were identified for each year from 1980 to 1995[3], using the TIMES 1000 1980-1995 lists of companies. At this stage of the selection process, it was decided to drop some companies that are listed in the TIMES 1000 as 'industrial' companies[4], but which were mainly concerned with commodity brokerage, merchant or financial services (e.g. trade insurance). In

addition, a few personnel and marketing agencies were excluded, although their portfolios may have included some insignificant industrial activities.

The reason for using the TIMES 1000, which ranks the companies by the turnover criterion, is that this list both provides long historical coverage and covers both countries, using the same criteria.

As a further step, all companies which appeared at least once on any of the 16 annual lists per country were identified. The reason for this procedure was to avoid selection bias problems. The aim was to include not only the top companies in any one year, but also those firms which at any point in the chosen period had been among the largest but which may have decreased in relative size in recent years. This resulted in two consolidated lists of companies for each of the two countries, consisting of 174 British and 186 German corporations.

Not all of these 360 firms could be expected to be in the position to cooperate in the survey, since some of them were no longer independent entities. While it was the aim of the survey to gain information even on those firms which had been taken over, this was difficult in cases where companies had been broken up, or where parts of them had been fully merged with a new parent company. Others had gone bankrupt, making it difficult to identify whether a successor company remained which had taken charge of the main business of its predecessor. In many cases it was a matter of judgement whether to approach a company which after successive reorganisations and changes of ownership was in some way related to a firm in the initial target group. Adapting an inclusive, rather than an exclusive approach, questionnaires were sent to 135 British and 171 German firms (306 firms in total). These figures exclude a few companies where the address of the head office could not be found, or where notice was received by the mail deliverer that the addresses - which had been taken from company manuals - were invalid.

The main reason why the group of British companies was somewhat smaller than the German one is that much more preliminary information had been available on the British firms than on the German ones. It was therefore possible to target the British firms rather closely, excluding those where a response could not be expected for the reasons stated above. This was particularly the case when firms had been taken over by foreign acquirers, which has been much more frequent in British than in German

industry over the past 15 years. Secondly, in the light of the results of the survey, one may hypothesize that the corporate restructuring wave has started later and has taken place at a slower pace in West Germany than in the UK, so that the number of companies which lost their identity - and which therefore had to be excluded - was lower than in the British case.

In June 1996 a pilot study including 12 firms in each of the two countries was conducted. 15 of them responded positively, some with extensive comments on the survey. As a result of these suggestions, two questions in the questionnaire were modified slightly (see sections 3.3.8 and 3.3.12).

In September 1996, the questionnaires were sent out to the full group of companies. A covering letter, asking for the firms' participation, was signed by both Sir Geoffrey Owen and the Editor of the FT, Richard Lambert. In late November 1996 a reminder with another copy of the questionnaire was sent out to those companies which had not responded by then. Positive replies were received from 74 out of the 135 British firms (54.8%) and from 42 out of 171 German firms (24.6%), yielding an overall response rate of 37.9%. For a postal survey containing questions on events as far back as ten years ago this response exceeded the expectations of the author. Some respondents also attached helpful material, such as organisation charts and annual reports; others provided extensive comments on the questionnaire.

As a further step, for those companies which had taken part in the survey, data were collected on two size criteria, namely the number of employees (worldwide) and the total sales of the company, for all years between 1986 and 1996. These data were taken from the following sources:

(1) Electronic sources:

- Datastream
- FAME (*Financial Analysis Made Easy*, a CD ROM edited by JORDAN)
- Disclosure Worldscope

(2) Printed sources:

- Dun & Bradstreet: Business Register. Edition 1998

- Dun & Bradstreet: Key British Enterprises. Editions 1988-1998
- Hoppenstedt: Handbuch der Großunternehmen. Editions 1986-1998
- Hoppenstedt: Hoppenstedt Aktienführer. Editions 1997-1998
- Hoppenstedt: Handbuch der deutschen Aktiengesellschaften. Edition 1994/95
- ICC Business Publications: Regional Sales Leads. Edition [10]1997
- Reed Information Services: Kompass. The Authority on British Industry. Editions 1988-1997/98
- Schmacke (1992)
- The TIMES 1000 Series. Editions 1986-1996.

In addition, where data were not available from these sources, the companies themselves were contacted and asked to provide the information sought. Through this procedure, data on the two size criteria was raised for most years and companies.

3.2.2 Description of the Questionnaire

The questionnaire is the result of an extensive refinement process, during which six versions were produced which were discussed with many researchers. Other questionnaires (e.g. the one used by Geroski and Gregg 1997, and various editions of the *Workplace Industrial Relations Survey*) were studied as well, and the questionnaire was tested through a pilot (see section 3.2.1). It consists of two main sections, in addition to a covering letter inviting the addressees to cooperate. The first section is entitled "changes in the corporate structure", and refers primarily to shifts with respect to the boundaries of firms. The second section deals with "changes in the structure of the head office".

The questionnaire contains closed, pre-coded questions, i.e. a number of alternative answers are provided from which the respondents were to select one or more as indicated, in addition to questions asking for quantitative information. While forced-choice questions have major advantages in terms of avoiding evaluator bias in interpreting open-ended questions and in facilitating quick responses, they can also have disadvantages. In attitudinal research, for example, forced-choice questions "can create false opinions by [...] prompting people with 'acceptable' answers" (de Vaus

1984, p. 74). However, this problem appears unlikely to be serious in the current case, as the questions hardly address the personal opinions of respondents.

The questions are numbered, and are non-overlapping. Some of them have a conditional structure ('if yes, ...'), others are clearly marked as follow-on questions. Negatively worded and double-barreled questions are avoided. Following Sudman and Bradburn (1982, pp. 207-208), the questionnaire starts with some questions which are deemed to be easy to answer, before moving on to issues which may require some in-house research.

Each question is introduced separately, giving advice as to how to answer it. In order to maintain the interest of the respondents, some questions describe and re-emphasise the importance of the matter concerned.

The covering letter names the FT and Centre for Economic Performance at the London School of Economics as joint sponsors of the project, and clearly directs the respondents to return the completed questionnaires to Sir Geoffrey Owen at the CEP. In line with the purpose of the study, it also describes the lack of tangible evidence as the reason for carrying out the survey, and guarantees that respondents and their companies will not be identified. Respondents are promised a free copy of the report that has emerged from this study, if they indicated on the questionnaire that they wished to receive one.

3.2.3 Analysis of Respondents

The questionnaire was sent either to the chairmen or to the chief executives of the companies in the target group. In a few cases, where company manuals or press information indicated that changes in the positions of the CEO or the chairman of the company concerned had taken place recently, the finance director, the personnel / human resource director, or the managing director were approached instead. The following reasons account for the decision to target these top managers of the organisations concerned. First, as the survey relates to issues which are usually dealt with by the administrative centre of companies, including information on corporate head offices themselves, it was necessary to target individuals in the corporate centre. Second, in order to minimise the general problem of postal questionnaires that

addressees *may* not be the best-informed people to answer particular questions, one can at least make sure that individuals are approached who have the authority to delegate the task to those subordinates who are well-positioned to do so (e.g. the company secretary).

The respondents were asked to give their names and contact details on the first page of the questionnaire. In those cases where the respondents complied with this wish, it was sought to identify the positions and job titles of the individuals concerned by using company manuals or by calling their office. In particular, it was sought to establish

- whether the person was a member of the board (in Germany: *Vorstand* or, in private limited companies [GmbH's], *Geschäftsführung*) at the time of the survey;
- which particular function the individual respondent was carrying out;
- whether he or she was the 'head' of this function. Under 'heads' of functions all individuals were classified whose job descriptions indicated that they had chief responsibility in their respective activities, e.g. 'head of public relations', 'chief human resources officer', or, in the case of German companies, *Abteilungs-* or *Bereichsleiter*. In addition, all board members and company secretaries were regarded as 'heads', making this category an inclusive group.

Table 3.1 details the breakdown of the respondent population by board membership.

	British respondents (n=74)	**German respondents** (n=42)	**Total group** (n=116)
Board member	47.3%	21.4%	37.9%
Not board member	47.3%	59.5%	51.7%
Not known	5.4%	19.1%	10.3%

Table 3.1: **Board Membership of Respondents**
Note: Differences between the two groups are statistically significant at $p<0.01$

In one German company the questionnaire was filled in by a member of the supervisory board (*Aufsichtsrat*) who had formerly been a member of the management board. In table 3.1, this respondent is included under 'board member' and in table 3.2 below under 'head of function'. In no British company was the questionnaire filled in by non-executive directors.

As table 3.1 shows, the number of board members and non-board members among the British respondents were equal. With respect to the German group, however, board membership was established for only one fifth of the respondents.
The breakdown by the 'head of function' - criterion is shown in table 3.2.

	British respondents (n=74)	**German respondents** (n=42)	**Total group** (n=116)
Head of function	82.4%	61.9%	75.0%
Not head of function	12.2%	11.9%	12.1%
Not known	5.4%	26.2%	12.9%

Table 3.2: **Position of Respondents in the Organisational Hierarchy**
Note: Differences between the two groups are statistically significant at $p<0.01$

The data in table 3.2 show that three quarters of the respondents were heads of their functions. This finding is particularly well-established for the British respondents, where in only a few cases it proved impossible to identify the position of the respondent. In about 62% of German firms the respondents were heads of their functional areas, while in more than a quarter of cases information was unobtainable.
Based on the results from the data on heads of functions, it can be concluded that the survey was successful in targeting management in top positions in the organisational hierarchy of their firms.

An analysis based on the functional area in which the respondents were active suggests that virtually all of the 100 respondents for which this type of information could be obtained were active in a *central* corporate function, from which a good overview of historical and recent developments in the corporation concerned should be possible. 29 of these were either chief executives, or chairmen, or held both posts. Another six were managing directors. 21 were active in strategic functions called 'corporate planning', 'corporate development', 'strategy' or, in German cases, *'Betriebsführung'*, *'Unternehmensführung'* or *'Betriebswirtschaft'*[5]. Taking all these categories together means that 56% of respondents were occupying generalist functions in a broad sense. Eleven out of 100 respondents were in a financial or accounting-related area, and ten in corporate affairs or public relations.
In sum, participants in the survey were, in the majority of cases, in top managerial positions, and active in some central corporate function.

3.2.4 Analysis of Non-Respondents

Of the total number of 190 companies which did not take part in the survey, 131 did not respond to the questionnaire, whereas the remaining 59 (28 British firms and 31 German firms) replied that they were not willing or able to take part in the survey. The reasons for not responding - if any reasons were given at all - can be classified into three broad categories:

	British group (n=28)	German group (n=31)	Total group (n=59)
Company policy not to take part in surveys	25.0%	9.7%	17.0%
Restructuring has been so drastic that a response would be misleading	10.7%	12.9%	11.9%
Lack of time / work overload	46.4%	35.5%	40.7%
Other / no specific reason	17.9%	41.9%	30.5%

Table 3.3: **Reasons Given for Non-participation**
Note: Differences between the two groups are statistically not significant.

Table 3.3 shows that the main reason given for not taking part in the survey was a lack of time or the amount of work with which corporate head offices deal. Many companies said that the number of questionnaires received has increased in recent years, so that they were unable to reply to all of them. Other companies decided to make it a matter of their general policy not to take part in surveys in general. Interestingly, seven companies (11.9%) said that restructuring had been so far-reaching that the questionnaire could not be filled in, either because the information on earlier years was no longer available after demergers, ownership changes and the like, or because it was felt that the overhaul of corporate structures had been so far-reaching that comparative data for as long as a decade ago would be misleading. This in itself can be understood as an indicator of the extent of the restructuring process that has taken place among large companies in the two countries.

Two of the British companies, but none of the German ones, mentioned their responsibility to their shareholders in their reply, stating that they would not take part in surveys "unless there was an obvious benefit to [the company; A.R.] and our

shareholders". In the UK, cost-cutting appears to have been perceived as an important duty vis-à-vis shareholders.

3.2.5 Description of Respondent Companies

In this section, the respondent companies are described in terms of size and sector affiliation. Before doing this, it should be pointed out that the group of respondent companies does not constitute a *sample*. The selection procedure described above is based on a *population* of companies, all of which were – as far as possible - contacted and asked for their participation. *Consequently, the group of respondent companies is not expected to be 'representative' for the total population of non-financial companies in the UK and West Germany.* The following description shows that the respondent companies employ a sizeable proportion of the workforce of the two countries. Taking this as an indicator, it is arguable that it is worthwhile to investigate restructuring processes in the respondent companies *as they play an important role in the overall economy*, but not as they 'represent' it.

Tables 3.4 and 3.5 summarise employment data for the two groups of respondent companies.

British group					
year	**n**	**mean**	**standard deviation**	**median**	**range**
1986	66	49763	50700	28112	1199-236461
1987	63	51717	51512	30780	1834-235647
1988	62	50465	48535	29931	2040-242723
1989	66	49234	46633	31174	4387-247912
1990	70	48210	49152	28178	1408-237400
1991	68	43282	40237	27350	1706-219000
1992	70	44044	42526	26894	1851-201937
1993	73	39411	38255	25681	1757-212264
1994	71	36567	35966	22600	800-206967
1995	72	36873	33475	24863	1846-180910
1996	72	37883	35028	24699	130-191289

Table 3.4: Employment Data for Respondent Companies (UK)

German group					
year	**n**	**mean**	**standard deviation**	**median**	**range**
1986	38	50450	82003	14550	272-319965
1987	39	50138	80469	14619	270-326288
1988	39	50856	79912	15890	269-338749
1989	39	52565	80150	17644	274-339875
1990	40	54186	84237	17727	276-374217
1991	40	64997	100300	17863	281-396152
1992	41	66971	106395	15080	278-382633
1993	41	65647	103560	14288	277-377471
1994	41	62554	94245	16886	271-342413
1995	40	62287	88566	19311	275-321222
1996	41	58429	82340	19239	271-291268

Table 3.5: Employment Data for Respondent Companies (West Germany)

As can be seen from both tables the sizes of the companies in the two groups vary widely, and the distributions of the observations are highly skewed. The median is therefore the better measure of central tendency than the mean.[6]

In the UK group, median company size increased from about 28000 in 1986 to about 31000 in 1989, to decrease thereafter and reach its lowest level at 22600 in 1994. Test statistics (two-sided tests, using matched pairs of observations) reveal that year-to-year changes in the median are statistically highly significant for all years between 1990 and 1994. This means that among the companies in the group a remarkable 'downsizing' process has taken place during the first half of the 1990s.

Among the group of West German companies, there are no obvious trends. Median company size increases continuously from 14550 in 1986 to 17863 in 1991, to drop back to about its initial level in 1993. Thereafter it increases again to reach more than 19000 in 1995 and 1996. Therefore, in the (more limited) group of West German companies a downsizing process of the kind witnessed among the UK companies is not evident.

With respect to differences between the two groups, Wilcoxon rank-sum tests for the comparison of medians (see table 3.6) show that up to 1990 the typical size of the UK group of companies was significantly larger than the typical size of the companies in the German group. The 'downsizing' among the companies in the UK during the same period of time means, however, that from 1991 onwards the differences in median company sizes are not any longer statistically significant.

Year	Significance level
1986	$p \approx 0.01$
1987	$p \approx 0.01$
1988	$p \approx 0.01$
1989	$p < 0.05$
1990	$p \approx 0.05$
1991	n.s.
1992	n.s.
1993	n.s.
1994	n.s.
1995	n.s.
1996	n.s.

Table 3.6: Comparison of Median Number of Employees between Groups

As stated above, the survey targets the largest non-financial companies in the two countries. Judging on the basis of the employment data, it is clear that the respondent companies are extremely large organisations with up to 248000 and 396000 employees in the UK and West Germany respectively. In every year between 1986 and 1996, the companies in the UK group employ the equivalent[7] of between 9 and 12% of the total UK workforce. For West Germany, with the smaller group of respondents in relation to a larger overall workforce, this figure lies between 6 and 9%. This means that the survey captures a sizeable proportion of the economy of the two countries concerned.

Table 3.7 gives an overview of the main industries in which the respondent companies were active as of 1996. The information was drawn from recent editions of company manuals, such as the Dun & Bradstreet *Europa* handbook, the Price Waterhouse *Corporate Register*, and the TIMES 1000. The final category in the table includes all firms which were active in several sectors, where no sector was identifiable in terms of sales, but also all other businesses which could not be classified into any of the other categories. Therefore, an inclusion into the final category does not necessarily mean that the company concerned had a particularly high degree of diversification.

	British group (n=74)	German group (n=42)	Total group (n=116)
Consumer goods, including household items	21.6%	4.8%	15.5%
Retail, excluding petroleum retailing	6.8%	9.5%	7.8%
Mechanical and electrical / electronic engineering; motor industry	13.5%	33.3%	20.7%
Media	2.7%	-	1.7%
IT and IT support services; telecommunications	5.4%	-	3.5%
Construction and building materials	6.8%	7.1%	6.9%
Chemicals and pharmaceuticals	8.1%	9.5%	8.6%
Transport	4.1%	2.4%	3.5%
Raw materials, including oil production [Δ]	8.1%	2.4%	6.0%
Water / gas / electricity utilities	6.8%	7.1%	6.9%
Metal and metal forming	1.4%	7.1%	3.5%
Other businesses / conglomerates	14.9%	16.7%	15.5%

Table 3.7: **Breakdown of Respondent Companies by Sector**

Note: [Δ] This category includes a number of integrated oil companies which were also active in the retailing of petroleum and derivative oil products.

Table 3.7 shows that among the British respondents manufacturers of consumer and household goods, together with raw materials companies, figure more highly than among the German respondents. In the latter group, engineering companies and metal manufacturers (such as foundries etc.) are much more prevalent.

The differences between the two groups reflect primarily the sector compositions of the country populations to which the questionnaires were sent, rather than a bias among the respondents towards specific sectors.

3.2.6 Methodology

This chapter provides primarily descriptive statistics on the results of the survey. The picture that emerges from these data is expanded, where appropriate, by more qualitative information supplied by the respondents, for example by their written or oral comments and by accompanying material.

In addition to the descriptive overview the chapter also contains the results of statistical analyses that have been employed in order to test whether

- differences *between* the two groups of respondents - the British and the German group - are statistically significant;
- changes over time *within* the two groups yield statistical significance.

In order to test for the significance of differences between groups, Chi-square statistics are employed in many cases. Moreover, two further types of statistical tests are used in order to ascertain the significance of differences within groups over time and between groups with respect to two important measures of central tendency, i.e. the arithmetic mean and the median.

- *t*-tests are applied to differences in means over time and across countries. In order to ensure the applicability of this parametric test procedure for one- and two group comparisons, group size requirements are computed.

One of the insights that the survey yields is the observation that considerable differences exist between the structures of companies, both across and within countries. This finding often has its expression in great ranges of values and highly skewed distributions, when companies are asked for quantitative indicators of their organisational arrangements. Where this is the case, the power of *t*-tests often drops below acceptable levels, given the relatively small number of respondents. This indicates that the median is a better descriptor of the distribution of observations than the arithmetic mean.

- Where medians are the more meaningful measures of central tendency than arithmetic means, median comparison tests are applied. In the case of comparisons over time within groups, test statistics as explained in Snedecor and Cochran ([8]1989) are applied to *matched* pairs of observations, whereas in the case of cross-country comparisons, where two unmatched groups are compared, Wilcoxon's rank-sum test (also known as the Mann-Whitney *U* test) is used.

In sum, statistical tests are employed in order to clarify differences in corporate structures and their changes over time and across groups and thereby to qualify the

results of the survey. In addition, the comments of respondents, or evidence from further material that they attached, are included where they help to detail the results further.

3.3 Results

3.3.1 Changes in Diversification

The first question in the questionnaire addresses the issue of diversification and refocusing. The respondents are asked whether, and to what extent, they have changed their degree of diversification over the past ten years.

Q: "It is widely held that during the 1980s companies have become less diversified and have concentrated on 'core activities' which they know best. Do you feel that this is the case regarding your company?"

	British group (n=71)	**German group** (n=41)	**Total group** (n=112)
Substantial reduction in diversity	53.5%	29.3%	44.6%
Some reduction in diversity	25.4%	22.0%	24.1%
No significant change in diversity	7.0%	14.6%	9.8%
Some increase in diversity	11.3%	22.0%	15.2%
Substantial increase in diversity	2.8%	12.2%	6.3%

Table 3.8: **Changes in Diversification**
Note: Comparison between groups: $p < 0.05$

According to the responses, nearly 80% of the British respondent companies have reduced their degree of diversification, either substantially, or at least to some extent. This coincides with the results of chapter 4. In contrast, 14.1% of the British respondent companies have increased their degree of diversification.

Four of the British companies (representing 5.6% of the total British group) which increased diversity to some extent were former public utilities (mainly electricity companies) which were privatised during the first half of the period that the questionnaire refers to. Under public ownership these utilities had been constrained to operate mainly in their primary industries, resulting in a low degree of diversification. Their proneness to diversify subsequent to privatisation, particularly by acquisition, has been documented by Helm, Aveline, and Lawrence (1992, pp. 30-41).

One British company remarked that they had increased their diversification during the (late) 1980s but decreased it since. Another company had only come into existence (as a highly focused firm) in the early 1990s as a result of a demerger. The manager stated that before the demerger, the parent company had refocused the business division, which now comprises the new company. Both companies, which are excluded from the results in table 3.8, add weight to the finding that most of the British respondent companies underwent refocusing programs, at least during the 1990s.

The German respondents offer a less clear-cut picture with respect to diversification. 'Refocusing' has taken place in slightly more than half of the German firms as well, but there is also a substantial proportion of firms (34.2%) which *increased* the diversity of their activities. One company, excluded from the above data, stated that it began to refocus after 1994, while before that time it had increased its diversification. The same is true for another German company which, after heavy diversification during the 1980s, has been pursuing a far-reaching refocusing strategy since about 1993. A former state-owned firm noted that they are refocusing *currently*, the implication being that little had happened during the earlier part of the period to which the questionnaire refers. These three cases suggest that the refocusing concept has taken hold in West Germany only recently. In addition, one company, which had grown out of the *Mittelstand* sector, remarked that they were "focused traditionally". Although such a single remark must not be over-interpreted, the remark coincides with section 2.2.3 in which many German companies were found to be traditionally specialised.

On balance, among the German respondents comparatively little has changed with respect to diversification; only a few more German companies have reduced rather than increased their diversity.

Statistically, the British and the German groups are different at $p<0.05$. However, it should be emphasised that the question asked about *changes*, rather than *levels* of diversification. The survey does not provide information as to whether industry in the two countries had the same 'starting points' in the mid-1980s. This will be investigated further in chapter 4.

3.3.2 The Use of Outsourcing

In the questionnaire, the issue of changes in the degree of vertical integration of firms is addressed through a question about the extent to which outsourcing and contracting-out have been used since 1986. The use of these techniques shifts the make-or-buy – decision of companies in favour of the latter.

Q: "Has your company since 1986 pursued a strategy of outsourcing and contracting out, i.e. substituting supply relationships with external suppliers for the production of goods and services that had been carried out 'in house' previously?"

Outsourcing / contracting out has been used ...	**British group** (n=74)	**German group** (n=42)	**Total group** (n=116)
To a significant extent	25.7%	19.1%	23.3%
Somewhat	55.4%	42.9%	50.9%
Rarely	17.6%	31.0%	22.4%
Not at all	1.4%	7.1%	3.5%

Table 3.9: **Extent of Outsourcing and Contracting-out**
Note: Comparison between groups: $p \approx 0.108$

According to table 3.9, outsourcing and contracting-out have been almost universal features of the British respondent companies during the past decade. Only one respondent among the British firms said that they had not done so at all. The majority of companies had resorted to these techniques to some extent and more than a quarter had made use of them 'to a significant extent'.

The German respondent companies have used outsourcing as well, but to a lesser extent than their British counterparts. Almost 40% of them said that they had used outsourcing only rarely or not at all, while less than one fifth had used it to a significant extent. Nevertheless, even among the German firms outsourcing and contracting-out have been important features, with more than 60% of respondents having used outsourcing and contracting-out 'somewhat' or 'to a significant extent'.

It was also sought to identify which business functions had been particularly affected by a greater reliance on outsourcing. For three reasons it was decided to ask whether outsourcing has included information technology (IT) services:

- As part of a company's infrastructure, IT services are usually regarded as overheads. It is widely held that restructuring during the 1980s was directed in

particular to this type of cost (see section 6.3.5). Although computing power has become cheaper, shorter life cycles of IT products and the need to keep up with competitors' technology have driven up IT expenses sharply in recent years. In two econometric studies, Loh and Venkatraman (1991, p. 16, and 1992, pp. 15ff.) show that the level of IT costs are a significant determinant of firms' decisions to outsource IT services, and that the [US] stock market generally reacts favourably to such decisions, in particular in cases where cost structures are high and performance low. The notion that greater shareholder power may have induced corporate restructuring will be discussed in ch. 6 below.

- As line operations differ substantially from company to company, it seemed appropriate to ask about the outsourcing of a support function which serves the various business functions across a firm's value chain.
- In the literature (Laudon and Laudon [4]1996, pp. 462-468; Lacity et al. 1995, p. 84-93), IT services are widely regarded as a crucial target of the outsourcing movement since the 1980s. Market surveys show that the market for IT services in both the UK and Germany has been expanding rapidly in recent years.[8]

In the questionnaire, conditional on having pursued outsourcing at all, companies are asked to identify whether this had included IT services or not.

Q: "If you have pursued outsourcing since 1986, has this policy included IT services?"

	British group (n=72)	**German group** (n=36)	**Total group** (n=108)
Outsourcing did include IT services	55.6%	36.1%	49.1%
Outsourcing did not include IT services	44.4%	63.9%	50.9%

Table 3.10: **Outsourcing of Information Technology Services**
Note: Comparison between groups: $p<0.05$

Among the British respondents, more than half of the appropriate companies (n=72) claimed to have outsourced IT services. Among the 36 German companies, around one third said that they had included IT in their outsourcing programs. The two groups are different at $p<0.05$, indicating that among those companies that did outsource the German companies have so far been more reluctant than the British firms to make use of IT outsourcing and contracting out.

While it is not clear whether and to what extent other business functions may have been affected by outsourcing, it is obvious that, in particular among the British respondents, and to a lesser extent among the German ones, IT services have been a prime target for the move towards the out-of-house procurement of services and goods. 'Make-or-buy decisions' appear to have been made increasingly in favour of the latter option.

Outsourcing not only shifts the boundaries of an organisation; it may also entail a devolution of business functions from corporate managers to outside providers, thereby reducing the number or the size of operations over which the administrative centre has control. Further evidence that this trend towards a devolution of functions away from the administrative centre has taken place is given in section 3.3.11 with respect to research and development. On the other hand, the devolution of activities can take place within organisations, without using out-of-house suppliers. This is illustrated by the comments of a British respondent whose firm had used outsourcing, although not with respect to its IT services: "A number of operations that were centralised and which formed part of the head office function have been devolved into the relevant businesses. The central information and computing department, which formed part of the head office function until 1993, was transferred to a newly formed fellow subsidiary that operates at arms length, hence IT has been outsourced but not as generally accepted. The two moves accounted for [...] almost 1000 of the reduction in head office staff between 1991 and 1996. That being said, these devolved operations have themselves seen significant reductions in numbers but organisational changes make it extremely difficult to quantify this with any degree of accuracy".

3.3.3 Management Buy-Outs

Management buy-outs (MBOs) are an important tool for the restructuring of the boundaries of firms. In particular, they are used to reduce the degree of vertical integration and of diversification of companies. They often represent a special form of outsourcing of in-house activities; this applies primarily to support functions.

Table 3.11 reports the responses with respect to the proportion of companies which have experienced MBOs of any parts of their operations, while table 3.12 focuses on the number of MBOs involved since 1986.

Q: "Has your company since 1986 had management buy-outs of any parts of its operation?"

	British group (n=74)	German group (n=42)	Total group (n=116)
Yes	59.5%	21.4%	45.7%
No	40.5%	78.6%	54.3%

Table 3.11: Occurrence of Management Buy-outs
Note: Comparison between groups: $p<0.001$

Q: "If yes, how many?"

Number of MBO's	British group (n=44)	German group (n=9)
Not known	12	3
1	11	3
2	6	1
3	5	2
4	2	-
5	3	-
7	1	-
8	1	-
10	2	-
17	1	-

Table 3.12: Number of Management Buy-outs

Tables 3.11 and 3.12 show that, over the past ten years, MBOs have been significantly more widespread among the British than among the German respondent companies. In the German group, only about one fifth of large corporations have been involved in MBOs, while this figure approaches three fifths in the British case. In addition, the number of MBOs in those British companies which did experience them is considerably higher than in the nine German companies which experienced MBOs. There are three British firms which, on average, sold at least one of their parts per year to former managers.

Of the total of 15 companies which were not able to give the number, the three German firms remarked that they had 'few' MBOs. One German car manufacturer further explained that MBOs were not typical for the group. Most of the 12 British

respondents concerned did not give any indication of the number of MBOs, with only one company stating that it had 'several' MBOs.
In sum, the British respondent firms have had more MBOs than their German counterparts.

3.3.4 Insert: Management Buy-Outs in the UK and West Germany according to Published Information

According to the findings of the previous section, large British firms have used MBOs significantly more frequently than their German counterparts to divest themselves of unwanted operations. This result is confirmed by an analysis of data supplied by the *Centre for Management Buy-Out Research* (CMBOR) at the University of Nottingham. These data are used in this *insert* to put forward a twofold argument: Firstly, it is shown that the total MBO market in the UK exceeds the West German market by far, both in terms of the number of MBOs, and in terms of their value. Secondly, and of greater importance in the context of this thesis, by analysing the various sources of such transactions it is found that in the UK far more MBOs have been used *for the purpose of corporate restructuring* than in West Germany.

A management buy-out is a special form of an acquisition, in which one or more managers of a firm buy the company or one of its parts and thereby become the owners of the firm. Generally speaking, the management will not have sufficient capital available to finance the acquisition, so that virtually all MBOs rely heavily on outside capital. The future cash flow of the bought-out company itself serves as a security for the debt with which it was bought. The – at least initial - indebtedness translates into a high degree of leverage, so that MBOs are often regarded as a particular type of leveraged buy-outs (LBOs). While the latter term is somewhat wider, denoting all sorts of acquisitions where outside financiers supply an unusually high degree of debt to buy a firm, many LBOs are in fact MBOs, as the team of external financiers, the so-called LBO sponsors, usually can ill-afford to do without the experience and the know-how of at least some of the management of the company concerned.[9]

MBOs can be used for five major purposes:

(1) An LBO sponsor can fund an acquisition of a company (or part of it) which until then had been quoted on the stock exchange, so that the acquired firm in its entirety 'goes private', i.e. it is taken off the stock market (for details see Graebner 1991, pp. 17ff.).

(2) Buy-outs can be a way to 'lift' or rescue companies from receivership.

(3) MBOs have also been used as privatisation techniques for the sale of state-owned assets. This has been particularly the case in East Germany since unification (for details see the Bundesanstalt für vereinigungsbedingte Sonderaufgaben 1995, p. 2; Freese 1995, p. 117; Hoffmann and Ramke 1992, p. 147; see also Randlesome 1994, pp. 192-194).

(4) A buy-out can be used as an arrangement to secure the managerial succession in firms.

(5) Buy-outs can be used in the context of a corporate restructuring process, during which a company sells one of its parts to management. This type of MBOs, which in the following are called 'restructuring MBOs'[10], has been used mainly for two purposes. First, to reduce the degree of vertical integration of the divesting firm, and in particular the integration of support activities such as canteens and cleaning services, but also more 'advanced' operations such as information technology services. If the divesting company continues to purchase services from the divested unit, the MBO represents a particular form of outsourcing; i.e. in-house procurement is replaced by market contracting. Second, restructuring MBOs have been employed to reduce the degree of diversification of firms. Companies have used MBOs as divestment techniques so as to focus on their 'core business' and to reduce their peripheral (i.e. less closely related or even unrelated) activities (for a case study see Griffiths 1988, pp. 52ff.; more generally see Wright, Coyne and Robbie 1987, pp. 7ff.). Therefore, 'restructuring MBOs' form part of the overall corporate restructuring movement for which evidence is provided in this chapter.

In the US, MBOs have also been used as means of hostile takeover, but these cases have been extremely rare in Europe. On the other hand, MBOs can be employed as takeover defenses by an embattled management. Additionally, the use of MBOs is

influenced by tax considerations. In particular, the fact that interest payments are regarded as expenses chargeable on income which relieves against taxable profits (whereas dividend payments, including dividends to preference shares, do not count as expenses) means that most tax systems treat debt better than equity (for details see Attwood 1988, pp. 67-82). On the other hand, tax considerations cannot be regarded as a sufficient rationale for conducting MBOs as there are many other ways of increasing the debt/equity ratio of companies than through MBOs.

The first MBO market to develop to a significant extent was the US market at the end of the 1970s, leading to the American MBO wave of the 1980s. The second MBO market that followed suit was the British one, which increased to a significant extent from 1981 onwards to reach its peak by aggregate value in 1989 and by numbers in 1990 (see table 3.13). The UK has also an unusually large number of management buy-ins (MBIs). Between 1988 and 1997, the UK has seen between 374 and 490 MBOs per year. The total value of the buy-out market increased to more than £2bn in every year since 1987. The years between 1987 and 1989 are particularly remarkable for the size of the transactions, which reached an average of £9m to £10m per deal, up from an average of £3m to £4m per MBO in 1985/86, before falling back to a figure of around £5m in the years after 1989. From 1995 to 1997 the MBO market has expanded significantly again. The MBO market in the UK is by far the largest one in Europe, both in terms of the number of MBOs, and in terms of its total value.

	MBOs in the UK	
Year	**Total number**	**Aggregate value (in £m)**
1979	18	14
1980	36	28
1981	145	180
1982	237	346
1983	235	366
1984	242	408
1985	261	1135
1986	315	1179
1987	343	3132
1988	379	3795
1989	378	3889
1990	490	2447
1991	450	2162
1992	455	2550
1993	391	2162
1994	403	2513
1995	374	2822
1996	433	3651
1997	446	4449

Table 3.13: Number and Value of MBOs in the UK, 1979-1997
Source: Centre for Management Buy-Out Research Quarterly Review, Spring 1998, p. 68

The MBO market in Germany has started to develop only since about 1985 (Hoffmann and Ramke, 1992, pp. 37ff.), and to a more significant extent only since German unification. While there are no year-by-year figures available for the period until 1987, *Initiative Europe* and the CMBOR estimate the total number of MBOs in Germany for the period from 1980 to 1986 to be around 45. In 1988, the number of MBOs in West Germany reached a total of 36. During the first half of the 1990s the market expanded significantly to reach a peak in terms of numbers of MBOs (at 74) in 1995 and, in terms of value, in 1996 (total market value of £1.148bn). This means that as of 1996 the West German MBO market had 14.3% of the size of the UK market as measured by the number of MBOs, and 31.4% of its aggregate value. Even when discounting for the fact that there may well be a number of smaller MBOs in Germany which are not publicly known, it is clear that the West German MBO market has only a fraction of the size of the UK market (see also Wright, Thompson and Robbie 1990, p. 25).

	West Germany	
Year	**Total number**	**Aggregate value** (in £m)
1980-1986	45	n.a.
1987	8	n.a.
1988	36	n.a.
1989	25	485
1990	36	292
1991	27	224
1992	52	322
1993	44	397
1994	59	733
1995	74	540
1996	62	1148

Table 3.14: Number and Value of MBOs in West Germany, 1980-1996

Source: *Initiative Europe* and *Centre for Management Buy-out Research,* University of Nottingham

The available data on the MBO market do not allow to determine the exact purpose of individual transactions; this would be possible only in case-study based research. However, the *source* of an MBO is a main indicator for the purpose it serves. Buy-outs from families, for example, enable individuals or families to exit their investment in an enterprise, in particular in situations where managerial succession for a company is to be arranged. 'Restructuring buy-outs' in the above sense are buy-outs from domestic or foreign parent companies, which divest one or more of their activities to management, while continuing to conduct other businesses. In this way, data on the sources of buy-outs can be used to assess the importance of MBOs in the context of corporate restructuring in the UK and West Germany.

The information provided by the CMBOR on buy-out sources in the UK and Germany is based on more than 80% (in the recent years: more than 90%) of the total number of buy-out cases as listed in tables 3.13 and 3.14. For the remaining cases this type of information was not obtainable. However, these remaining cases of buy-outs are somewhat more likely to represent buy-outs from families, as information on these types of buy-outs are generally more difficult to obtain than is the case with the other sources of buy-outs.

	Pre-1982	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Receivership	12.1%	14.2%	7.0%	10.8%	1.7%	1.7%	0.6%	2.2%	0.8%	13.2%	19.2%	19.0%	16.0%	3.9%	5.1%	4.5%
Divestment (Local parent)	59.5%	62.4%	66.5%	62.1%	61.5%	58.8%	51.0%	51.7%	54.6%	44.1%	43.4%	46.7%	39.0%	41.3%	40.2%	38.8%
Divestment (foreign parent)	14.7%	10.2%	11.5%	11.8%	12.4%	13.7%	10.6%	9.5%	6.8%	7.7%	9.7%	7.0%	13.7%	12.6%	10.1%	8.2%
Family	11.1%	9.1%	11.0%	13.3%	20.9%	19.6%	26.1%	28.8%	30.8%	28.5%	24.0%	23.9%	27.6%	35.3%	39.9%	40.9%
Privatisation	2.6%	4.1%	4.0%	2.0%	3.0%	5.5%	10.3%	6.1%	4.6%	4.8%	2.3%	2.5%	3.4%	6.1%	4.2%	6.3%
Going private	0.0%	0.0%	0.0%	0.0%	0.4%	0.7%	1.3%	1.7%	2.4%	1.7%	1.4%	0.9%	0.3%	0.8%	0.6%	1.3%

Table 3.15: **MBO Sources in the UK (in % of the total number of MBOs in any particular year), 1982-1996**
Source: *Initiative Europe* and *Centre for Management Buy-Out Research*, University of Nottingham

	1980-1990	1991	1992	1993	1994	1995	1996
Receivership	4.3%	3.8%	2.3%	7.5%	5.6%	1.6%	2.1%
Divestment (Local parent)	21.6%	46.2%	39.5%	37.5%	33.3%	58.1%	42.6%
Divestment (foreign parent)	36.2%	38.4%	23.2%	20.0%	18.6%	21.0%	21.3%
Family	37.9%	11.5%	32.6%	35.0%	40.7%	16.1%	34.0%
Privatisation	0.0%	0.0%	0.0%	0.0%	1.9%	3.2%	0.0%
Going private	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	0.0%

Table 3.16: **MBO Sources in West Germany (in % of the total number of MBOs in any particular year), 1980-1996**
Source: *Initiative Europe* and *Centre for Management Buy-Out Research*, University of Nottingham

As table 3.15 shows, divestments from domestic and foreign parents are the dominant sources of buy-outs in the UK (see also Wright, Coyne and Robbie 1987, pp. 1-22; Wright, Thompson and Robbie 1990, pp. 10ff.; Wright 1992, p. 4). In every year between 1982 and 1996, between 78% (in 1983) and 47% (in 1996) of the total number of buy-outs were from divestments. While the *ratio* of buy-outs from divestments to the total number of buy-outs has been declining, the expansion of the total MBO market means that the *absolute number* of buy-outs from divestments has remained on a high level of between 170 and 250 in every year since 1982. Among these divestments, most are from domestic rather than foreign parents. As compared to these 'restructuring MBOs', other buy-out sources contribute significantly less to the UK buy-out market, although the share of buy-outs from family-owned companies has been increasing in recent years.

In terms of transaction *values*, buy-outs from divestments account for about the same proportion of MBOs as indicated by their numbers. Divestments from foreign parents appear to be slightly larger than the average transaction, with 11.1% of all MBOs accounting for 14.1% of the total UK buy-out market (see Wright, Thompson, and Robbie 1990, appendix, table 9).

In sum, divestments from British and foreign parents are the most important sources of buy-outs in the UK. This holds true regardless of whether the number or the value of buy-outs is considered.

In West Germany, buy-outs from divestments also account for a substantial proportion of the buy-out market: In the years between 1991 and 1996, between 33 and 58% of all buy-outs came from German parents, in addition to 18-38% from foreign parents (table 3.16). Overall, between 52 and 85% of the total number of the buy-outs came from divestments from German or foreign parent groups, and according to Robbie and Wright (1996, p. 55) the importance of buy-outs from divestments is likely to increase. Between 1980 and 1990, divestments from foreign parents were actually a more important buy-out source than divestments from domestic parents, indicating the earlier reluctance of German corporations to use the MBO tool. The relative importance of foreign sellers of German operations to management has, however, decreased to about 20% of all buy-outs in recent years.

However, the figures for the *relative importance* of divestments from domestic and foreign sources have to be interpreted in view of the context of the underdevelopment of the German buy-out market in absolute terms. In the years between 1991 and 1994, there were 30 or less MBOs from these sources in Germany. This figure has increased to approximately 59 in 1995, to recede again to about 39 in 1996. Although this indicates that corporate restructuring may play an increasing role in the future development of the German buy-out market, the volatility of this market means that it is difficult to establish a clear trend so far. However, even in 1995, when buy-outs from divestments soared in West Germany, the number of German buy-outs from divestments was only 30.9% of the respective figure for the UK, while in earlier years such as 1991 the appropriate figure was only 10%. In sum, despite the larger size of the West German economy, there is a much lower incidence of MBOs from divestments ('restructuring MBOs') in West Germany than in the UK. This confirms the finding from section 3.3.3 that the West German respondent firms have been much more reluctant to divest themselves of operations through MBOs than their counterparts in the UK.

3.3.5 Mergers and Demergers, Acquisitions and Divestments

Mergers and acquisitions, together with demergers and divestments, are means to redraw the boundaries of firms with respect to their horizontal, vertical, diversifying and geographic dimensions. Aggregate data show that both countries have experienced acquisition waves during the 1980s and early 1990s (for the UK see the *Annual Overviews* in *Acquisitions Monthly*, which also provide information on the divestment wave in the UK, and Richter 1997b, pp. 6-7; for Germany see the reports of the Federal Cartel Office, e.g. Deutscher Bundestag 1995, pp. 148ff.; also Müller-Stewens and Schäfer 1997a, pp. 5-27 and 1997b, p. 32ff.). In the questionnaire, companies are asked whether their size has been altered by large-scale mergers or demergers, acquisitions or divestments. Table 3.17 details the results. At the right-hand side of the brackets the proportion of companies that had either mergers (demergers) or acquisitions (divestments), or both, is given.

Q: "Has the size of the organisation over the last 10 years been significantly altered by large-scale mergers or demergers, acquisitions or divestments?"

	British group (n=71)	German group (n=42)	Total group (n=113)
Mergers Acquisitions	19.7% 80.3% } 84.5%	33.3% 83.3% } 90.5%	24.8% 81.4% } 86.7%
Demergers Divestments	14.1% 53.5% (**) } 54.9% (*)	11.9% 23.8% (**) } 28.6% (*)	13.3% 42.5% } 45.1%
Proportion of firms experiencing any of the above	93.0%	95.2%	93.8%

Table 3.17: Occurrence of Large-scale Mergers and Acquisitions, Demergers and Divestments
Note: Comparisons between groups: * $p < 0.01$ ** $p < 0.005$

The last row of table 3.17 shows that virtually all respondent companies have experienced mergers, acquisitions, demergers or divestments which affected their size. Four of the seven companies which did not have any of these changes are either state-owned firms or companies that were privatised during the past decade. One of these remarked that they had made some small acquisitions.

More than four fifths of the respondent companies have engaged in mergers and acquisitions over the past ten years. While the proportion of mergers is considerable, particularly among the German group, it is clear that the main external growth strategy is via acquisitions, rather than mergers. Some companies, which are not included in the above figures, indicate that they have pursued minor acquisitions only. It is notable that the proportion of German companies which had large-scale mergers and acquisitions exceeds the comparable figure for the British group, although these differences are not statistically significant.

However, table 3.17 shows statistically significant cross-country differences between the extent of disposals. While few demergers have taken place, divestments were much more common in the British than in the German group of respondents. Whereas more than half of the large British companies divested businesses in a way that significantly altered their size, less than a quarter of the German firms pursued such disposals.

Two follow-on questions address the issue of which particular dimensions of the companies' boundaries were affected by these mergers and acquisitions. The question on which table 3.18 reports asks whether mergers and acquisitions were vertical, horizontal, or conglomerate in character. The questionnaire makes it clear that the expression 'vertical M&A's' relates to the integration of companies which up to the time of the acquisition were among the suppliers or customers of the acquirer, while the integration of target companies which were competing in the same business line is called a 'horizontal M&A strategy'.

The respondents are given the opportunity to identify several directions of their M&A strategy; therefore the figures in table 3.18 add up to more than 100%.

Q: "If you have engaged in large-scale mergers and acquisitions, has your strategy been to merge with / acquire companies which until then

	British group (n=57)	German group (n=38)	Total group (n=95)
were your suppliers or customers ('vertical' M&A's)	5.3% **	23.7% **	12.6%
were competing in the same line of business ('horizontal' M&A's)	93.0%	84.2%	89.5%
were pursuing a business unrelated to what you were doing (unrelated M&A's)"	15.8% *	34.2% *	23.2%
companies with multiple M&A strategies	14.0% ***	39.5% ***	24.2%

Table 3.18: Horizontal, Vertical and Diversifying M&A Strategies
Note: Comparison between groups: *** $p < 0.005$ ** $p < 0.01$ * $p < 0.05$

According to table 3.18, the British respondent companies showed a strong preference for horizontal acquisition strategies. While there are still a number of unrelated acquisitions across all industries, vertical acquisition strategies have been rare among the British firms. The exception to the latter observation are three companies in the consumer goods industries. Evidence from accompanying letters to the questionnaire responses, as well as from annual reports and press material, suggests that one of these three firms acquired its retail outlets, while the two others bought distributors for part of their product ranges. This indicates that the few vertical M&A strategies among the British respondents were geared towards downstream, rather than upstream activities.

For the German companies, the results are more mixed. As in the UK group, the highest proportion of German respondent companies has pursued horizontal M&A's. However, a considerable number of companies, significantly more than in the UK group, have also pursued unrelated and vertical M&A strategies. Almost 40% of the German firms have pursued multiple acquisition strategies with at least two of the three strategic options given. These results are consistent with the findings on diversification and refocusing strategies detailed in section 3.3.1.

Secondly, the respondents are asked to identify the geographical direction of their merger and acquisition strategies. They are invited to endorse one of the three options available to them (table 3.19).

Q: "Has your M&A activity been mainly geared towards

	British group (n=59)	**German group** (n=37)	**Total group** (n=96)
domestic M&A's	28.8%	32.4%	30.2%
overseas M&A's	50.9% **	29.7% **	42.7%
roughly equal weight between domestic and non-domestic M&A's"	20.3% *	37.8% *	27.1%

Table 3.19: Geographical Direction of M&A Strategies
Note: Comparison between groups: ** $p < 0.05$ * $p < 0.1$

In both groups, only about one third of the respondent companies had domestically oriented merger and acquisition strategies, and the two groups are statistically not different in this respect. However, differences do exist between the groups from the two countries with regard to the emphasis with which international acquisition strategies have been pursued. Among the British companies, half of all M&A strategies were directed primarily towards overseas countries, and only about 20% towards domestic and overseas targets on a roughly equal basis. The British companies exhibit a predominantly international M&A strategy.

Among the German companies, on the other hand, predominantly international M&A strategies make up only about 30% of all M&A strategies. Most M&A's were directed towards a balanced mix of domestic and overseas strategies. It has to be taken into account, however, that German unification, which opened up a large domestic acquisition market to German companies, occurred in the period covered by the survey.

3.3.6 Hybrid Modes of Organisation: Joint Ventures and Strategic Alliances

In order to ascertain the extent to which companies in the two countries have engaged in hybrid forms of organisation, the respondents are asked to identify how strongly they have pursued joint ventures and strategic alliances (table 3.20). In addition, they are asked to detail the number of joint ventures pursued over the past decade and the proportion of sales generated through them as of 1996 (table 3.21).

Q: "Have you engaged since 1986 in a policy of joint ventures and strategic alliances with other companies?"

	British group (n=74)	**German group** (n=42)	**Total group** (n=116)
Strongly pursued joint ventures / strategic alliances	51.4%	42.9%	48.3%
considered joint ventures / strategic alliances as options, but did not pursue them strongly	35.1%	38.1%	36.2%
did not pursue joint ventures / strategic alliances	13.5%	19.1%	15.5%

Table 3.20: Joint Ventures and Strategic Alliances
Note: Differences between groups are statistically not significant.

According to table 3.20, the use of joint ventures and strategic alliances has been widespread. Almost half of all respondent companies in the two countries have strongly pursued these forms of co-operation with other firms, and most of those which did not do so have at least considered them. The responses suggest that the British companies have pursued joint ventures and strategic alliances somewhat more strongly than the German companies, but these differences are statistically insignificant. A sector with particularly numerous joint ventures (in both countries) is the construction industry (including building material suppliers), where these organisational arrangements have been used for a long time. Similarly, companies involved in raw material and fuel exploration made heavy use of joint ventures. An executive of a big British oil company remarked on the questionnaire, the "normal form of business in upstream oil [i.e. crude exploration; A.R.] is joint venture".
In table 3.21, only those companies which had at least considered joint ventures and strategic alliances are included.

Q: "[...] How many joint ventures/strategic alliances have you engaged in?"
Q: "[...] What percentage of your sales is now represented by joint ventures?"

	mean	standard deviation	median	range
Number of j.v. & s.a. (1986-1996):				
British group (n=49)	7.5	9.8	4	1 - 50
German group (n=24)	9.7	18.8	5	1 - 90
% of sales represented by j.v. & s.a. in 1996:				
British group (n=52)	10.1%	0.137	6.5%	0% - 80%
German group (n=27)	12.5%	0.132	10%	0% - 50%

Table 3.21: **Number of Joint Ventures and Strategic Alliances and Proportion of Sales Represented by Them**

Note: Differences between the measures of central tendency for the two groups are statistically insignificant.[11]

As table 3.21 shows, the extent to which joint ventures and strategic alliances have been resorted to differs widely across companies, as indicated by the large standard deviations and the sizeable ranges. There are a few companies which have been involved in 50 joint ventures or more; again, these firms are concentrated in the construction industry. Asked for the number of its joint ventures, one German construction company responded in the questionnaire: "several hundreds"[12], while a British building contractor noted that they were "too numerous to identify - joint ventures are commonplace in our industry". On the other hand, the majority of companies in both groups had only up to six joint ventures. The German companies seem to have pursued more joint ventures (consequently representing a larger fraction of sales) than their British counterparts, but these differences are statistically insignificant.

In companies which have pursued joint ventures and strategic alliances, these accounted for, on average, slightly more than 10% of turnover as of 1996. In both groups, however, there are a number of companies with joint ventures and strategic alliances which are insignificant in terms of sales; these are represented by 0% in table 3.21.

It should be noted, however, that the figures for the proportion of sales attributable to joint ventures and strategic alliances can give only a very rough guide as to their importance. Firstly, these figures are distorted by the fact that, according to European

law[13], 50% of sales from 'joint undertakings' to third parties are consolidated at overall sales level, regardless of the shares of the various parties in these undertakings. This misrepresents the importance of the venture, if the share of a company in the joint venture differs considerably from 50%. Secondly, joint ventures do not necessarily involve joint sales activities. A British pharmaceutical company with as many as 30 joint ventures and strategic alliances over the 1986-1996 period remarked that joint ventures accounted only for a small proportion of its sales as their "joint ventures and strategic alliances tend to be in research and development rather than sales and marketing". Similarly, an electricity generator with five joint ventures noted that these had taken place on a project basis, without resulting in tangible sales. Therefore, the first and the second questions on joint ventures and strategic alliances in the survey (tables 3.20 and 3.21) may offer a better guide to the importance of joint ventures and strategic alliances than the sales data taken on their own.

3.3.7 Managerial Layers

The remaining questions in the questionnaire survey address changes in the internal organisation of firms, starting with the number of managerial layers. Participants were asked for the number of managerial layers at three points in time (1986, 1991 and 1996). In order to make the answers to the question comparable, the respondents were asked to consider only the main operating business of their company. If the company had several businesses which they regarded as crucial, they were advised to consider the largest one in terms of turnover.

Q: "[...] Please consider the main operating business of your company (if you have several that you regard as crucial, take the largest one in terms of turnover). We would like to know whether the number of layers of management from the top to the bottom in your main operating business has changed over the last decade. Can you please give the number of managerial layers that you recognised at the following points in time."

		Mean	standard deviation	median	range
British group	1986 (n=52)	7.0	3.0	6.5	2 – 14
	1991 (n=58)	5.8	1.8	6.0	3 – 10
	1996 (n=63)	4.7	1.5	5.0	1 – 10
German group	1986 (n=34)	5.4	1.6	5.0	3 – 9
	1991 (n=35)	4.6	1.4	5.0	1 – 7
	1996 (n=37)	4.4	1.5	4.0	2 – 11

Table 3.22: Number of Managerial Layers in the Main Operating Business of Participant Companies

Table 3.22 shows that the average number of managerial layers in the main operating businesses of the British respondent companies has decreased from 7 to less than 5 over the period under consideration. The rate of reduction has been roughly constant over the ten-year period. On average, it seems to haven taken between four and five years to reduce the number of managerial layers by one.

Among the German respondent companies, a reduction in the number of managerial layers has also taken place. However, this reduction started from a considerably lower level than in the British case. Consequently, the reduction has not been as strong as among the British firms. In 1996, the average number of managerial layers in the German companies was only slightly below the comparable British figure.

Both the changes over time (within groups) and the differences between groups can be tested for statistical significance. The following matrix shows the significance levels of year-to-year mean comparison tests.

	British group		German group	
year	**1986**	**1991**	**1986**	**1991**
1991	$p<0.0005$	-	$p<0.0005$	-
1996	$p<0.0001$	$p<0.0001$	$p<0.0001$	$p<0.001$

Table 3.23: Comparison of the Mean Number of Managerial Layers over Time

According to these results all reductions in the mean number of managerial layers within both groups prove highly significant. Therefore, the average number of

managerial layers among the British and the German respondents in 1996 was significantly lower than it was ten or even only five years earlier.

The decreasing trend in the number of managerial layers, particularly among the British firms, is also confirmed by those companies which were unable to supply exact figures. Three companies active in the production and distribution of consumer goods remarked on the margin of the questionnaire: [number of layers] "has decreased significantly", "reduced - number not known", and (as of 1996) "less than in 1991". Another company in the same industry had changed its entire business system, but stated that "there has been general 'de-layering'." One German respondent stated that the number of managerial layers as of 1996 was three, and that this number had been reduced from 4-5 in 1986, which confirms the decreasing trend for the German group.

Mean comparison and Chi-Square tests can also be applied to the differences in the number of managerial layers between groups at the three points in time (table 3.24). However, it is important to point out that the results of the survey do not allow to control for the size of the main operating business, which may well have been different in the two countries at any of the three points in time.[14]

	Mean comparison test	Chi-Square test
1986	$p<0.005$	$p<0.1$
1991	$p<0.005$	n.s.
1996	n.s.	n.s.

Table 3.24: Differences in the Number of Managerial Layers between Groups

The results reported in table 3.24 show that in 1986 the British respondent companies had significantly more layers of management in the main operating businesses than their German counterparts. Due to the sharp decrease in the number of layers, the British firms became more similar to the German firms over the second half of the 1980s and first half of the 1990s.

3.3.8 Administrative Costs

In section 2.2, the emergence of complex administrative hierarchies was described as an important characteristic of the historical growth process of large industrial enterprises. The development of administrative structures enabled companies to extend

their boundaries so as to economise on external transaction costs and to pursue growth strategies. On the other hand, potential transaction cost savings of integration have to be balanced against the direct and indirect costs of administrative structures (section 2.3.3).

The questionnaire addresses the issue of direct administrative costs in relation to total labour costs. Participants are asked to identify whether the ratio $\frac{administrative\ costs}{total\ labour\ costs}$ has changed over time (i.e. since 1986); in order to emphasise this, the word 'ratio' is printed in bold letters.[15]

> Q: "This question relates to the share of administrative costs of total labour costs in your company. How has the **ratio** $\frac{administrative\ costs}{total\ labour\ costs}$ changed over time (i.e. since 1986)?"

	British group (n=67)	**German group** (n=38)	**Total group** (n=105)
Increase	23.9%	29.0%	25.7%
No change	10.5%	18.4%	13.3%
Decrease	65.7%	52.6%	61.0%

Table 3.25: **Changes in the Share of Administrative Costs in Total Labour Costs**
Note: Differences between the two groups are statistically not significant.

According to these results, in the majority of companies, administrative expenses account for a smaller fraction of total labour costs in 1996 than they did in 1986. Almost two thirds of the British respondents stated that they had reduced the ratio of administrative costs to total labour costs. According to another 10% of these firms, this ratio has not increased.

A similar picture emerges for the German response group. Although the proportion of British firms which has reduced the AC/TLC ratio is somewhat greater than the comparable German proportion, the differences are statistically not significant. Interestingly, one British company (an electricity generator) noted that the AC/TLC ratio had decreased between 1986 and 1991, but had remained constant since then.

The results of section 3.3.7 and 3.3.8 suggest that a far-reaching overhaul of the administrative structures of the respondent companies has taken place between 1986

and 1996. The trend has been towards 'leaner' structures, both in terms of the number of managerial layers, and in terms of administrative costs.

3.3.9 Span of Control

The declining trend in the number of managerial layers raises the question as to what has happened with respect to managerial control. According to section 2.3.3, a 'flattening' of organisational hierarchies should occur with an increase in the span of control of managers.

In the questionnaire, the term 'span of control' is defined as "the number of heads of operating businesses (whether they are called divisions or groups or anything similar) who report directly to the head office". This formulation was chosen as the organisational units below head office level may have different names in different firms. Moreover, organisational structures often have mixed forms: In some large organisations (e.g. Hoechst) the broadest unit below head office level is the division, comprising a number of subsidiaries, while one or two large operating subsidiaries may report to the centre directly, rather than through divisional headquarters. The same may apply to operating subsidiaries which serve the different divisions within the company, or to joint ventures which, because of the stake that another company holds in them, may not fit into the 'normal' divisional structure of the company.

It is important to point out that the term 'span of control', as used in the questionnaire, is not an attribute of persons (i.e. superordinate individuals), but of a superordinate *body*, namely the corporate head office. Therefore, the prediction derived from sociological theory, namely an increase in the span of control of *managers* due to a reduction in managerial layers, is not expected to apply necessarily in this case.

Given the trend towards reduced diversification and the use of outsourcing, particularly among the British respondent companies, one may expect the span of control, as defined here, to have decreased over the past decade. On the other hand, the tendency towards international operations might have counteracted this trend to some extent, as the breakdown of operations into divisions sometimes follows geographic criteria. Hence, in connection with their globalisation, companies might

have set up additional area-divisions. This might have counterbalanced the reduction in the span of control to some extent.

Q: "The following question relates to the span of control of top management. In this context, 'span of control' means the number of heads of operating businesses (whether they are called divisions or groups or something similar) who report directly to the head office. Could you please give us, for the following three points in time, the number of heads of operating businesses who reported directly to the head office?"

		mean	standard deviation	median	range
British group	1986 (n=49)	14.7	20.0	8.0	2 – 100
	1991 (n=61)	10.0	14.4	6.0	1 – 100
	1996 (n=67)	9.9	15.8	5.0	2 – 100
	[n=66]	[8.8]	[13.0]	[5.0]	[2 – 100]
German group	1986 (n=27)	16.3	17.6	8.0	1 – 68
	1991 (n=27)	16.6	18.9	8.0	3 – 68
	1996 (n=30)	16.0	16.6	8.5	1 – 70

Table 3.26: **Span of Control of Top Management**
Note: Data in parentheses are based on the British response group excluding BP, for reasons explained below.

Table 3.26 shows that in the British respondent companies the span of control has decreased by almost one third between 1986 and 1991. Since then the decrease has slowed down considerably. It is noteworthy, however, that in particular the British companies are extremely varied with respect to the span of control, as indicated by the large standard deviations and the sizable ranges. The distribution of values is positively skewed.

Among the German respondents, the span of control has not changed much in the decade since 1986. It has remained constant at, typically, eight to nine heads of operating businesses who report directly to the head office, i.e. at roughly the same median as in the British case in 1986.

One German respondent who was unable to provide exact figures remarked that his company had seen an increase in the span of control from 1986 to 1991, but a decrease since then. What is even more notable, however, is his suggestion that movements in the span of control are driven by changes in diversification, the suggestion made earlier in this section. In addition, a second remark of the same respondent draws attention to an arrangement which - according to press reports - is becoming more widespread: the consolidation of different operating units, and the merger of major operating businesses with the holding company, i.e. the managerial centre. Both these forms of

'internal mergers' are designed to reduce administrative costs, to cut out managerial layers, and to shorten the lines of communication. They also entail a reduction in the span of control, as defined in this section.

The slow reduction in the span of control between 1991 and 1996 in the British case appears somewhat surprising, given the large decrease that had taken place in the five years preceding 1991. This calls for a closer look at the data for the individual respondent companies. In doing so, it becomes clear that the 'slowdown' in the British case is partly due to one particular company, British Petroleum Co. plc (BP). In line with the general trend, BP had decreased its span of control from 11 in 1986 to 4 in 1991, but then increased the figure to 84 in 1996. As a rationale for this change, the manager who had filled in the questionnaire said that "BP has moved from a business stream organisation to a business unit organisation over the last year. This has resulted in the removal of a tier of management - the business stream HQ [headquarter; A.R.]. Now the business units report directly into the Global Business Centre".[16] BP's case represents the removal of the divisional level with the intention of decreasing the number of managerial layers in the overall organisation. This is consistent with its reported reduction of the number of managerial layers within its main operating business from 6 in 1986 to 4 in 1991 and to just 2 in 1996. On the other hand, this de-layering process has meant a sharp increase in the span of control of the head office, as the operating units now report directly to the head office (which in itself has seen a reduction from 3000 to 500 employees over the decade under consideration).

As BP's restructuring over the past years is a clear exception from the trend shown above, table 3.26 gives the summary statistics for the British respondent group with the exclusion of BP in 1996 in parentheses. This shows that, on average, a further reduction in the span of control has taken place among the British respondent companies, although it is still true that the reduction in the second half of the 10-year period under consideration has taken place more slowly than in the 1986-1991 period. Over the entire period, the typical span of control has decreased by as much as 40% from 8 to 5 heads of operating businesses reporting to the head office.

More formally, median comparison tests can be applied to assess the significance of the cross-country differences and the over-time changes within the two groups. Mean

comparison tests have also been applied, but due to the skewed distribution of values the power of these tests is, in many cases, unsatisfactory. Where they can be applied, mean comparison tests confirm the results of the median comparison tests reported below.

	British group: median comparison tests		German group: median comparison tests	
year	**1986**	**1991**	**1986**	**1991**
1991	$p < 0.005$	-	n.s.	-
1996	$p < 0.05$	n.s.	n.s.	n.s.

Table 3.27: Comparison of the Median Span of Control over Time within Groups

Table 3.27 confirms the magnitude of the over-time trends observed in table 3.26. The British respondent firms have significantly reduced the span of control, in particular in the 1986-1991 period and, consequently, over the entire ten-year period, whereas the changes in the German respondent firms are too small to yield statistical significance.

Year	Significance level
1986	n.s.
1991	$p < 0.05$
1996	$p < 0.005$

Table 3.28: Comparison of the Median Span of Control between the two Groups

The test statistics show that, while the median spans of control in the British and the German respondent firms were equal in 1986, the reduction that has taken place in the British group has led to significant differences in 1991 and 1996. The number of heads of operating businesses who report directly to the head office was, as of 1996, significantly smaller in the British firms than in the German respondent companies.

In a further step, the results on the spans of control of corporate head offices can be used to ascertain the approximate average size of the operating businesses of the respondent companies. The approximate[17] average size (S) of the operating businesses of a company (i) is given by the formula $S_i = \frac{(\text{total employment})_i - (\text{head office size})_i}{(\text{span of control})_i}$. Using the results on head office size (see section 3.3.12 below), the results are displayed in table 3.29.

Approximate average size of operating businesses		mean	standard deviation	median	range
British group	1986 (n=36)	4446	4545	2805	140-18388
	1991 (n=47)	6262	7303	3945	106-39800
	1996 (n=59)	6350	7867	3694	137-47797
German group	1986 (n=20)	2955	5688	888	53-23182
	1991 (n=22)	4060	7354	997	71-24710
	1996 (n=29)	4370	7054	1833	111-24386

Table 3.29: Approximate Average Size of Operating Businesses of Respondent Companies
Note: Results are rounded. Differences between the medians for the two groups are statistically significant at $p < 0.01$.

The results displayed in table 3.29 indicate that, despite large variations in organisational set-ups *within* the two groups, the approximate average size of the operating businesses among the German respondent companies is typically significantly smaller than among their British counterparts. As of 1996, the median value of S for the German respondents is approximately half the value for the British respondent companies. These differences help explain the lower number of managerial layers in the main operating business of the German respondent companies, as shown in section 3.3.7. Over-time changes within the two groups are barely significant.

3.3.10 Autonomy of Line Managers

The changing shape of the administrative centre of companies, as well as changes in the number of managerial layers, raise questions about how far the balance of power has shifted between the head office and the operating businesses over the past decade. As argued in section 2.3.3, organisations have to strike an efficient balance between centralising and decentralising decision-making processes. It was also pointed out that the ability to make effective decisions is backed by the right to dispose of resources. While these include human and technological resources, shifts in the balance of power can be gauged by the discretion of line managers over *financial* resources. In the questionnaire, the participants are asked to assess whether, and in what way, the degree of line managers' autonomy in financial matters has changed. In view of the reduced size of head offices, and in particular the reduced number of financial managers at the centre of British companies (section 3.3.12), one may expect that a

devolution of power away from the head office has taken place, thus increasing the degree of financial discretion of line managers. On the other hand, one might argue that de-diversification may have led to a reduction in organisational complexity, which in turn may have facilitated a centralisation of decision making.

Q: "We are interested in whether line managers now have greater autonomy from the head office in financial matters than they had in earlier years. Has the discretion of the operating businesses of your company in financial decisions (control of cash, capital expenditure, etc.) increased or decreased since 1986?"

	British group (n=72)	German group (n=42)	Total group (n=114)
Increase	52.8%	42.9%	49.1%
No change	34.7%	45.2%	38.6%
Decrease	12.5%	11.9%	12.3%

Table 3.30: **Changes in the Financial Discretion of Line Managers**
Note: Differences between the two groups are statistically not significant.

The results show that in only about 12% of the respondent companies from both countries has the financial discretion of line managers decreased over the past ten years. The majority of line managers have either the same or a greater degree of financial autonomy than they had in 1986. The trend towards the increasing financial discretion of line managers appears to have been somewhat stronger among the British than among the German respondent firms, although these differences are statistically insignificant.

3.3.11 Position of Research and Development in the Corporate Structure

Beyond the issue of the balance of power between head offices and operating businesses it is also important to know where particular *functions* in the corporate hierarchy are carried out, so as to assess whether particular activities are managed centrally or left to the operating businesses. Research and development (R&D) provides a case in point, as one of the rationales for the emergence of diversified multi-business companies has traditionally been associated with the opportunity to exploit technological capabilities across a range of activities (sections 2.2.1 and 2.3.2); this applies in particular to related diversifiers in research-intensive industries. If this is still true, one would expect a majority of firms to locate R&D at the centre of their

organisation. On the other hand, the widespread notion that companies have to be increasingly 'close to the market' points towards a decentralisation of R&D (Casson, Pearce, and Singh 1992, pp. 122ff.), as operating businesses generally have closer contact with potential customers and suppliers. A decentralisation of R&D activities would also be in line with the devolution of power in financial matters (section 3.3.10) and the decreasing trend in head office size (section 3.3.12). Granstrand and Sjölander (1992, p. 188) find that 76% of R&D, in a sample of 42 Swedish, American and Japanese multinationals in 1987, was conducted on a decentralised basis. The decentralisation of R&D was particularly marked in Sweden (92%). The authors do not observe significant changes in the organisational location of R&D between 1982 and 1987.

In the questionnaire, respondents are asked where R&D was carried out in 1996, and whether any shifts had taken place over the ten years before that time.

Q: "If you devote significant sums to research and development, is this activity conducted mainly at the centre of the company or in the operating businesses?"

	British group (n=63)	**German group** (n=32)	**Total group** (n=95)
In the operating businesses	65.1%	53.1%	61.1%
Equal balance between operating businesses and corporate centre	12.7%	12.5%	12.6%
At the centre of the company	22.2%	34.4%	26.3%
Sum	100.0%	100.0%	100.0%
Number of companies to which the question does not apply	8 (11.3% out of 71 firms)	8 (20.0% out of 40 firms)	16 (14.4% out of 111 firms)

Table 3.31: Position of Research and Development in the Organisational Structure
Note: Differences between the two groups are statistically not significant.

The results show that a clear majority of respondent companies in both groups carried out R&D in the operating businesses, rather than as a central corporate function. Few companies pursued R&D at both levels simultaneously; companies seemed to favour an unambiguous position of R&D in the corporate structure. The British respondents appeared to prefer decentralised R&D operations to an even greater extent than the

German respondents, one third of which pursued R&D at the centre of their organisation. However, these differences are not large enough to yield statistical significance. From table 3.31 one British pharmaceuticals company is excluded which remarked that in its UK and US operations R&D was conducted at both corporate and operating business levels, but that a central R&D function was operating on behalf of its subsidiaries in other locations.

With respect to *changes* in the organisational position of R&D, the following picture emerges:

Q: "Has there been a significant change in the organisation of R&D in your company over the past ten years?"

	British group (n=64)	**German group** (n=35)	**Total group** (n=99)
Shift towards more decentralisation of R&D	42.2%	28.6%	37.4%
Shift towards more centralisation of R&D	18.8%	11.4%	16.2%
No change	39.1%	60.0%	46.5%

Table 3.32: Shifts in the Organisational Position of R&D between 1986 and 1996
Note: Differences between the two groups are statistically not significant.

Table 3.32 shows that in the majority of respondent companies no changes in the organisational position of R&D have taken place. This stability has been particularly marked in the German group, where three fifths of the firms did not shift R&D between the operating divisions and the administrative centre. However, although the differences between the two groups are not statistically significant, more than 40% of the British firms have moved towards greater decentralisation of their R&D functions. Less than 20% of firms in both groups have shifted R&D towards the centre.

Some companies report 'mixed' developments in R&D positioning. A representative of a diversified German manufacturing company remarked that product development was carried out in the operating businesses, while research had become increasingly centralised over the past few years. A British producer of consumer goods said that, contrary to a decentralising trend about six years ago, the company had started to pull together R&D at the centre of the company in 1995.

Tables 3.31 and 3.32 above suggest that, as of 1996, a majority of the respondent companies, particularly in the British group, were carrying out R&D on a decentralised

basis. Moreover, a considerable number of firms had moved towards greater decentralisation over time, while others did not see great changes. In a further step, the answers to these two questions can be cross-tabulated in order to analyse whether the current positioning of R&D in individual companies is due to changes over the past ten years, or to long-standing positioning decisions. In order to avoid too small cell sizes the data from the two countries are aggregated.

		Position of R&D as of 1996			Sum
		Decentralised R&D (n=54)	'Balanced' R&D (n=11)	Centralised R&D (n=25)	
Changes over time	Decentralisation	46.3%	54.5%	20.0%	36
	No change	44.4%	9.1%	52.0%	38
	Centralisation	9.3%	36.4%	28.0%	16
Sum		100%	100%	100%	90

Table 3.33: Cross-tabulation of the Position of R&D as of 1996 and Changes in the Position of R&D over Time[18]

The data presented in table 3.33 show that somewhat less than half of the respondent firms with a decentralised position of R&D as of 1996 had experienced decentralisation shifts in the position of R&D since 1986. In almost the same number of firms in this group there had been no movements in R&D positioning. This implies that the decentralisation of R&D is by no means a new concept, but that it has become more widespread since 1986.

Even more clear-cut are the data for those companies with a centralised position of R&D as of 1996. More than half of these did not see any change in the years before 1996. Less than 30% of these companies took steps to centralise their R&D. For a majority of these companies, positioning R&D at the centre has been a long-standing organisational set-up.

Only one of the eleven respondent companies with a 'balanced' position of R&D as of 1996 has seen no change in its R&D positioning, while in the other ten firms shifts in one direction or the other have taken place. This contrasts sharply with the respondents with a clearly centralised or decentralised position of R&D, of which a far higher proportion had seen 'no change' in the positioning of R&D in the years before 1996. The fact that almost all companies with a 'balanced' position of R&D, as of

1996, had experienced shifts in the position of R&D, suggests that such an equal balance of R&D between the operating businesses and the administrative centre is unlikely to be a permanent arrangement. The 'balanced' positioning of R&D seems to be rather a transitional stage for those companies which move their R&D from the operating businesses to the centre or, as seems to be increasingly the case, vice versa.

3.3.12 Head Office Size and Functions

As developed in section 2.2, head offices have played an important role in the development of the modern corporation. According to Chandler (1996, pp. 348f.), corporate head offices in large multi-business organisations have two main functions, namely to devise strategies for the development of the organisation as a whole (strategic function) and to co-ordinate and control the activities of the individual divisions or business units (administrative and loss-preventive function). From an efficiency perspective (section 2.3), the benefits of centralised management through head offices (in terms of loss prevention, optimal resource allocation, etc.) should outweigh their costs.

Empirically, the activities of head offices vary substantially from company to company. While all head offices employ staff to pursue some sort of financial control and central accounting (see below), corporate headquarters may or may not be involved in operating businesses, and in functions such as marketing, legal affairs and the like. Goold and Campbell (1987, chs. 1 and 13) and Goold et al. (1994, pp. 399-499), and Campbell et al. (1995, pp. 120-132) argue that these differences in head office activities reflect distinct corporate styles.

According to Useem (1993, ch. 3), a central aspect of the restructuring movement in the US during the 1980s has been the 'downsizing' of corporate headquarters. If these developments hold true for the UK and West Germany, one would expect the number of head office staff to have fallen sharply since the beginning of the corporate restructuring wave, and so too the number of managers at head office level. The questionnaire addresses these two issues for 1986, 1991, and 1996, asking for concrete numbers at the three points in time.

The response rates to these particular questions show that many companies had difficulties in supplying exact figures for situations as long as a decade ago. Nevertheless, the findings yield an interesting picture of the structure of the head offices of the British and German respondent companies. The results are also related to total company size.

Q: "Please give the total number of employees in the corporate head office of your company at the following three points in time."

Head office size		mean	standard deviation	median	range
British group	1986 (n=45)	1163.7	4621.2	187*	20 - 31000
	1991 (n=57)	1349.3	5046.5	127	20 - 33000
	1996 (n=65)	960.2	4813.1	101**	12 - 38000
German group	1986 (n=27)	1512.0	3208.7	300*	5 –14148
	1991 (n=30)	1136.3	2672.8	246.5	5 – 13834
	1996 (n=36)	923.1	1654.8	257**	3 – 8314

Table 3.34: Number of Employees in the Corporate Head Office in 1986, 1991 and 1996
Note: Comparisons of medians between the two groups: * $p<0.1$ ** $p<0.01$

The descriptive statistics show that the size of corporate head offices varies widely across the respondent companies. Some companies employ several thousand staff at head office level. The extreme case is represented by one British company with between 31000 and 38000 head office staff at the three points in time. This can only be explained by a centralised organisational arrangement by which the head office itself is involved in operating activities, so that there is little distinction between operating businesses and the corporate headquarters. This is confirmed by the following remark from the respondent concerned: "As we are largely a single operating business and our head office is at our operational base, we do not distinguish between head office and operational staff in any structural sense. Of the above numbers, about 15% of the staff and 35% of the managers are involved in overhead functions".

On the other hand, the large standard deviations (of up to five times the arithmetic mean), together with the fact that the median is in some cases only one tenth of the mean or less, indicate that the distribution of values is highly positively skewed. Therefore, the median, rather than the arithmetic mean, is the appropriate measure of central tendency.

The data show that a 'typical' head office of the British respondent companies, as indicated by median size, had 187 employees in 1986 and has shrunk to about 100 in

1996. In the case of the German respondent companies, median head office size has decreased from 300 employees in 1986 to less than 260 in 1996.

In 1996, the difference between the median head office sizes of the two respondent groups yields high statistical significance. This means that, as of 1996, the head offices of the British respondent companies had typically less staff than their German counterparts.

The over-time changes in median head office sizes can be tested for statistical significance[19]. The test statistics are displayed in table 3.35.

	British group		German group	
year	**1986**	**1991**	**1986**	**1991**
1991	n.s.	-	n.s.	-
1996	$p < 0.01$	$p < 0.0005$	$p < 0.1$	$p < 0.05$

Table 3.35: Comparison of Median Head Office Sizes over Time within the two Groups

These results show that the reductions in median head office size in both groups over the 1986-96 period are statistically significant. The reductions appear to have been particularly marked in the second half of the ten-year period, so that the differences between the medians in 1991 and 1996 alone are large enough to yield statistical significance.

The findings become more pronounced if one disregards the magnitude of change, in order to focus on the mere number of firms which experienced head office reductions or increases at all. There are two respondents - one from each country - who report that the size of their head offices had decreased, although they were not able to attach exact figures to these changes; these remarks are also taken into account in table 3.36 below.

	Proportion of the	
	British group	**German group**
1986-1991:		
increase	28.9%	38.5%
reduction	51.1%	46.2%
no change	20.0%	15.4%
1991-1996:		
increase	26.1%	28.6%
reduction	67.4%	67.9%
no change	6.5%	3.6%
1986-1996:		
increase	19.3%	25.8%
reduction	71.9%	67.7%
no change	8.8%	6.5%

Table 3.36: **Changes in Head Office Size**
Note: Differences between the two groups are statistically not significant.

Table 3.36 shows that more than two thirds of respondents from both groups have reduced the size of their corporate head offices during the 10-year period under consideration. In both groups the 'downsizing' of corporate head offices appears to have gathered pace over time, so that in the second half of the period considered, from 1991 to 1996, this trend seems to have affected more companies than from 1986 to 1991.

It is important, however, to note that the trend towards smaller corporate head offices has not been universal. While there are a few companies where no change has taken place, there are some 20 to 25% of companies in both groups which increased the size of their administrative centres.

In a further step, the results on head office size are related to total company size, as measured by the number of employees. In this way, it is possible to ascertain whether the decline in median head office size over time as reported above was accompanied by a concomitant decline in the total workforce. In order to achieve this, the ratio $\frac{\textit{Total number of employees}}{\textit{Head office size}}$ is calculated. The results are presented in table 3.37.

$\frac{\textit{Total number of employees}}{\textit{Head office size}}$		mean	standard deviation	median	range
British group	1986 (n=42)	358.8	566.5	142.7**	1.3 – 2705.7
	1991 (n=53)	346.2	520.5	168.4	1.5 – 2698.8
	1996 (n=63)	376.9	540.0	177.4**	1.5 – 2779.5
German group	1986 (n=25)	158.6	378.4	55.6**	1.0 – 1911.6
	1991 (n=28)	220.7	377.6	101.6	1.0 – 1905.5
	1996 (n=36)	184.7	265.1	96.0**	1.0 – 1332.7

Table 3.37: Ratio $\frac{\textit{Total number of employees}}{\textit{Head office size}}$ in 1986, 1991 and 1996

Note: Comparisons of medians between the two groups: ** $p<0.01$

The results presented in table 3.37 exhibit a similar positive skewness as the data given in table 3.34 above. There are a number of respondent companies (3 as of 1996), namely those for which the ratio defined above is close to one, where the head office essentially coincides with the total workforce. For these companies, a meaningful distinction between the head office and the operating units does not exist. These companies operate in the utility, transport, and mail ordering industries, where scheduling and other coordination activities may have been carried out from the centre of the organisation. Moreover, some companies in the chemicals and pharmaceuticals industries have relatively large head offices in relation to company size. These companies reported earlier (section 3.3.11) that they had their R&D activities located at the centre of their organisation, so that the size of their head offices may be explained to some extent by the fact that R&D was carried out from there. It should be pointed out that the companies with large head offices in relation to total size are more frequent among the German than among the British respondent companies.[20] On the other end of the spectrum, there are companies from various industries, far more frequent among the British than the German respondent companies, where the head office is very small as compared to total firm size. The typical (median) ratio $\frac{\textit{Total number of employees}}{\textit{Head office size}}$ is between 140 and 180 in the case of the British respondent companies, as compared to 50 to 100 for their German counterparts, and these differences are statistically significant for 1986 and 1996. This means that, in relation to total company size, the British respondent companies typically had smaller head offices than their German counterparts.

With respect to changes over time within the two groups, test statistics for differences in the median ratio $\frac{Total\ number\ of\ employees}{Head\ office\ size}$ are given in table 3.38.

	British group		German group	
year	**1986**	**1991**	**1986**	**1991**
1991	n.s.	-	$p < 0.001$	-
1996	n.s.	n.s.	$p < 0.0001$	$p < 0.05$

Table 3.38: Comparison of Median Ratios $\frac{Total\ number\ of\ employees}{Head\ office\ size}$ over Time within Groups

These data show that changes in the median ratio $\frac{Total\ number\ of\ employees}{Head\ office\ size}$ between 1986 and 1996 have not been significant in the case of the British respondents, whereas this ratio has increased significantly in the case of the German respondent companies. This means that, in the British case, the decrease in median head office size (as reported in tables 3.34 and 3.35) has been accompanied by reductions in total employee numbers of roughly similar magnitude (see section 3.2.5). Among the German respondent companies, a general reduction in total company size has not been reported in section 3.2.5, whereas table 3.34 reports a decrease in median head office size. As a result of the latter change, the ratio $\frac{Total\ number\ of\ employees}{Head\ office\ size}$ has increased over time. Between 1986 and 1996, head offices, in relation to total employment, have become typically smaller among the German respondents.

Furthermore, in the questionnaire the respondent companies are asked to identify the number of managers at head office level at the three points in time[21]. The results are as follows:

Q: "How many of these [i.e. of the total number of employees in the head office; A.R.] are or were in managerial and executive positions?"

Managers at head office level		mean	standard deviation	median	range
British group	1986 (n=30)	218.1	632.5	60	6-3500
	1991 (n=38)	362.5	1263.7	50	6-7000
	1996 (n=59)	163.4	570.4	36	5-3300
German group	1986 (n=23)	214.5	481.7	30	5-2000
	1991 (n=24)	124.3	277.6	25.5	5-1234
	1996 (n=31)	100.6	173.5	30	3-806

Table 3.39: Number of Head Office Employees in Managerial and Executive Positions
Note: Differences between medians for the two groups are statistically not significant. *t*-tests for the comparison of means are not applicable.

According to table 3.39, the distribution of the number of corporate managers has a strong positive skew.

The results show that the median number of managers in the head offices of the British respondents has decreased from 60 in 1986 to 36 in 1996. Management at head office level has experienced a 'downsizing trend' very similar to the reduction in total head office staff.

Despite the larger overall head office size, the German respondent companies seemed to employ typically less managers at head office level than their British counterparts. These differences are, however, not large enough to yield statistical significance.

The data suggest that the reduction in headquarters management, having started from a higher level in 1986, has been much more pronounced among the British than among the German respondent firms. Table 3.40 below, which reports the significance levels of median comparison tests, confirms these hypotheses.

	British group		German group	
year	**1986**	**1991**	**1986**	**1991**
1991	$p < 0.1$	-	n.s.	-
1996	$p < 0.01$	$p < 0.0005$	n.s.	$p < 0.05$

Table 3.40: Comparison of the Median Number of Head Office Employees in Managerial and Executive Positions over Time within the Two Groups

So far, total head office sizes and the number of head office managers have been analysed separately. However, these results also make it possible to calculate the *proportion* of head office staff represented by managers. As a first step, it is useful to check how closely the number of managers is related to the total size of the head

office. The correlation coefficients between the two variables for the three points in time lie between 0.83 and 0.99, and all correlation coefficients turn out to be highly statistically significant at $p<0.0001$ in all cases.

	British group	German group	Total group
1986	0.996	0.883	0.962
1991	0.851	0.890	0.838
1996	0.869	0.865	0.868

Table 3.41: Correlation between Total Head Office Size and the Number of Head Office Managers
Note: All correlation coefficients are statistically significant at $p<0.0001$.

The magnitude of the correlation coefficients suggests that the number of managers in the head office is closely related to the total size of the head office. Consequently, the *proportion* of head office staff represented by managers should not be expected to vary greatly over time.

managers / *total head office size*	British group		German group	
	mean	**median**	**mean**	**median**
1986	30.8%	27.8%**	17.8%	8.9%**
1991	33.5%	30.0%*	19.2%	11.1%*
1996	36.5%	37.2%***	19.3%	11.7%***

Table 3.42: Proportion of Head Office Staff Who Are Managers / Executives
Note: Comparisons of medians between groups: * $p<0.005$ ** $p<0.001$ *** $p<0.0001$
Over-time changes of medians within groups are statistically insignificant.

The results show that the proportion of head office staff who are managers in both groups is relatively stable over time. The ratio shows only a slight increase over time, and this increase is statistically insignificant. This means that the 'downsizing' of the head offices of respondent companies has affected managerial positions by almost as much as other staff positions in their head offices.

Great differences do exist, however, *between* the two groups with respect to the proportion of head office staff represented by managers. In the British respondent firms, about every third head office employee had a managerial position, whereas in the German companies less than a fifth of headquarters staff were recorded to be

managers. Typically, around 10% of the German head office staff were managers. These differences between the two groups are statistically highly significant. This means that the 'configuration' of the British and the German respondent companies at their 'strategic apex' - to use Mintzberg (1979, pp. 24-26 and 1983, pp. 13-14) term - is very different: The German companies had larger headquarters than their British counterparts, but a smaller fraction of headquarters staff was in charge of managerial functions.

A possible explanation might be that the German companies employ more technical specialists such as engineers at head office level, who would only be regarded as managers if they supervise other staff. However, the data from the survey do not allow to test this argument.

The final question in the survey addresses the functions carried out by the corporate head office. In the questionnaire, nine specific functional fields are listed which, according to the literature and the advice from practitioners, are regarded as the most prominent functions of corporate head offices. In addition, the participants had the opportunity to name additional functions carried out by their particular head office. In order to gauge the importance of different functions, the questionnaire asks for the absolute number of head office managers - referring back to the question before - who were working in these areas as of 1996.

Q: "How many of the managers and executives in the head office today [reference to the last question; A.R.] are active primarily in each of the following functions?"

	Median ratio staff in a particular function / total managerial HO staff in 1996		Percentage of head offices which had the function at all in 1996	
Function	**British group** (n=59)	**German group** (n=26)	**British group** (n=59)	**German group** (n=26)
Accounting, Finance and Control including Treasury	28.0%*	20.8%*	100.0%	100.0%
Taxation	5.0%	4.8%	91.5%	84.6%
Information Technology	4.0%**	8.7%**	76.3%*	92.3%*
Strategy development Devising an overall strategy for the company	6.5%	4.8%	86.4%	92.3%
Legal	7.5%*	4.8%*	88.1%	76.9%
Marketing Developing market strategies for the company	0.0%**	8.8%**	42.4%**	69.2%**
Investor relations Building up and maintaining relationships with investors of capital	2.0%	1.4%	74.6%	65.4%
Public relations Representing the company to the wider public	5.0%	3.7%	84.9%	88.0%
Human Resources (HR) and Industrial Relations (IR)	9.3%*	10.0%*	93.1%	100.0%
Other functions	15.6%	9.9%	66.1%	61.5%

Table 3.43: **Functions of Head Office Managers and Executives**
Note: Comparisons between groups: * $p<0.1$ ** $p<0.05$

According to these results, there is only one function which existed invariably in the corporate head offices of all respondents from both countries, namely accounting, finance, and control. This function showed the highest management staff levels in both groups, with typically 20.8% of all head office managers among the German respondents and an even higher proportion of 28% among the British respondents working in this area. In the German group, human resource management and industrial relations were also represented in all head offices[22], although staffing levels were significantly lower than in financial management.

Differences between the two groups also emerge with respect to three other functions: Firstly, the typical ratio of IT managers in the head offices of the British respondents was lower than in the German case, and the function was less widely represented in the

British group. Secondly, less than half of the head offices of the British respondent companies were dealing with marketing, compared to about 70% of the German firms. However, the legal function in the British firms showed somewhat higher management staff levels than in the German firms. Public relations and investor relations were also somewhat more widely established in the head offices of the British than of the German respondents, although the differences are not statistically significant.

More than 60% of the respondents said that they had additional head office functions. The functions that were identified can be classified as follows:

- Property and real estate management, including office services, was mentioned by ten companies, most of them British.
- Eight companies specified technology management as an additional head office function, while three others identified research and development.
- Eight British firms said that head office managers were dealing with compensation, benefits, and pensions. In the German case, these functions might have been included in the human resource and industrial relations function, which would explain the slightly higher staffing ratio in this particular function among the German firms according to table 3.43.
- Health, safety and environmental issues were given by seven companies as head office functions, and the number of managers in these functions appears to have increased since 1986.

16 respondents assigned their executive directors and CEOs to the "other functions" category in the questionnaire. 13 said that head office managers were active in general administration or in a company secretariat. However, it is not clear in how far these managers were working in senior positions. On the head offices of four British respondent companies, executives of the operating businesses or divisions were represented. Other head office functions that were identified include internal audit (6 respondent companies), economic analysis and forecasting (5), business development (5), insurance (4), supplies, transport and logistics (4), purchasing (3), production (3), sales and customer services (3), quality control (2), intellectual property (2), risk management (2) and security (2). The following functions were identified only once:

Corporate analysis, privatisation (in the case of a former state-owned group), education and training, planning, investments, regulatory issues - identified by a privatised electricity generator -, international issues, performance management, and mergers and acquisitions.

Finally, the respondents were asked to identify whether the number of managers in any particular field had increased, decreased, or remained unchanged since 1986.

British Group (n=59)			
Function	**Increase**	**Decrease**	**No change**
Accounting, Finance and Control	34.7%	51.0%	14.3%
Taxation***	26.9%	32.7%	40.4%
Information Technology	36.0%	36.0%	28.0%
Strategy development**	30.0%	46.0%	24.0%
Legal*	30.0%	30.0%	40.0%
Marketing	24.0%	22.0%	54.0%
Investor relations	22.0%	16.0%	62.0%
Public relations	22.9%	29.2%	47.9%
HR and IR**	33.3%	51.0%	15.7%

Table 3.44: **Percentage of British Firms which have Experienced Changes in the Number of Managers and Executives in Particular Head Office Functions**

Note: Comparisons between British and German respondents (Chi-Square tests):
*** p<0.001 ** p<0.05 *p<0.1

German Group (n=26)			
Function	**Increase**	**Decrease**	**No change**
Accounting, Finance and Control	38.5%	34.6%	26.9%
Taxation***	7.7%	7.7%	84.6%
Information Technology	34.6%	38.5%	26.9%
Strategy development**	28.0%	20.0%	52.0%
Legal*	9.1%	27.3%	63.6%
Marketing	30.8%	23.1%	46.2%
Investor relations	26.9%	7.7%	65.4%
Public relations	36.0%	12.0%	52.0%
HR and IR**	26.9%	26.9%	46.2%

Table 3.45: **Percentage of German Firms which have Experienced Changes in the Number of Managers and Executives in Particular Head Office Functions**

Note: Comparisons between British and German respondents (Chi-Square tests):
*** p<0.001 ** p<0.05 *p<0.1

These data show that the overall reduction in head office staff reported by the British respondents have affected different functions to a different extent. The human resources and industrial relations functions, alongside accounting, finance and control, have been reduced in more than 50% of respondent companies. Nevertheless, as of 1996 accounting and finance was still by far the largest functional area in the head offices of the British respondent companies. The two head office functions which more respondent companies expanded than reduced over the past ten years are marketing and investor relations. In both functions, however, comparatively little overall change has taken place, with 54% and 62% of companies respectively reporting no change at all.

On balance, little has happened with respect to the legal and IT departments of the head offices of the British respondents, where the number of companies with reductions equals the number of firms with increasing staff levels.

The results look rather different for the German respondent firms. Firstly, the overall number of companies which reported changing managerial staff levels in specific head office functions is generally lower than is the case for the British respondent companies. This is indicated by the number of taxation specialists on head office level, which has changed (in either direction) in only 15% of the German firms, as compared to 60% in the British case. Only in the case of two head office functions have the German respondent firms experienced approximately the same level of change as their British counterparts, namely information technology and marketing. Secondly, in five out of the nine specified functions, more firms have increased than reduced managerial staff levels, in addition to two functions where the number of firms with increases and the number of firms with reductions were equal. The only head office function which has seen substantially more reductions than increases is the legal function. In comparison, investor relations and public relations have seen a significant increase in the head offices of the German respondent firms since 1986.

In sum, the results on the changes in head office functions between 1986 and 1996 reveal marked differences between the British and German respondent firms. The effect of the decreasing trend in managerial staff at the head office level of the British

firms has affected virtually all head office functions, including those - such as finance and accounting - which have traditionally been seen as crucial head office tasks. The slight increase in managers who deal with investor relations may hint towards a greater concern for shareholder interests in British corporations. Among the German respondent firms, changes have taken place with respect to much fewer head office functions, and the number of firms with reductions and increases in specific functions is in many cases relatively close.

3.4 Critique of the Survey

In this section, an evaluation of the survey is provided. First, the disadvantages and limitations of the survey methodology adopted here are discussed. Second, particular items on the questionnaire are identified which were criticised *ex post* or which in the process of response collection and data evaluation appeared to have worked less well than had been anticipated during the design and the piloting of the survey.

The aim of the survey was to provide evidence on changes in corporate structure, a phenomenon whose complexity and multidimensionality was analysed in chapter 2. A prime concern is whether this complexity can be captured by questionnaire surveys in general, and whether the current survey has succeeded in doing so.

In order to address many of the issues discussed in chapter 2, the questionnaire contains a wide range of topics, thereby limiting the depth in which particular topics of interest could be probed. A principle limitation of the survey lies in its focus on the 'strategic apex' of organisations (head office functions; centralisation and decentralisation of activities, etc.), thereby neglecting restructuring processes on lower organisational levels. However, it is arguable that more in-depth research into these issues, which would also require a different set of respondents, is more adequately carried out in form of case-study research (ch. 5).

The respondents found it easier to answer the questions on the boundaries of their firms than on internal organisation. The aggregate response rate with respect to questions referring to the boundaries of firms (excluding follow-on questions) was 98.9% of all responses, compared to 87.8% for the questions regarding internal

organisation (excluding follow-on questions; taking into account only responses on structural features as of 1996). This is explained primarily by the fact that many questions on internal organisation asked for quantitative data (e.g. head office size, etc.), which seemed to be difficult to provide for some respondents. On the other hand, a more general, non-quantitative phrasing of the questions concerned would have had obvious disadvantages in terms of accuracy and comparability across the two groups. Compared with the general lack of quantitative data on issues relating to the internal organisation of firms in the writings of Chandler and the authors in his tradition (section 2.2), the evidence produced by the survey is rich. In view of this, it is arguable that the balance that had to be struck between the breadth and the depth of the survey was appropriate.

That the honesty and willingness of the respondents to provide meaningful observations is a requirement for any kind of questionnaire survey was already mentioned in section 3.1. No guarantee for the adequacy of the data can be provided. However, research attempting to provide evidence on life inside the 'black box' of firms generally relies on the assessments of members of the organisations concerned. An exception to this is the ethnographic approach often used in anthropology, where researchers participate in the life of the social entity studied, and thereby provide observations 'from within' (Judd et al. 1991, ch. 13; Atkinson and Hammersley 1994, pp. 248-261). While this approach enables one to gather in-depth information on particular companies, it is hardly applicable where an overview of developments in a substantial number of organisations across countries is required.

In the following, two items on the questionnaire survey are identified which were found to work less well than had been anticipated.

- Question on diversification (section 3.3.1): Two issues with respect to this question require further discussion. First, the question was criticised *ex post* by fellow students for not providing a definition of the terms used, namely 'refocusing' and 'diversification', in the way other terms (e.g. 'outsourcing' in section 3.3.2) are introduced. Although this criticism shall not be dismissed lightly, it should be pointed out that the addressees, top managers in their organisations

(section 3.2.3) can be expected to be familiar with some basic concepts. The question elicited a high response rate, and no comments pointing to any lack of clarity was given on the reply forms. Also, it should be pointed out that other types of research on diversification, for example the supposedly more 'objective' line of business-counts, are even more susceptible to self-reporting biases by companies, as will be argued below (Ch. 4). Second, it was criticised that the introductory sentence to the question ("It is widely held that ...") may be leading, thereby inducing respondents to give answers in line with the supposed trend. This weakness of the question has to be acknowledged, although it can be argued that it probably had little effect on the response patterns. In line with the argument put forward above, the respondents can be expected to be aware of the wider 'refocusing debate', and the various response options allowed the respondents to express their views in a neutral and anonymous way. Generally speaking, the problem of leading questions is more serious in psychological and behavioural research (see Newell 1993, pp. 99-107).

- The results on the question about the number of managerial layers in the main operating businesses of companies (section 3.3.7) would have been more valuable if data on the size of the respective businesses would have been available. A future edition of the questionnaire should include a request for these data at the three points in time. It has to be taken into account, however, that any requests for even more quantitative data are likely to reduce response rates.

Further improvements in the setup and the phrasing of the questionnaire are possible. For example, a question on the span of control of line managers rather than (or in addition to) the corporate head office as in the current version (section 3.3.9) could be considered. However, this would shift the thrust of the questionnaire away from the relationship between the head office and the operating businesses, towards more micro-organisational topics.

It can be said that, despite the weaknesses and limitations of the questionnaire survey, the survey has proven a valuable instrument in collecting information on corporate restructuring in 116 large non-financial companies in the UK and West Germany. The findings are summarised in the following section.

3.5 Chapter Summary and Conclusion

The aim of this chapter was to give an overview of the main trends in corporate restructuring in the largest non-financial companies in the UK and West Germany that have taken place from 1986 to 1996. Questionnaires were received from 37.9% out of a population of 306 British and German firms. The survey addressed changes in the two key dimensions of corporate structure as identified in chapter 2, i.e. the boundaries of firms and their internal organisation. According to the results of the survey, far-reaching changes with respect to both dimensions have taken place in the two groups of respondent companies between 1986 and 1996. The main findings of the survey are as follows:

(1) Restructuring of the boundaries of firms

- The majority of the British respondent companies have taken steps to refocus their activity portfolios and reduce their degree of vertical integration. A number of techniques have been employed to this end: More than half of the British respondent firms have demerged or divested unwanted businesses. Some 80% of the respondent firms have made at least occasional use of outsourcing and contracting-out. Around 60% of the British firms have sold parts of their operations to former management. Using information from published sources, it has also been shown that the use of management buy-outs in the context of corporate restructuring processes has been considerable in the UK. The trend towards *reduced* diversification and vertical integration has been accompanied by a trend towards *increased* horizontal integration and greater multinational engagement, as indicated by the findings on M&A strategies.
- The majority of the West German respondent firms have also reduced their degree of diversification and vertical integration, but the ratio of firms who have done so is significantly lower than in the case of the British respondent firms. At the same time, more of the German firms have engaged in vertical and diversifying mergers and acquisitions (in addition to horizontal ones) than has been the case for the British respondents. The use of management buy-outs for the divestment of unwanted businesses from corporate parents has been generally lower in West

Germany than in the UK, as has been the incidence of divestments from the German participants in the survey. In sum, the restructuring of the corporate boundaries appears to have been more far-reaching among the British than among the German respondent companies. Comments from participants (e.g. with respect to diversification), as well as the aggregate data on management buy-outs, seem to suggest that a restructuring of the corporate boundaries among the German respondent companies has started during the first half of the 1990s, whereas in the UK these trends were apparent already during the second half of the 1980s.

- The British and the German respondent firms have made similar use of joint ventures and strategic alliances, which were strongly pursued by more than 40% of the firms in both groups.

(2) Changes in the internal organisation of firms:

- A far-reaching overhaul of administrative structures has taken place. A majority of respondent companies from both countries report that they have reduced the ratio of administrative costs to total labour costs. They have also decreased the number of managerial layers and the sizes of their head offices. However, both the *extent* of these changes, and the respective *starting points* have been different in the two groups of companies. In general, the move towards 'leaner' structures has been less pronounced among the German than among the British firms. On the other hand, the German respondent firms were found to have had a lower number of managerial layers in their main operating businesses than their British counterparts already as of 1986, which may be explained by the smaller average size of the operating businesses (but no definitive conclusion can be drawn at this point). Moreover, the results point towards marked differences in the administrative structures of the respondent companies in the two countries. Head offices were typically larger (both in absolute terms and relative to overall company size) in the German than in the British respondent firms, whereas the proportion of head office staff who are managers was significantly lower in the German companies. Some differences in the functions of head office managers were found as well.

- The median number of heads of operating businesses who report directly to the head office has declined from eight to five in the British respondent firms, but remained virtually unchanged at around eight in the German firms.
- The autonomy of line managers in financial decisions has either increased or remained the same in almost 90% of the respondent companies in both groups. As of 1996, research and development was carried out in about 60% of the firms within the operating businesses rather than at the corporate centre. There is, however, a substantial number of companies where no change in the organisational position of R&D has taken place. The general trend over the ten-year period has been towards greater decentralisation of decision-making in both groups of companies.

In sum, fundamental changes have taken place with respect to both the boundaries and the internal organisation of the large non-financial companies in the UK and West Germany on which this chapter reports. In many respects, these changes appear to have been more far-reaching among the British than among the German companies which have taken part in the survey. However, as many questions in the questionnaire address *changes* rather than static features of corporate structure, it is not possible in all cases to ascertain whether the respective 'starting points' of the two groups of respondent companies have been comparable. Nevertheless, the survey has provided evidence for the extent of corporate restructuring among the largest non-financial companies in the UK and West Germany.

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[1] This chapter is a revised and substantially expanded version of Richter (1997a). Other publications which report on the findings of the survey include Richter (1997b), and Richter and Owen (1997a and 1997b).

[2] It can be argued that the association with a body that is connected in a positive way with the population under study has helped significantly to achieve a favourable response rate (Moser and Kalton 1971, p. 262).

[3] As the survey was conducted in 1996, the list of the largest companies for this particular year could not be included.

[4] In the TIMES 1000 series, the term 'industrial companies' is used in a very broad sense to include all non-financial companies, e.g. utilities, retailers, media groups and other non-manufacturing companies. This is reflected in the composition of the responses (table 3.7). Also, it should be pointed out that the TIMES 1000 includes companies regardless of whether they are in private or public ownership.

[5] The term *Betriebswirtschaft* is rather general; it includes strategic functions, but may also refer to activities in the area of controlling, budgeting or other.

[6] Calculating group size requirements yields the result that arithmetic means are not adequate measures of central tendency in this case.

[7] It should be emphasised that the employment data for the companies include their worldwide workforce.

[8] The various surveys differ in their comparisons of the UK and the German outsourcing markets. Reports by *Datamonitor* (1997, table 6 and table 10) and the *International Data Corporation* (1996, pp. 28-29) estimate the UK market to be far larger than any other market in Europe (with Germany and France coming at second place), whereas *Ovum Ltd.* (1996, Market Forecast M3, pp. 13-15) puts the German market ahead of the UK. However, all reports agree that the IT outsourcing markets in both countries are growing significantly, and that the manufacturing industries are the biggest buyers of IT outsourcing services (a detailed industry breakdown is given in a report by M.A.C.E. 1997, p. 98).

[9] For a more detailed description of MBOs see Chiplin et al. 1988, pp. 2ff.

[10] This term follows Thompson, Wright and Robbie's (1992, pp. 5-7) discussion of 'restructuring transactions'.

[11] A mean comparison test on the difference between the average number of joint ventures across the two country groups has a low power of 0.85. Wilcoxon's rank-sum test yields the same result of no significant differences in the median numbers of joint ventures in the two groups.

[12] Answers of this sort are not contained in the figures in table 3.21. This further explains the seemingly low number of responses to the questions on joint ventures.

[13] See *Commission Regulation 3384/94/EC, on the notifications, time limits and hearings provided for in Council Regulation (EEC) No 4064/89 on the control of concentrations between undertakings*, Annex; published in Butterworth's Company Law, para. 5362.

[14] The employment data that was collected refers to total company size. Data on the size of the main operating business is not publicly available. Experimentally, the number of managerial layers was related to total company size, but the results were not meaningful, and are not reported here. – The finding that median company sizes among the British respondents were significantly larger than among the German respondents until 1990 (see section 3.2.5) would suggest that the larger number of managerial layers among the British respondents may be at least partially accounted for by their larger businesses before they underwent a substantial 'downsizing' process during the early 1990s.

[15] The interpretation of the responses to this particular question is complicated by the fact that this question was slightly rephrased following the pilot survey, as the earlier version of the question proved difficult to understand in particular for German respondents. In the pilot study, the participants were asked to identify whether the ratio $\frac{\textit{indirect personnel}}{\textit{direct personnel}}$ had changed since 1986. This question was answered by 11 companies in the pilot sample. Two of these firms later answered the question in the revised questionnaire. The answers of the nine remaining firms are included in table 3.25 above as well, as the thrust of the two versions of the question is the same. Statistically, the inclusion of the nine answers from the pilot survey does not alter the distribution of the responses. This can be taken as additional evidence that the two versions of the question were understood to address the same issue.

[16] Quoted from a letter from BP with permission.

[17] The formula would produce exact values if the companies concerned had no units which are neither classified as operating businesses nor as part of the head office. If, for example, a company had sizeable non-operative units which were located at a central level in the organisation, without being part of the head office (e.g. central maintenance departments, etc.), the above calculation would overestimate S as defined above. The available data does not allow to take this possibility into account.

[18] The five respondent companies with a decentralised position of R&D as of 1996 which had experienced a centralisation shift over the decade before must have had an *extremely* decentralised position of R&D at the beginning of the period under consideration. Similarly, there are five companies with a centralised position of R&D which had experienced a decentralisation shift; these must have had an *extremely* centralised position of R&D in the mid-1980s.

[19] Due to the heavily skewed distribution, the power of mean comparison tests would not have been satisfactory.

[20] There are eight respondent firms for which the ratio $\frac{Total\ number\ of\ employees}{Head\ office\ size}$ is below 10; six of these are German companies, while two are British.

[21] This question was partly changed following the pilot study. In the pilot questionnaire, the participants were asked to detail the overall number of head office personnel in 1996 with respect to four categories, namely managerial positions, non-administrative support staff, secretarial and clerical personnel, and other staff. The results for the pilot sample suggest that, with about 65%, by far the largest group of non-managerial head office personnel in 1996 was secretarial and clerical staff. The two groups of non-administrative support staff and other staff account for only about 17% of non-managerial head office staff each. - Following the pilot study it was decided that an overview of *changes* in the number of head office managers over time was more important to the investigation into corporate restructuring than a very detailed breakdown of head office positions at a recent point in time only.

[22] According to German co-determination legislation (*Mitbestimmungsgesetz* [MitbestG], para. 33), limited companies (GmbH's and AG's) with more than 2000 employees are obliged to include a personnel director (*Arbeitsdirektor*) on their management boards (*Geschäftsführung* and *Vorstand* respectively). This requirement does not apply to a particular type of limited partnerships (*Kommanditgesellschaft auf Aktien*), of which, however, there are few among the largest non-financial companies.

4. Diversification and De-Diversification Among Large Companies in the UK and West Germany

4.1 Introduction

As has been shown in section 2.2 above, increasing diversification has been an important characteristic of the development of large companies in the industrialised countries during the 20th century. From 1950 to 1980, the average degree of diversification of the largest industrial companies in the UK and West Germany has increased steadily, adding to the increases in diversification that had taken place already during the first half of the century. In particular the late 1960s have seen a wave of diversifying mergers and acquisitions. The extant literature suggests that, by around 1980, large British companies were, on average, even more diversified than German ones.

During the 1980s, the popular management literature[1] (Peters and Waterman 1982; Pascale 1990, p. 46; more recently Ries 1996 and Sadtler et al. 1997) began to claim that companies should 'keep it simple' and 'refocus' their business on those areas they are best at ('stick-to-the-knitting' philosophy). Strategy theorists also became more critical of corporate diversification strategies (Porter 1985, p. 320; Baden-Fuller and Stopford 1992, pp. 63-67; Grant 1991a, pp. 322-324; Lynch 1997, p. 559; Rotemberg and Saloner 1994).

Empirical research on the issue of diversification and de-diversification has concentrated mainly on the United States. The extant evidence – some of which is reviewed in section 4.3.1 below – suggests that American companies have decreased their degree of diversification throughout the 1980s and early 1990s. The evidence on the UK and West Germany is sparser, and in some respects inconclusive.

According to the findings from the questionnaire survey (section 3.3.1), nearly 80% of the British respondent companies have reduced their degree of diversification between 1986 and 1996. The finding for the German companies is less conclusive. While 51.3%

of the German respondents said that they had reduced their degree of diversification, a substantial proportion (34.2%) said that they had increased diversification, while in 14.6% no change in diversification was reported. The German respondents also reported a higher proportion of diversifying mergers and acquisitions than their British counterparts (section 3.4.3).

What is unclear, however, is

(a) the respective starting points for these divergent developments;

(b) how large any changes in diversification have been; and

(c) at what time exactly any such changes have taken place.

In order to answer these questions, in this chapter two data sets assembled by the author are used to measure the degree of diversification of large companies from the UK and West Germany. The first data set contains information on 476 companies from the UK and 75 companies from West Germany for every year between 1988 and 1994, whereas the second data set offers more detailed information on the activities of the 78 largest UK non-financial companies in 1989 and 1995.

In order to arrive at the empirical conclusions on diversification, the measurement of the phenomenon under consideration is discussed first in section 4.2, where a new diversification index is suggested. It is not the objective behind defining this new index to play any measurement concepts off against each other. To the contrary, it is argued that different indices can be used in a complementary way. The particular aim behind the new index is twofold. First, its strength consists of the fact that it expresses how *closely* the different activities in the portfolio of a company are *related*, while other indices take into account mainly the *number* and the *relative size* of these businesses. Hence the new index appears to be particularly valuable in the analysis of the strategy and structure of companies. Second, the new index can be applied in situations where information on the *type* of firm activities is available, but not on their relative size. This is the case with respect to the second data set used in the empirical section 4.3.

That part presents a literature review on changes in diversification since the beginning of the 1980s. Thereafter, three different diversification indices discussed before are applied to the two samples of companies mentioned above.

Section 4.4 summarises the findings of the chapter and presents a synopsis of the evidence on diversification in British and German industry.

4.2 The Concept of Diversification and Its Measurement

4.2.1 The Concept of Diversification

In order to discuss the appropriate way of measuring diversification a working definition of the phenomenon has to be given: Diversification denotes a process by which an organisation expands the range of its operations beyond its existing activities (see Pass, Caves, and Davies 1988, pp. 139-142 and Cosh 1987, pp. 888ff. for similar definitions). Three dimensions of such an extension of activities are crucial:

- First, any expansion of activities results in the production of new *products* (goods or services), which to some degree will be different from the existing ones. If a company would simply produce a larger quantity of its existing product(s), this would constitute a case of horizontal integration rather than diversification (section 2.2.1).
- Second, with this expansion of the range of activities, the *market* of the firm may shift to a greater or lesser extent. Different products are likely to be sold to different customers, which in turn may require different distribution channels, marketing methods, and so on. Moreover, companies may face other competitors than they did before, or deal with different suppliers.
- Third, the *resources* on which the firm draws - raw materials, human resources, technologies and so on - may shift, so that the character of the firm as a buyer of these resources may change with increases in diversification.

Overall, in this chapter diversification is understood in the sense of *product diversification*. It should be pointed out that other authors use different definitions of diversification. Patel and Pavitt (1994) for instance show that a majority of large European firms, in particular in chemicals, mining/petroleum, and machinery, have increased their degree of 'technological diversity' (as indicated by their patenting activities) between 1969-74 and 1985-90. While the exact relationship between

different forms of diversification is unclear, it seems necessary to distinguish between different types of diversification.

According to the above definition of (product) diversification, two key aspects of a firm's degree of diversification are

(a) the *number of activity lines* pursued by the company,
and

(b) the *relationships* between these different lines of activities. Therefore, in determining the degree of 'relatedness' of different activities, it is important to take into account whether the products from various business lines are delivered to the same type of customers, whether they share their distribution channels, and so on.

Many diversification indices (section 4.2.2) also take into account the *relative size* of the different activities, as measured by either their employment share or – more frequently - the share of turnover that they generate. While this is a further aspect of diversification, it seems inappropriate to devise a diversification index with its *entire* focus on the activity shares. For example, the composition of a company's turnover may shift substantially (e.g. due to changes in demand) without any accompanying changes in the scope of the company's activities.

4.2.2 Conventional Diversification Measures

The basic concept used in industrial economics for measuring the degree of diversification of companies is the diversification curve, an analogy to the concentration curve (for a graphical exposition see Clarke 1985b, p. 197). A company that is active in n industries allocates a certain share of its employees to, or generates a certain share of its turnover from, each of these activities. The diversification curve results from plotting the cumulative employment (turnover) shares on the vertical axis against n, ranked from the largest to the smallest one in terms of employment (turnover), on the horizontal axis. Firms whose activities are spread more equally across the industries in which they are active than other firms with the same number of industries will be represented by a less concave curve.

The diversification indices that have been suggested are based to a large extent on the Herfindahl concentration ratio used in industrial economics to measure the degree of

monopoly power of companies.[2] They take into account either the number of industries only, or some weighting of the number of industries with their employment or turnover share. In particular, there are the following measures[3]:

(a) The *number (n) of industries*, measured usually on some level of the SIC (Standard Industrial Classification) or a similar system. This measure is the simplest one that can be obtained. n is used as a diversification measure by many researchers (e.g. Schwalbach (1990) and Rondi, Sembenelli, and Ragazzi (1996)), as it can be calculated even in situations where either the share of the activities or their nature, or both, are unknown. Moreover, n is an appealing measure as it is non-technical and can be interpreted very easily. However, n takes into account neither the size nor the relationships between different activities of a company. Hoskisson et al. (1993, p. 225) find that other measures of diversification (such as the entropy measure and Rumelt's 'subjective' categories; see below) perform much better in terms of convergent validity (i.e. the correlation with other indicators that measure the same underlying concept) and that n, ideally, should be used in conjunction with other diversification measures.

(b) The *specialisation ratio* is defined as the ratio between employment or turnover (x_1) of firm i in its *primary* industry (the largest out of n industries in which firm i operates) to its total employment or turnover (x), i.e. $s_i = \frac{x_1}{x}$. Analogously, other authors (e.g. Rondi, Sembenelli, and Ragazzi (1996)) use the diversification ratio DR_i, which is the complement of s_i to 1, i.e. the share of total production or employment outside a firm's primary industry. Strictly speaking, s_i and DR_i are not diversification indices, as they do not take into account the different businesses a firm is engaged in. For example, a company with two businesses which allocates 60% of its employees to its primary activity would be regarded as having the same degree of diversification as a company with ten businesses, which also allocates 60% to its major activity. Therefore, the *content validity* – the extent to which an empirical measure captures the phenomenon under consideration (Hoskisson et al. 1993, p. 217) - of s and DR is relatively low.

(c) *Berry's diversification index D* is defined as $D = 1 - \sum_{i=1}^{n} p_i^2$, with p_i denoting "the ratio of the firm's sales in the i^{th} industry to the firm's total sales in n industries" (Berry 1975, p. 62). By taking the squares of the shares, the index is dominated by the largest share, i.e. by the primary industry of the firm. A similar index has been suggested by Montgomery (1982, p. 304), who finds that the index performs well if compared to Rumelt's categories. On the other hand, due to its domination by the largest activities of the company the index is bound to perform less well than the entropy index which can be calculated with exactly the same data that Berry's index requires.

(d) Utton's index $W = 2\sum_{i=1}^{n}(ip_i) - 1$ is designed so as to equate to twice the area above the diversification curve.[4] It is particularly useful as it is possible to "interpret any value of W as a 'numbers equivalent'. For example, if W=4, it means that the firm is diversified to an extent equivalent to one operating in four industries" (Utton 1979, pp. 15f.). Goudie and Meeks (1982, pp. 447ff.) define four measures which apply Utton's index in a merger context.

(e) The *Entropy index E* is defined as $E = -\sum_{j=1}^{k} s_j \ln s_j$ (s_j being a firm's share of employment or turnover in industry j), which is derived from the entropy concentration index (Waterson 1984, p. 169). E is a useful measure in that it reflects both the number of activities and their shares in the portfolio of a company. Among two companies with three and four activities respectively and an equal distribution of shares across these activities, the one with four activities will have a higher value of E. Similarly, a company which allocates its resources equally across its three activities will have a higher entropy value than a company with the same number of businesses, two of which are very small as compared with its main activity.

The Entropy index is decomposable into within-sector and between-sector indices. Two components of E can be calculated, one on a low-digit level of the SIC system (which indicates the broad industries in which a company is active), and one on a higher-digit level of the SIC system, indicating the degree of diversification within

these industrial sectors. E is then given by the sum of these two components (for details see Clarke 1985b, p. 200 and Hall and St. John 1994, p. 167).

Empirically, the Entropy index is rarely used, mainly because of the difficulty in obtaining detailed and reliable information on SIC-classified company activities and the shares of these activities in the portfolio of firms. The same applies to Berry's and Utton's indices. In the US, the Federal Trade Commission's *Line of Business* program provided very detailed data for some time (which were not available to the general public, however), but has now ceased to do so.

Hoskisson et al. (1993, p. 230) find that E performs well as compared to other indices. Hall and St. John (1994), however, contend that the continuous measures of diversification (for which E is the chief example) have deficiencies when used in research on organisational structure and strategy, "because of their failure to tap the dimension of relatedness" (Hall and St. John 1994, p. 154) captured by the Wrigley and Rumelt classification schemes discussed below. As a second criticism, one could also argue that the continuity characteristic of E and the other measures discussed so far is artificial in that it is based exclusively on the continuity of the measure of sales or employment shares of particular activities in a firm's portfolio. The fact that the activity list in the SIC system is, by nature, a nominal variable on a discontinuous scale is thereby concealed. In other words, continuous diversification measures display a degree of precision that they actually do not have. As mentioned in section 4.2.1, E would reflect changes in the composition of a company's employment or turnover shares which are not related to changes in diversification, but to changes in the product market. This can be seen, for example, in table 4.19 which presents empirical results on three measures of diversification (n, E, and the measure r defined below), disaggregated by industry. When focusing on E, the five utilities companies in the sample appear to have experienced a slight increase in diversification (ΔE=+0.044), whereas the results on changes in n and r (Δn=Δr=0) show that the companies concerned have not experienced any changes in their activity portfolios.

In the empirical application of E, turnover shares rather than employment shares are generally used for weighting companies' activities. The use of employment shares is difficult as many employees may be deployed across several activities, and others - like

the administrative and the managerial staff - may not be working in the operating units at all. In particular as companies become more flexible in their use of labour with regards to both quantitative and functional criteria, it will be difficult to allocate an employee to a specific activity. However, the use of turnover shares suffers from the fact that sales figures in financial services are generally lower than in manufacturing industries. Therefore, *E* may underestimate the degree of diversification of companies that are active in both manufacturing and financial services.

(f) Based on the four discrete diversification categories suggested by Wrigley (1970), Rumelt (1974; 1982) sets out a system of subjective diversification categories.[5] He distinguishes between four broadly defined degrees of diversification, which are characterised principally by certain levels of the specialisation ratio as shown in table 4.1 below.

Specialisation ratio	**Broad diversification level**	**Diversification categories** (ordered from low to high diversification)
95-100%	Single business	(1) single business (2) single vertical
70-94%	Dominant business	(3) dominant vertical (4) dominant constrained (5) dominant linked (6) dominant unrelated
<70%	Related business	(7) related constrained (8) unrelated constrained
	Unrelated business	(9) multibusiness (10) unrelated portfolio

Table 4.1: **Rumelt's Diversification Categories**
Source: Adapted from Montgomery 1982, p. 301
Note: The four broad diversification levels coincide with the categories developed by Wrigley (1970).

Diversification on these four levels follows three *patterns* which can be exemplified using the following figures:

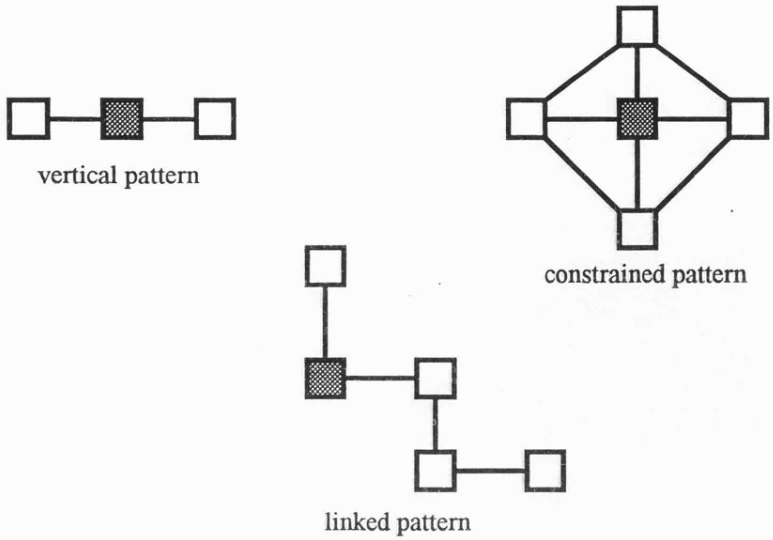

Figure 4.1: **Rumelt's Diversification Patterns**
Source: Adapted from Montgomery 1982, p. 301

In these figures, squares denote businesses or activities, and filled squares the principal or 'core' activity of the company under consideration. In the vertical pattern of diversification, companies integrate strictly those activities that form the upstream or downstream parts of the company's main business. A linked diversifier relates new businesses to existing ones, but not necessarily to its principal activity. A constrained diversifier adds those kinds of businesses to its main activity which have some relation to it, whether on a vertical (upstream or downstream) or on a horizontal (activities similar or parallel to its main activity) basis. A family car manufacturer that buys both its automobile retailer and a sports car producer provides an example.

Although Rumelt (1982, p. 360) provides a somewhat more formal definition of some of these 'patterns', it is still necessary to apply one's own judgement if one wishes to assess which pattern a particular company follows. Rumelt's categories, which result from combining these patterns with the broad groups of diversification, are therefore subjective.

The strength of Rumelt's categories lies in the fact that they shed light on the strategic direction that companies take in their diversification moves. His scheme has therefore been used primarily in the context of strategy research. Rumelt was also one of the first to develop the concept of the 'core business' of companies, which underlies his scheme. The notion of the 'core competence', put forward by Hamel and Prahalad (1989) and Prahalad and Hamel (1990) and others, is based on his concept.

Despite its subjectivity, empirically the measure appears to perform reasonably well. Montgomery (1982, p. 303) finds high inter-rater-agreement for Rumelt's system. Hoskisson et al. (1993, pp. 226-230), who apply confirmatory factor analysis, find that quantitative measures of diversification such as the entropy index form clusters identical with Rumelt's categories, whereas this is disputed by Hall and St. John (1994, p. 160).

The Wrigley and Rumelt categories have a number of disadvantages. First, their application requires very detailed information on companies, which normally is not available for a large number of firms. If information is sparse, one must expect the subjective element in the categories to influence the outcome more strongly. Quantitative information on turnover shares is also necessary. Second, assessing company activities is a time-consuming process, which cannot be done for large data sets. Third, the Wrigley and Rumelt diversification measure is a discrete (and rather coarse) variable on an ordinal scale, which makes those types of quantitative analysis impossible that require continuous variables. Fourth, the Wrigley and Rumelt schemes rely on a particular conceptualisation of the historical development process of companies, and may become obsolete once the direction of this process changes. In particular, it can be argued that the Wrigley and Rumelt categories are more apt to reflect *increases* rather than *decreases* in diversification, partly because the scheme is built so as to discern better between lower diversification categories than between higher ones. Consider the example of a conglomerate with ten unrelated businesses of roughly equal size. If the company tried to de-diversify by selling, for example, five out of its ten businesses, this 'refocusing process' would not be reflected by a change in its diversification category ('unrelated portfolio') in Rumelt's scheme. Moreover, discrete diversification categories of the Wrigley / Rumelt type are not very sensitive to year-to-year *changes* in diversification; they are more appropriate to depict relatively permanent diversification *levels* of companies. For these reasons, the Wrigley and Rumelt categories will not be used below.

4.2.3 Diversification Indices Based on Accounting Data

In this section, diversification indices are defined that can be used with the SIC codes which are assigned to companies on the basis of their trade descriptions in the annual reports. First, a brief overview of the SIC system is given. Second, the indices are defined, their properties examined, and an example for their calculation is provided.

4.2.3.1 The SIC System

The SIC system is a numerical classification scheme used to describe the activities of companies. It "starts with a small number of broad groups of activities which are then subdivided into progressively narrower groups so that the classification can be used with varying amounts of detail for different purposes" (Central Statistical Office 1979, p. 2). The British SIC system is therefore a strictly hierarchical classification system. The 1980 version of the SIC code that replaced the earlier versions of 1948, 1958 and 1968 is a five-digit numerical system with a decimal structure:

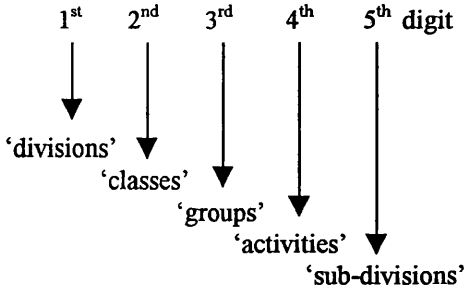

Figure 4.2: The 1980 SIC System

The first digit classifies all activities into ten different *divisions*, which are:

0	Agriculture, forestry, and fishing
1	Energy and water supply industries
2	Extraction of minerals and ores other than fuels; manufacture of metals, mineral products and chemicals
3	Metal goods, engineering and vehicle industries
4	Other manufacturing industries
5	Construction
6	Distribution, hotels and catering; repairs
7	Transport and Communication
8	Banking, finance, insurance, business services and leasing
9	Other services

Beyond the divisional level, the classification system distinguishes between 60 classes, 222 groups, and 334 activity headings, which describe any activity of a particular company with increasing degree of detail. The 'descriptive sub-divisions' which make up the fifth digit "are intended primarily for ease of exposition. Their use for statistical purposes will be limited" (Central Statistical Office 1979, p. 3). In many cases, activities are not broken down into these sub-divisions (in this case the resulting fifth digit is 0) and, if they are, there are usually only two or three different activities on the sub-divisionary level. Therefore, the diversification indices constructed below rely on a decomposition of the different levels of SIC codes mainly on the basis of the first three or four digits (r_c and r_d respectively). A supplementary index r_e taking into account the fifth digit is provided in addition.

SIC codes are assigned according to each type of *product* which is mainly produced in one industry (Central Statistical Office 1979, pp. 17ff.). Beyond this, the assignment of the codes takes into account the following criteria: The nature of the process of the work done, the main raw material used, the type or intended use of goods produced or handled, or the type of service rendered. Therefore, it can be argued that SIC codes *within* a particular digit-level (i.e. with the same preceeding digits) describe activities that are more closely related than activities identified by codes that differ in a higher level of the 5-digit-system, so that the former represent a lower degree of diversification than the latter.

A general problem with the use of SIC codes arises from the fact that the legal disclosure requirements for company accounts with respect to different business lines are vague. British law leaves the decision about the detail of disaggregation in published accounts to the directors of companies. "If in the course of the financial year the company has carried on business of two or more classes that, in the opinion of the directors, differ substantially from each other, there shall be stated in respect of each class (describing it) (a) the amount of the turnover attributable to that class; and (b) the amount of profit or loss of the company before taxation which is in the opinion of the directors attributable to that class" (Companies Act 1985, Schedule 4, Part III, para 55). Hadden (1983, p. 9) points out that the activity descriptions of holding companies are often much less detailed than the reports of their subsidiaries. The use of

information from subsidiaries, however, is complicated by the large number of subsidiaries of many British holding companies. With respect to Germany, para 285 section 4 of the Code of Commercial Law (*Handelsgesetzbuch* HGB) stipulates that the appendix to the Annual Statement of Accounts (*Jahresabschluß*) shall specify "the breakdown of revenues by activity and by geographic markets, as far as [...] the activities and geographic markets are significantly different" (translation A.R.). The code does not define what 'significantly different' activities are, and provides exceptions from the stipulation for those companies that would be disadvantaged by the disclosure requirement (para 286 section 2 HGB). In sum, both British and German law are very vague with respect to the detail of the disclosure requirements for the activities of companies. Any diversification measure based on accounting data will therefore reflect differences in the degree of accuracy with which companies report on their activities. This, of course, poses the same problem to all techniques of measuring diversification described above.

4.2.3.2 Definition of a SIC-Based Diversification Index

SIC codes can be thought of as hierarchies of descriptors in a descending order. Tiers in these hierarchies are defined by t, $t \in [1, 2, 3, 4, 5]$; i.e. the first tier is denoted by 1, the second tier by 2 and so forth. In the terminology of the Central Statistical Office, the first tier (t=1) indicates the 'division' into which any economic activity falls, the second tier (t=2) indicates the 'class', and so on. Let k_t denote any generic digit on tier t.

Consider any tier t in a particular SIC code attached to a company. All generic digits k_t in a SIC code with the same higher-ranking level digits (such as k_{t-1}, k_{t-2} etc. depending on the level t considered) shall be said to belong to the same *common parent*. Let all generic digits k_t with the same common parent at any given level t form the class[6] c_t. For example, the digits 4 and 6 in the SIC codes 23401 and 23688 of any one company shall belong to the same class c_3, which means that these two SIC codes have the same digits k_2 and k_1 on the left-hand side of the tier (t=3) under consideration. Let the digits that belong to a particular class be called the *elements* of this class.

Note that according to this definition, the elements of a class are *generic digits*, not entire SIC codes. This means that the class c_3 in the case of the company with the two

SIC codes given above has two elements, but its class c_2 has only one element: For c_3, there are two SIC codes with both the same 'left-hand' digit k_1 and the same digit k_2. This in turn means that there is only one generic digit on tier 2, so that the number of elements in class c_2 is but one. In addition, there are *two distinct classes* c_4 in this example, each with one element k_4 (k_4=0 in the case of SIC code 23401 and k_4=8 in the case of SIC code 23688). This is because the three digits k_1, k_2, and k_3 of the two SIC codes are not all identical - namely, they differ with respect to tier 3, as shown above.

In line with what has been said in the last paragraph, all classes c_1 contain but one element. This is because different first digits of several SIC codes do not have a higher-level (left-hand side) predecessor.

Note that, in this denotation, there can be several classes on any tier t even if the preceding digits are not all identical. Consider, for example, a company with the SIC codes 23401 and 23688 (as in the above case) and, in addition, with SIC codes 57643 and 57791. Let the digits 4 and 6 on tier 3 of the first two SIC codes form a class c_3^1 (because they belong to the same common parent), while digits 6 and 7 on tier 3 of the other two codes form another class c_3^2. In other words: Let the number of classes formed at any level t of the SIC codes of a company be denoted by a superscript number $i, i \in \{1,2,\ldots,z\}$ attached to c_t.

Furthermore, let $n_t^i(c_t^i)$ be defined as the number of elements (generic digits) that constitute class c_t^i. For example, $n_3^1(c_3^1)$ in the above example of the two SIC codes 23401 and 23688 is 2, while $n_4^1(c_4^1)$ and $n_4^2(c_4^2)$ are both 1. Consequently, $[n_4^1(c_4^1)-1]=0=[n_4^2(c_4^2)-1]$. It is set out below why it is useful to subtract 1 from any $n_t^i(c_t^i)$ in the definitions that follow.

In the next step, let the indices a, b, c, d, and e be defined as

$$a=\sum_{i=1}^{z} n_1^i(c_1^i)-1$$

$$b=\sum_{i=1}^{z}[n_2^i(c_2^i)-1]$$

$$c=\sum_{i=1}^{z}[n_3^i(c_3^i)-1]$$

$$d=\sum_{i=1}^{z}[n_4^i(c_4^i)-1]$$

$$e = \sum_{i=1}^{z} [n_5^i(c_5^i) - 1]$$

with $a, b, c, d, e \in \mathrm{N}$.

If SIC codes on companies are only available up to any particular tier (in the case of the first data set used below only three-digit SIC codes are given), one can simply calculate, say, indices *a*, *b*, and *c*, and leave *d* and *e* out of consideration.

The non-technical interpretation of the indices *a* to *e* is as follows. Indices *a* to *e* represent measures of diversification at a particular tier of the SIC system. Any company has at least one activity, i.e. the minimum number of SIC codes attached to any company is 1. Such a company with but one activity is not diversified at all, so that the degree of 'zero-diversification' is attached to it. With respect to index *a*, a company with but one activity will, by definition, be active in but one 'division' (in the terminology of the CSO). Therefore, its degree of diversification on the first level (tier t=1 of the SIC system) is a=(1-1)=0. If, however, a company is active in three divisions (as measured by the number of different digits on the first tier of the SIC system), it would have two activities more than it would have if it was not diversified at all, therefore a=(3-1)=2.

With respect to the following tiers 2, 3 and so on, these tiers can be thought of as branches of a tree. One has to go down each branch (sub-branch, sub-sub-branch etc.) and calculate the degree of diversification on each branch-level, applying the same logic as above: At the second level, each company must have at least one activity, so that the resulting index b=(1-1)=0. If a company has two SIC codes in the same division (indicated by the first digit) but with different digits on the class-level (in the terminology of the CSO), its degree of diversification on this particular level consists of one activity more than it would have if it was not diversified at all on this level (therefore b=[2-1]=1), and so on.

As an example, the following data is taken from the FAME data set for 1989 (see section 4.3.2.2) for the company Bunzl plc. Figure 4.3 displays its 'tree of activities':

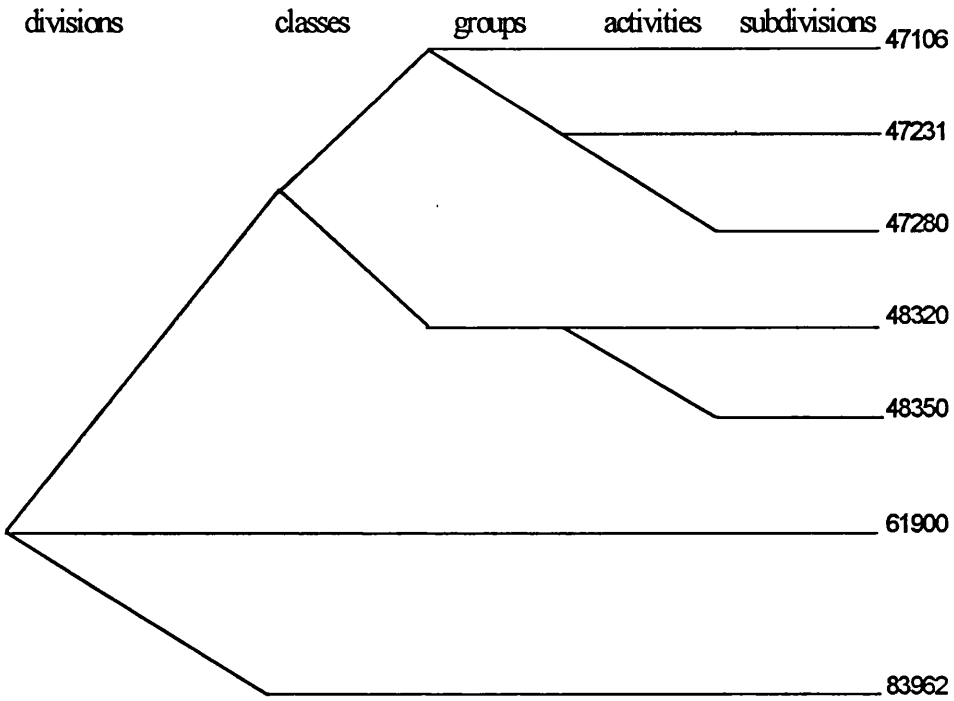

Figure 4.3: Activity Tree for Bunzl plc (1989)

The company is active in three divisions, therefore a=(3-1)=2. The logic behind this assignment is that, on this level, Bunzl is active in two more divisions than it would be if it had zero-diversification (i.e. if it was active in a single division only). On the two branches on the bottom there is no further differentiation, so these do not have to be taken into account any further. This is because all codes are regarded as equally valid, i.e. the 83962-code in Bunzl's case is considered to express the same degree of differentiation of activities as the 61900-code.

On the upper branch, the degree of differentiation on the second tier can be expressed as b=(2-1)=1. On the group level, only the branches leading to the 471xx- and 472xx - codes show further differentiation, so c=(2-1)=1. Further down on the level of different activities, the company is differentiated twice: There are two codes starting with 472 and two codes starting with 483, so d=(2-1)+(2-1)=2. Bunzl's SIC codes are not differentiated on the sub-divisionary level (the fifth tier), hence e=0.

In this way, diversification indices are defined for every tier of the SIC system. The empirical results on *a, b, c, d* and *e* give the most detailed overview on the diversification of companies, as they are disaggregated by the level on which

diversification actually takes place. For the interpretation of the indices *a* to *e* it is important to bear in mind that diversification can be regarded as a gradual process. It ranges from completely unrelated ('high') diversification to the integration of few, and very closely related activities ('low' diversification). *a* indicates completely unrelated diversification, while *d* and *e* represent a kind of diversification with more integrated features.

The scope of these indices is as follows:

Scope of *a, b, c, d, e* in any potential decimal SIC system	**Scope of *a, b, c, d, e* in the British SIC system of 1980**
$a \in \{(0; 9)\}$	$a \in \{(0; 9)\}$
$b \in \{(0; 90)\}$	$b \in \{(0; 51)\}$
$c \in \{(0; 900)\}$	$c \in \{(0; 121)\}$
$d \in \{(0; 9000)\}$	$d \in \{(0; 112\}$
$e \in \{(0; 90000)\}$	$e \in \{(0; 221)\}$

Table 4.2: Scope of the Diversification Indices *a* to *e*

The scope of the indices in any potential decimal SIC system refers to the maximum value that the indices could take if a company was active in all *possible* divisions, classes, groups and so on. For example, there are ten 'divisions' in any decimal notation system, so that the maximum value of *a* is a=(10-1)=9, while the minimum value of any of the indices is generally (1-1)=0. A company that was active in all ten divisions *and* in all of the ten classes (as denoted by the next tier of the SIC system) would be active in ten divisions with ten classes each, i.e. the theoretical maximum value of *b* is $b = 10 \times (10 - 1) = 90$. The same consideration applies to all other indices *c* to *e*. *e* would therefore reach its theoretical maximum of 90000 if (a) all possible 100000 SIC codes were existent and (b) a company was active in each of the sectors.

However, condition (a) in particular does not hold true. Many positions in the British SIC scheme, in particular on the tiers *c*, *d*, and *e*, are not filled. Even if a company was active in all businesses that the SIC system describes, the maximum value of the indices would be well below their potential value.

Having discussed the diversification indices on each level of the SIC system, in the next step these indices are combined into one single indicator in order to obtain an aggregate measure of diversification. This is achieved by weighting the partial indicators *a* to *e* in an appropriate manner. Higher-level diversification indices obtain a higher weight than lower-level indices, so that, for example, a company active in two completely different divisions receives a larger aggregate index than a company that has two narrowly related fields of activities with a close relationship between them. However, beyond this rule there is no general criterion to decide which weighting factors to apply to the constituents of such an aggregate index, which shall be called *r*. Therefore, two indices *r* and *r'* are defined which apply two different weighting factors. It will be argued below that the weighting system of *r* is superior to the one of *r'*.

Let *r'* be defined as follows:

$$r_e' = \frac{a}{10} + \frac{b}{100} + \frac{c}{1000} + \frac{d}{10000} + \frac{e}{100000} \qquad (1)$$

In this context, the subscript *e* in r_e' shall refer to the level in the SIC system which is taken into account. The empirical analysis below will use primarily r_c and r_d (and r_c' and r_d' respectively) as the availability of empirical data on the fifth-digit level of the SIC system is limited.

r' is designed so as to combine *a, b* etc. in a way by which one can immediately see the degree of diversification that a company has on each particular level in the SIC hierarchy, i.e. it has the 'numbers-equivalent property': A value of naught behind the decimal point means, for example, that the company is not diversified on the division level of the SIC system, 1 means that it is active in one division more than it would be if it was not diversified at all, and so on.

However, in *r'* the first digit is weighted heavily, while the following digits are neglected. One degree of diversification at the division-level is weighted 10000 times more important than a degree of diversification on the *e*-level. This is not realistic, as the maximum number of SIC codes allocated to a company is 14 in the relatively detailed FAME sample.

Hence, r' should be interpreted merely as a *code* which allows over-time comparisons with respect to individual firms, rather than as *indicators* which are useful for further statistical calculations.

In order to obtain an aggregate diversification index that takes into account the different levels (*a, b, c,* etc.) in a more realistic way a weighting along a reverse geometric progression line is suggested[7]:

$$r_e = \frac{1}{2}a + \frac{1}{4}b + \frac{1}{8}c + \frac{1}{16}d + \frac{1}{32}e \qquad (2)$$

In this mode of weighting the different levels of the SIC system, each level of diversification counts twice the level of diversification following next to it. Again, r could be defined as r_c or r_d, depending on which level of the SIC system is taken into consideration.

From these definitions, the potential and the actual scope of r and r' can be calculated easily, which result from the scopes of a to e as given in table 4.2 above[8]:

Potential scope of r and r' in any decimal SIC system	**Potential scope of r and r' in the British SIC system of 1980**
$r_c \in \{(0;139.5)\}$	$r_c \in \{(0;32.375)\}$
$r_d \in \{(0;702)\}$	$r_d \in \{(0;39.375)\}$
$r_e \in \{(0;3514.5)\}$	$r_e \in \{(0;46.28125)\}$
$r_c' \in \{(0;2.7)\}$	$r_c' \in \{(0;1.531)\}$
$r_d' \in \{(0;3.6)\}$	$r_d' \in \{(0;1.5422)\}$
$r_e' \in \{(0;4.5)\}$	$r_e' \in \{(0;1.5643)\}$

Table 4.3: Scope of the Diversification Indices r_c *to* r_e and r_c' to r_e'

Further to the properties of the indices thus defined, both r and r' are categorical (discontinuous) variables on an ordinal scale. However, r is very finely grained – in fact much more so than n -, so that for the purpose of quantitative analysis it can be interpreted as a quasi-continuous variable. On the basis of this assumption, Shapiro-Wilk W and Shapiro-Francia W' tests have been applied to the two data sets used below to test whether r and r' produce normally distributed results.[9] The findings indicate that

- the application of *r can* produce normally distributed results, whereas *r'* does not;
- for *r* to produce normally distributed results the activity descriptions of companies have to be accurate and detailed in level.

To summarise, *r* can be used as the aggregate diversification measure for inter-firm comparisons. *r'* is to be used only as a *code* that gives a quick overview of diversification on the within-firm level. Using the above empirical example of Bunzl plc (FAME data for 1989), $r_e' = r_d' = \frac{2}{10} + \frac{1}{100} + \frac{1}{1000} + \frac{1}{10000} + \frac{0}{100000} = 0.2112$ and $r_e = r_d = \frac{1}{2} \times 2 + \frac{1}{4} \times 1 + \frac{1}{8} \times 1 + \frac{1}{16} \times 2 + \frac{1}{32} \times 0 = 1.5$, which is very close to the average for 1989.

In the empirical section 4.3.2 of this chapter, three diversification measures are used: The number of activities (*n*), the newly defined indices *r* and *r'* respectively, and, where possible, the Entropy index *E*. A complementary use of these measures yields a detailed insight into the degree of diversification of firms.

4.3 Empirical Evidence on Changes in Diversification

4.3.1 Literature Review on Changes in Diversification Since 1980

The general finding of the literature reviewed in sections 2.2.2 and 2.2.3 is that there has been a general increase in diversification in British and German industry between 1950 and 1980. In addition, most authors (e.g. Dyas and Thanheiser, and Schwalbach) find that this post-war diversification process has been slower in Germany than in the UK, and that in Germany a 'bifurcation' between some highly diversified companies and a large number of relatively specialised companies took place.

Rondi et al. (1996, see in particular p. 174), using data collected by Davies and Lyons (1996; for a data description see pp. 34-46), find that, as of 1987, leading British companies, with an average of 5.7 three-digit industries, were significantly more diversified than the EU average with 4.9 industries, and that leading German companies, with 4.6 industries, ranked slightly below the EU average. It is interesting

to note that companies from the USA and Canada show an even lower degree of diversification, with 4.5 three-digit industries on average. The difference between German and British companies becomes even clearer if one uses the diversification ratio *DR* and Berry's index which they also compute. On the other hand, they find that the 30 or so largest German firms are relatively diversified, thereby corroborating the above thesis regarding the 'bifurcation' of German industry with respect to diversification.

With respect to *changes* in diversification, the scene for the European companies is set by clear evidence of a reduction in diversification in the US from the early 1980s onwards. Lichtenberg (1990) uses the *Compustat* sample of about 17000 manufacturing establishments in the US, finding that the mean number of American SIC codes attached to the companies dropped by about 14% from 5.46 in January 1985 to 4.70 in November 1989. He also finds that the number of highly diversified companies (with 20 SIC codes or more) declined substantially over this period of time. While he admits that the measure of diversification used (n) is a crude one, the results turn out to be highly significant in magnitude. Lichtenberg concludes that, in the US, the diversification wave had peaked already during the mid-1970s, and that diversification decreased continuously throughout the 1980s.

Markides' (1993, p. 3; 1995[10], Ch. 4) work on the US qualifies Lichtenberg's results. Analysing 250 of the large *Fortune 500* companies he finds that whereas during each of the two successive periods of 1949-1959 and 1959-1969 little more than 1% of these companies had reduced their degree of diversification, this figure went up to 20.4% between the 1981-1987 period (for an analysis of the characteristics of de-diversifying firms see Markides 1992b, pp. 91-100). Also, while in the two earlier periods up to a quarter of the companies became more diversified, this figure dropped to less than 10% during the 1980s. However, the latter finding also indicates that the refocusing trend in the US has not been universal. Based on the notion that the marginal returns to diversification decrease the more firms diversify (section 2.3.2), Markides (1992a, pp. 398-412) argues that every company has a firm-specific, optimal degree of diversification. While he maintains that this degree, in tendency, has become lower over the past 15 years or so, his argument implies that companies which for any reason were below this point in the early 1980s may still have found it worthwhile to

diversify. Contrary to Lichtenberg, Markides finds little change in the average degree of diversification of the largest American firms.

Davies and Petts (1997) compare the degree of diversification and of multinationalisation of 65 British and 75 German leading manufacturing firms as of 1987 and 1993. Using a Herfindahl index, they confirm the finding by Rondi et al. (1996) that British firms had a higher average degree of diversification than German firms in 1987. They also apply an entropy index to the same data for 1987 and 1993, finding that the British companies reduced their degree of diversification during that period by 7.9%, while the German firms saw a large increase in diversification by 31.2%. Due to these opposite developments, they find the 75 German companies in their study to be slightly more diversified than their British counterparts as of 1993, as table 4.4 shows.

	1987	1993	Change (%)
Britain	2.72	2.50	-7.9%
Germany	1.97	2.59	+31.2%

Table 4.4: Entropy Measure of Diversification for British and German Companies
Source: Davis and Petts 1997, p. 21.

In interpreting Davies' and Petts' results on Germany, which, at first sight, seem to contradict the results of the questionnaire survey reported in chapter 3, one has to take account of two factors. First, Davies' and Petts' study of 'market leaders' includes a substantial number of German companies which traditionally had been relatively specialised, so that these had more potential for increases than for decreases in diversification. Second, their results refer to the period from 1987 to 1993, whereas the questionnaire survey covers the ten-year period up to 1996. In fact, the results from the questionnaire survey (section 3.3.1) suggest that those German companies which stated that they had refocused had started these refocusing processes only towards the end or after the period studied by Davies and Petts.

With respect to Germany, analysts at the investment bank JP Morgan (1996, pp. 27-29 and 1997a), using a self-defined 'corporate clarity index', find that among a sample of

36 large multi-business firms diversification increased slightly between 1990 and 1992, but that from 1992 to 1995 this process was reversed. They attribute this latter development to a refocusing process among five companies (Schering, Altana, Gehe, Mannesmann, and Degussa) of the sample and state that since 1995 more companies (e.g. Daimler, Thyssen) have begun to refocus. They also maintain that reductions in diversification have begun earlier, and have been more far-reaching, among British than among German companies. JP Morgan's findings are consistent with the results from the questionnaire survey and with the findings reported in section 4.3.2 below.

Davies' and Petts' (1997) finding of a reduction in diversification with respect to British industry is corroborated by results from a questionnaire survey that Geroski and Gregg (1993; 1994; 1997) have carried out to review the effects of the 1991/92 recession on British companies. In the questionnaire, the participating companies were asked which strategies they have pursued in order to cope with the slack in demand during that period. They find that the decision to refocus and to concentrate on 'core' activities was one of the most widely adopted strategies to cope with the slump in demand: 312 out of 614 responding companies said that they had refocused on their 'core' business. In addition, policies that can be related to refocusing (such as closure of plants and the disposal of assets) were also very popular. However, it is not clear whether the refocusing decision was just a short-term reaction to the recession, or whether it indicates a long-term trend.

In distinction to Davies and Petts, Gregg and Geroski, and to the findings presented in chapter 3, Whittington, Mayer and Curto (1997) and Whittington and Mayer (1997) report *increases* in diversification for the top 100 industrial firms in *both* the UK and Germany for the period between 1983 and 1993. Their work attempts to continue the line of investigation taken by the 'Harvard Group' of scholars (Channon, Dyas and Thanheiser and others), so that they use the Rumelt and Wrigley diversification categories. They find that the proportion of unrelated diversifiers among the top 100 UK companies has increased by 9.4 percentage points, whereas the increase has been less strong in Germany (4.8 percentage points).

Wrigley / Rumelt	UK		Germany	
Category	1983	1993	1983	1993
Single	6.7	4.5	17.2	12.7
Dominant	22.3	13.4	17.2	9.5
Related	54.7	56.7	44.8	55.9
Unrelated	16.0	25.4	19.0	23.8

Table 4.5: **Wrigley and Rumelt Classifications for the Top 100 Industrial Firms in the UK and Germany**
Source: Whittington and Mayer 1997, Tables 2 and 3; Whittington et al. 1997, p. 11

In sum, the extant literature on changes in diversification in British and German industry during the period since 1980 is not as clear-cut as it is for the US, where there has been a clear refocusing trend. Methodological differences make it difficult to compare the results of various authors directly. Most authors - Whittington and his co-authors being an exception – find that large industrial companies in Britain have reduced their degree of diversification; this can be stated more clearly for the period since the late 1980s to which Davies' and Petts' and Gregg and Geroski's findings refer. For Germany, the evidence is conflicting. While Davies and Petts, and Whittington et al. find diversifying tendencies in German industry, their results refer only to the period up to 1993. JP Morgan reports decreases in diversification since 1992. It seems possible, therefore, that large German companies may have taken various directions. Any de-diversifying tendencies seem to have taken place only after 1992.

4.3.2 Empirical Evidence from Two Data Sets on Companies from the UK and West Germany

In this section, empirical findings from the application of the three indices n, E, and r discussed above on two different data sets, the CEP Data Set on Company Activities (based on data from Datastream), and a data set drawn from FAME, are presented. Before that, a brief description of the two data sets is provided.

4.3.2.1 The CEP Data Set on Company Activities

The CEP Data Set on Company Activities consists of two data files, one with a total of 745 British companies, and the other one with a total of 368 German companies. The data set was compiled by the author for the purpose of research on diversification, and a separate paper with a detailed description of the data set is available upon request. Therefore, the discussion may concentrate on the following issues:

The original provider of the data is Datastream, which reports on large, stock-market quoted companies worldwide since the 1970s. Data on activity segments, as measured by three-digit SIC codes, has been available since 1988. Datastream assigns these codes to companies on the basis of their annual reports. The CEP Data Set on Company Activities contains data for the 1988-94 period.

For the purposes of this chapter, restrictive criteria for the inclusion of companies were applied. First, companies with activity descriptions that appeared to be insufficient or unclear were excluded from the sample. Second, only those companies were included for which data were continuously available. This left 476 British and 75 German companies. An exception from this rule was made for the analysis of diversification levels by industry, which necessitates a larger sample size; therefore, table 4.20 includes all 306 German companies for which consistent data is available as of 1994 only. Third, 'catch-all' SIC categories denoting 'miscellaneous activities' and the like were excluded from the analysis. The CEP Data Set on Company Activities also contains additional information on most of the companies included in it, in particular data on size measures (employment, total capital employed, turnover) and industry codes, denoting the broad industrial sector in which the companies are primarily active.

Descriptive results on the means of the three size measures are reported in table 4.6. The data show that both samples capture a significant proportion of the respective economies of the two countries. The UK sample represents the equivalent of around 20% (between 18.7% in 1994 and 20.4% in 1992) of the total population in employment in the UK. The average number of employees per company is consistently above 10,000. The German sample is far smaller than the UK one, but the 75 companies in the sample are extremely large (e.g. companies such as Siemens, Daimler and Volkswagen with more than 200,000 employees are included). The 75 companies represent an equivalent of about 11% (between 10.7% in 1988 and 11.5% in 1992) of

Description of Samples (CEP Data Set on Company Activities)						
year	UK Sample (Arithmetic Means, 476 obs.)			German Sample (Arithmetic Means, 75 obs.)		
	empl.	tce	Sales	empl.	tce	sales
1988	11209	493.5	738.7	39036	5672.1	8461.7
1989	11558	584.1	871.0	40444	6575.1	9194.9
1990	11554	643.5	910.6	41909	6991.3	9804.1
1991	11173	689.9	921.5	44485	7207.2	10671.0
1992	11898	749.8	967.3	45294	7969.5	10979.6
1993	10898	789.9	1032.2	43769	8158.9	10927.0
1994	10610	805.7	1075.8	43439	8772.6	12171.9

Table 4.6: **Mean Size Data for the Samples from the UK and West Germany**
Note: Total Capital Employed (tce) and sales are measured in million units of the respective currency

Correlation Between Employment and Diversification						
year	UK Sample (476 obs.)			German Sample (n=75 obs.)		
	n_c↔empl	E↔empl	r_c↔empl	n_c↔empl	n_c↔empl	n_c↔empl
1988	0.355	0.326	0.300	0.440	0.349	0.247
1989	0.345	0.315	0.292	0.392	0.371	0.238
1990	0.340	0.303	0.286	0.374	0.349	0.288
1991	0.339	0.293	0.289	0.369	0.351	0.286
1992	0.367	0.310	0.314	0.316	0.328	0.241
1993	0.390	0.324	0.337	0.338	0.360	0.273
1994	0.373	0.308	0.328	0.431	0.386	0.333

Table 4.7: **Correlation between Employment and Diversification Measures**
Note: All correlation coefficients are statistically significant at at least 95 percent significance level.

year	n_c↔E	n_c ↔ r_c	r_c↔E
1988	0.892	0.915	0.812
1989	0.898	0.917	0.812
1990	0.882	0.917	0.789
1991	0.897	0.918	0.802
1992	0.905	0.916	0.808
1993	0.905	0.916	0.810
1994	0.908	0.910	0.810

Table 4.8: **Correlation among the three Diversification Measures n_c, E, and r_c**

the total population in employment in West Germany. The data on sales and total capital employed also indicate the large size of the companies in both samples.

4.3.2.2 The FAME Data Set

The second data set is drawn from FAME ('Financial Analysis Made Easy'), a CD ROM containing accounting information for some 160,000, mainly British, companies. JORDAN, the publisher of FAME, assigns five-digit SIC codes to the companies on the basis of their annual reports that are filed with Company House. In the December 1995 edition of FAME, JORDAN still used the 1980 version of the SIC codes, although a new version of the SIC was published in 1992. Since then, JORDAN has started to switch over to the new version of the SIC system. While old SIC codes are still reported, indications are that they are not updated any longer in a systematic fashion, but that their use is being phased out.

Using FAME the 78 largest British non-financial companies for 1989 were selected. FAME selects non-financial companies on the basis of a primary code that is attached internally to the company. For the same 78 companies, data was extracted from the 1995 version of FAME, so as to obtain an exact match of the two samples. Five companies have merged or were acquired over this 6-year period (for example Glaxo - Wellcome), but this does not affect the assignment of SIC codes to the companies. For example, even in the 1995 sample, Wellcome is assigned its own SIC codes. For comparisons between SIC codes and factors like employment, age and so on, however, these five companies have to be excluded, so that a sample of 73 companies remains. With average employment of 46336 as of 1989 and 44418 as of 1995, the companies are extremely large as compared to the sample from the CEP Data Set on Company Activities; they represent an equivalent of between 13.5% (1989) and 12.6% of the total UK labour force in employment.

A special remark has to be made regarding the 1995 data: For this year, the database shows the primary SIC code on the four-digit level that aims to describe the main business of the company. Using this code, the sample can be disaggregated by industry. On the other hand, this change in reporting policy makes it difficult to take into account the fifth digit level of the SIC system. If e is to be calculated, the only

possibility is to assume that naught has to be added to the four-digit, primary code. Therefore, e and the derived measures r_e and r_e' have to be treated with caution, the more so as the fifth digit level adds little information to the preceding four SIC digits. It is safer to use r_d and r_d' respectively, and the evidence below will be based entirely on these measures.

In sum, both data sets have particular advantages and disadvantages. The CEP Data Set on Company Activities contains information on a relatively large number of companies from both the UK and West Germany for all years from 1988 to 1994, and the turnover shares are attached to the activity codes. On the other hand, only three-digit SIC codes are given, so that only n_c, E, and r_c can be calculated. The FAME data set is relatively small and limited to the very largest UK non-financial companies. In addition, no turnover or employment shares are attached to the SIC codes. These, however, are very accurate in level and detail, so that at least n_d and r_d, and even n_e and r_e (under the limitations discussed above) can be calculated.

4.3.2.3 Results from the CEP Data Set on Company Activities

In the following, the results are first discussed by country (sections *a* and *b*) and by industry (section *c*), before determinants of diversification levels (section *d*) and of changes in diversification (section *e*) are analysed.

(a) Diversification in the Sample of UK Companies

Table 4.9 presents descriptive statistics for the three main diversification indices n_c, E, and r_c for the 476 companies from the UK for which data is continuously available for all years between 1988 and 1994.

year	n_c			E			r_c		
	mean	std. dev.	range	mean	std. dev.	max.	mean	std. dev.	max.
1988	2.105	1.406	1-11	0.405	0.483	1.883	0.393	0.500	3.000
1989	2.067	1.309	1-9	0.402	0.470	1.698	0.381	0.477	2.750
1990	2.019	1.232	1-9	0.392	0.443	1.587	0.362	0.456	2.750
1991	2.002	1.223	1-8	0.395	0.449	1.667	0.357	0.453	2.625
1992	1.983	1.231	1-8	0.381	0.451	1.707	0.351	0.455	2.875
1993	1.960	1.218	1-8	0.373	0.448	1.613	0.338	0.442	2.625
1994	1.887	1.112	1-7	0.357	0.431	1.639	0.316	0.404	2.375

Table 4.9: Descriptive Statistics on Diversification Indices, 476 UK Companies
Note: The minimum values of E and r_c are 0 in all cases, so that here and in table 4.14 only the maximum values of the two indices are given.

Each of the three main measures for diversification (n_c, E, and r_c) shows a decrease in diversification between 1988 and 1994. The average number of activities in which the companies were engaged (n_c) dropped by 10.4% from 2.1 in 1988 to less than 1.9 in 1994. The maximum number of activities in which any particular company (Inchcape plc) was involved decreased from 11 to 7. The decrease in mean diversification levels was particularly marked from 1988 to 1990 and from 1992 to 1994, whereas between 1990 and 1992 the decrease in diversification took place more slowly.

In order to test whether the changes in diversification reported in table 4.9 are statistically significant, mean comparison tests can be applied to each of the three key measures of diversification, comparing the mean for each year with the corresponding mean for each other year. Significance levels resulting from these tests are given in tables 4.10-4.12. It is shown that the decrease in each of the three measures of diversification over the overall period 1988-1994 is statistically significant at at least 99.5% significance level. n_c and r_c show this change more clearly than the entropy index E. In addition, the mean comparison tests confirm the particular 'timing' of the changes that has been suggested above: The changes from 1988 to 1990 and from 1992 to 1994 turn out to be significant, whereas the changes in diversification between 1990 and 1992 are too small to gain statistical significance.

	Mean comparison tests: n_c (476 observations)					
year	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**
1989	n.s.					
1990	p<0.05	p<0.05				
1991	p<0.05	p<0.1	n.s.			
1992	p<0.01	p<0.05	n.s.	n.s.		
1993	p<0.005	p<0.01	p<0.1	n.s.	n.s.	
1994	p<0.0001	p<0.0001	p≈0.0001	p<0.0005	p≈0.001	p<0.0005

Table 4.10: **Significance Levels of Year-to-Year Mean Comparison Tests on Diversification Index n_c (476 UK Companies)**

	Mean comparison tests: E (476 observations)					
year	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**
1989	n.s.					
1990	n.s.	n.s.				
1991	n.s.	n.s.	n.s.			
1992	n.s.	n.s.	n.s.	p<0.1		
1993	p<0.05	p<0.05	p<0.1	p<0.05	n.s.	
1994	p<0.005	p<0.005	p<0.005	p<0.001	p<0.05	p<0.05

Table 4.11: **Significance Levels of Year-to-Year Mean Comparison Tests on Diversification Index *E* (476 UK Companies)**

	Mean comparison tests: r_c (476 observations)					
year	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**
1989	n.s.					
1990	p<0.05	p<0.05				
1991	p<0.05	p<0.1	n.s.			
1992	p<0.01	p<0.05	n.s.	n.s.		
1993	p≈0.001	p<0.005	p<0.1	p<0.1	n.s.	
1994	p<0.0001	p<0.0001	p<0.001	p<0.005	p<0.005	p<0.01

Table 4.12: **Significance Levels of Year-to-Year Mean Comparison Tests on Diversification Index r_c (476 UK Companies)**

An analysis of the indices *a*, *b*, and *c*, which constitute r_c, shows *at which level* the reduction in diversification has taken place. The arithmetic means of these indices are displayed in table 4.13.

Arithmetic Means			
year	*a*	*b*	*c*
1988	0.603	0.225	0.279
1989	0.590	0.210	0.269
1990	0.559	0.202	0.261
1991	0.548	0.204	0.252
1992	0.542	0.193	0.250
1993	0.517	0.191	0.254
1994	0.487	0.181	0.221

Table 4.13: Arithmetic Means of Diversification Indices (476 UK Firms)

According to these data, de-diversification has taken place at each of the three levels, i.e.

- companies have left *divisions* in the *Standard Industrial Classification* altogether (drop in *a*); this change has been the largest in size of all three changes.
- some companies have left *classes* of businesses within the same division (drop in *b*);
- some companies have left *groups* of businesses within the same classes (drop in *c*).

Index *a* is a measure for the number of different divisions in which a company is active; they represent the least related activities within the SIC system. The fact that the largest drop has occurred in *a* (rather than in *b* or *c*) suggests that companies have left in particular those industries which are least related.

In sum, the data from the CEP Data Set on Company Activities suggest that a marked, and statistically significant, decrease in diversification has taken place during the 1988-1994 period among large UK companies.

(b) Diversification in the Sample of West German Companies

The results on the 75 German companies for which continuous data are available are as follows:

year	n_c			E			r_c		
	mean	std. dev.	range	mean	std. dev.	max.	mean	std. dev.	max.
1988	2.827	1.631	1-9	0.624	0.478	1.687	0.507	0.481	2.375
1989	2.800	1.602	1-9	0.638	0.477	1.692	0.517	0.507	2.375
1990	2.853	1.674	1-10	0.648	0.480	1.703	0.530	0.537	2.875
1991	2.840	1.669	1-10	0.667	0.497	1.750	0.528	0.542	2.875
1992	2.867	1.687	1-10	0.664	0.510	1.682	0.538	0.549	2.875
1993	2.800	1.716	1-10	0.649	0.519	1.790	0.515	0.564	2.875
1994	2.627	1.487	1-7	0.604	0.505	1.771	0.452	0.481	2.125

Table 4.14: Descriptive Statistics on Diversification Indices, 75 West German Companies

These data show a slight *increase* in mean diversification levels from 1988 to 1991/92, followed by a *decrease* that was particularly marked between 1993 and 1994. The maximum number of activities by any one company was 9 in 1988/89 (Karstadt), this increased to 10 in the years from 1990 to 1993 (Karstadt), but decreased to 7 in 1994 (VIAG and RWE, as Karstadt had reduced the number of its activities to 4). Mean comparison tests (tables 4.15-4.17) show that the changes in diversification reach statistical significance only when the years with high diversification levels (1990 to 1992) are compared with the low diversification levels of 1994. In sum, over the 1988-1994 period mixed developments have taken place among the 75 German companies reviewed. While during the first few years a slight (albeit not a significant) increase in diversification took place, this trend was reversed between 1992 and 1994.

	Mean comparison tests: n_c (75 observations)					
year	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**
1989	n.s.					
1990	n.s.	n.s.				
1991	n.s.	n.s.	n.s.			
1992	n.s.	n.s.	n.s.	n.s.		
1993	n.s.	n.s.	n.s.	n.s.	n.s.	
1994	n.s.	n.s.	p<0.05	p<0.05	p<0.05	p<0.1

Table 4.15: **Significance Levels of Year-to-Year Mean Comparison Tests on Diversification Index n_c (75 West German Companies)**

	Mean comparison tests: E (75 observations)					
year	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**
1989	n.s.					
1990	n.s.	n.s.				
1991	p<0.05	n.s.	p<0.1			
1992	p<0.1	n.s.	n.s.	n.s.		
1993	n.s.	n.s.	n.s.	n.s.	n.s.	
1994	n.s.	n.s.	n.s.	p<0.05	p<0.05	p<0.01

Table 4.16: **Significance Levels of Year-to-Year Mean Comparison Tests on Diversification Index *E* (75 West German Companies)**

	Mean comparison tests: r_c (75 observations)					
year	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**
1989	n.s.					
1990	n.s.	n.s.				
1991	n.s.	n.s.	n.s.			
1992	n.s.	n.s.	n.s.	n.s.		
1993	n.s.	n.s.	n.s.	n.s.	n.s.	
1994	n.s.	n.s.	p<0.1	p<0.1	p<0.05	p<0.1

Table 4.17: **Significance Levels of Year-to-Year Mean Comparison Tests on Diversification Index r_c (75 West German Companies)**

Table 4.18 shows mean levels of indices *a*, *b* and *c* for each year from 1988 to 1994.

Arithmetic Means			
year	***a***	***b***	***c***
1988	0.627	0.347	0.853
1989	0.667	0.333	0.800
1990	0.667	0.387	0.800
1991	0.667	0.387	0.787
1992	0.693	0.360	0.813
1993	0.653	0.360	0.787
1994	0.547	0.347	0.733

Table 4.18: Arithmetic Means of Diversification Indices (75 West German Firms)

The data show that the decline in diversification from 1992 to 1994 was due primarily to companies leaving unrelated *divisions* of activities in the SIC system. As compared to the UK sample, the German companies are notable for their large average number of *groups* of activities (index *c*) within *classes* (index *b*), although this has decreased in the 1988-1994 period.

(c) Analysis by Industry

Due to the large sample size for the UK firms, the data set can be used to analyse both levels and changes in diversification on an industry-by-industry basis. In this context, the definition of 'industry' is taken from Datastream which assigns all companies to a total of 16 broadly defined industrial branches[11]. Table 4.19 provides an overview of mean diversification levels for 1994 and mean changes in diversification from 1988 to 1994 by industry.

Industry	obs.	Level of diversification in 1994 (means)			Changes in diversification (means)		
		n_c	E	r_c	Δn_c	ΔE	Δr_c
Chemical industry	18	1.722	0.350	0.181	-0.389	-0.124	-0.153
Construction industry, incl. building materials	49	1.918	0.343	0.327	-0.184	-0.064	-0.084
Electrical / electronics industry	26	1.846	0.325	0.226	-0.154	-0.070	-0.014
Engineering [Δ]	67	2.194	0.561	0.384	-0.269	-0.057	-0.073
Paper, packaging, printing	21	1.857	0.401	0.304	+0.041	+0.048	+0.030
Textiles, apparel	15	1.733	0.292	0.258	-0.467	-0.078	-0.175
Consumer goods	27	2.222	0.498	0.403	-0.667	-0.168	-0.218
Pharmaceuticals / health care	11	1.818	0.262	0.239	+0.091	-0.021	+0.045
Household goods, furniture	9	1.667	0.296	0.264	-0.667	-0.177	-0.208
Other manufacturing [°]	33	2.727	0.656	0.674	-0.485	-0.124	-0.220
All manufacturing	**276**	**2.065**	**0.444**	**0.360**	**-0.301**	**-0.079**	**-0.104**
Distributors, retailers	63	1.762	0.251	0.290	-0.127	-0.031	-0.048
Transport	8	2.250	0.461	0.563	-0.125	-0.044	-0.031
Utilities	5	2.000	0.225	0.450	0	+0.044	0
Media [+]	14	1.571	0.286	0.286	-0.571	-0.144	-0.188
Financial	41	1.146	0.053	0.067	-0.146	-0.055	-0.064
Other Services	69	1.739	0.297	0.284	+0.029	+0.077	+0.013
All non-manufacturing	**200**	**1.640**	**0.237**	**-0.257**	**-0.105**	**-0.006**	**-0.038**
All non-financial	**436**	**1.954**	**0.385**	**0.339**	**-0.225**	**-0.047**	**-0.077**

Table 4.19: **Diversification Levels and Changes by Industry, 476 UK Firms**

Note: [Δ] Including vehicle assembly and steel producers.

[°] Including mineral extractors.

[+] Thorn EMI is included under 'other manufacturing'.

With respect to diversification *levels* as of 1994, the 276 manufacturing companies are considerably more diversified than the 200 non-manufacturing companies. The differences are statistically significant at at least 95% significance level for every year from 1988 to 1994, regardless of the diversification measure used.

Among the manufacturing companies, engineering firms (e.g. Glynwed International, Vickers plc) and consumer goods companies (e.g. Dalgety plc, Northern Foods plc) are the most diversified[12], whereas firms in the chemicals, electrical / electronics, textiles, pharmaceuticals and household goods industries show a low degree of diversification. Among the non-manufacturing industries, the eight transport companies[13] in the sample (e.g. P&O, the Transport Development Group plc and Ocean Group plc) are very diversified, as are the utilities. The industry with the lowest degree of diversification in the UK sample is the financial industry, which includes both

banks and insurance companies. Broadly speaking – and necessarily simplifying -, companies in the relatively 'traditional' and mature industries (e.g. in engineering, transport, utilities) are more likely to be diversified than companies in more 'modern' industries such as in pharmaceuticals and finance. Construction appears to be an industry with a traditionally low degree of diversification. The high degree of diversification among engineering companies exemplifies the prevalence of integrated engineering groups, such as FKI, GKN, TI, and T&N in Britain. In addition, the evidence suggests that sectors in which UK firms have held a long-standing involvement (i.e. consumer goods) tend to be relatively diversified.

The data on changes in diversification show that not all UK companies have followed the general 'refocusing' trend. Among the manufacturing companies, de-diversification has been strongest in the consumer goods (e.g. Tate & Lyle, Hazlewood Foods) and household goods (e.g. Paterson Zochonis) industries. Companies in the chemicals (e.g. Courtaulds) and textiles industries (e.g. Lamont Holdings) have also decreased their degree of diversification. Little has changed with respect to the pharmaceuticals / health care and paper / packaging / printing industries, both of which were already relatively focused as of 1988. Among non-manufacturing companies, changes in diversification have generally been less significant than among manufacturing companies. An exception to this is the media industry (e.g. Pearson) where de-diversification has been strong. No change in diversification can be observed among the group of 'other service companies' and among the utilities.

Table 4.20 presents the results on those 306 German companies for which data is available as of 1994.

Industry	obs.	Level of diversification in 1994 (means)		
		n_c	E_c	r_c
Chemical industry	14	2.786	0.753	0.455
Construction industry	29	1.931	0.391	0.263
Electrical / electronics industry	19	2.053	0.410	0.263
Engineering [Δ]	70	2.357	0.512	0.382
Paper, packaging, printing	8	1.875	0.386	0.250
Textiles, apparel	22	1.909	0.339	0.239
Consumer goods	27	1.778	0.236	0.194
Pharmaceuticals / health care	10	1.800	0.584	0.446
Household goods, furniture	7	2.286	0.584	0.446
Other manufacturing [°]	36	2.472	0.542	0.514
All manufacturing	**242**	**2.178**	**0.448**	**0.343**
Distributors, retailers	20	2.400	0.466	0.531
Transport	8	2.875	0.424	0.531
Utilities	19	2.000	0.313	0.303
Financial	9	1.111	0.004	0.056
Other Services, incl. media	8	1.625	0.330	0.266
All non-manufacturing	**64**	**2.063**	**0.333**	**0.305**
All non-financial	**297**	**2.185**	**0.436**	**0.344**
All companies	**306**	**2.154**	**0.424**	**0.335**

Table 4.20: **Diversification Levels by Industry, 306 West German Firms**

Note: [Δ] Including vehicle assembly.
[°] Including mineral extractors.

As of 1994, most German industries show higher average diversification levels than the respective UK industries, the exception being the consumer goods industries and the financial service companies (of which there are few in the German sample, however). Among the manufacturing companies, the 14 companies in the chemical industry (e.g. BASF, Bayer, Hoechst) show the highest average diversification level; pharmaceuticals (e.g. Altana) and household goods companies (e.g. the furniture producer DLW) are also relatively diversified. This contrasts starkly with the results for the UK. German consumer goods companies appear to have a relatively low degree of diversification. Among the non-manufacturing industries, companies in the transport industry (e.g. Lufthansa) have an extremely high degree of diversification; distributors / retailers (e.g. Karstadt, Asko) are also relatively diversified. Financial services companies show a low degree of diversification. Overall, the differences between manufacturing and non-manufacturing companies with respect to diversification are not as great as in the UK.

(d) Determinants of Diversification Levels

The results of sections (a) and (b) suggest that the 476 companies in the UK sample had a lower average degree of diversification than the 75 German companies for every year during the 1988-1994 period. This finding may, however, result from the fact that the UK sample, being far larger than the German one, contains a large number of comparatively small companies which, due to the positive correlation of company size and diversification (table 4.7) can be expected to have a relatively low degree of diversification. Moreover, the two samples differ with respect to their industrial composition (tables 4.19-4.20), which can influence the degree of diversification significantly. In order to control for differences in company size and industry composition, the following OLS regression is carried out:

(1) $$div_{i,t} = \beta_0 + \beta_1 employment_{i,t} + \beta_2 ind_i + \beta_3 country_i + \varepsilon$$

where

$div_{i,t}$	=	diversification variable for company i in year t (n_c, E and r_c are being used as diversification measures)
$employment_{i,t}$	=	number of employees of company i in year t (in 0,000s)
ind	=	industry dummies for the 15 industries listed in table 4.20
country	=	country dummy (0 for UK, 1 for Germany)
ε	=	error term

If, industry and company size held constant, the companies in the German sample have a larger degree of diversification than their UK counterparts, the coefficients β_3 should take on positive and significant values. Moreover, the regression function makes it possible to isolate the effect of company size on diversification, controlling for the effects of industry and country background.

The results which are reported in table 4.21 can be summarised as follows:

dependent variable (*div*)	year	β_0 *(t-values)*	β_1 *(t-values)*	β_3 *(t-values)*	R^2	F-statistics	obs.
n_c	1988	2.012*** (7.348)	0.125*** (7.77)	0.308* (1.670)	0.217	9.00	538
	1989	1.908*** (7.298)	0.113*** (7.44)	0.374** (2.191)	0.203	8.40	544
	1990	1.787*** (7.068)	0.108*** (7.52)	0.449*** (2.742)	0.198	8.20	547
	1991	1.714*** (6.819)	0.105*** (7.392)	0.457*** (2.803)	0.196	8.08	548
	1992	1.884*** (7.456)	0.104*** (7.209)	0.512*** (3.103)	0.201	8.33	548
	1993	1.854*** (7.457)	0.114*** (7.699)	0.435*** (2.675)	0.213	8.96	547
	1994	1.823*** (8.294)	0.112*** (8.378)	0.309** (2.146)	0.242	10.60	548
E	1988	0.492*** (5.345)	0.035*** (6.418)	0.098 (1.584)	0.222	9.27	538
	1989	0.449*** (4.979)	0.034*** (6.545)	0.101* (1.709)	0.213	8.93	544
	1990	0.438*** (5.052)	0.032*** (6.388)	0.113** (2.016)	0.199	8.22	547
	1991	0.394*** (4.449)	0.031*** (6.238)	0.134** (2.327)	0.193	7.95	548
	1992	0.404*** (4.524)	0.032*** (6.288)	0.146** (2.501)	0.194	8.01	548
	1993	0.404*** (4.588)	0.035*** (6.703)	0.128** (2.231)	0.212	8.89	547
	1994	0.430*** (5.124)	0.035*** (6.819)	0.093* (1.686)	0.223	9.51	548
r_c	1988	0.316*** (3.278)	0.030*** (5.245)	0.031 (0.480)	0.173	6.79	538
	1989	0.271*** (2.869)	0.029*** (5.287)	0.053 (0.853)	0.156	6.09	544
	1990	0.212** (2.305)	0.030*** (5.791)	0.072 (1.214)	0.153	5.98	547
	1991	0.191** (2.079)	0.030*** (5.778)	0.078 (1.312)	0.146	5.66	548
	1992	0.231** (2.509)	0.030*** (5.716)	0.102* (1.705)	0.155	6.08	548
	1993	0.219** (2.468)	0.033*** (6.232)	0.077 (1.324)	0.172	6.89	547
	1994	0.225*** (2.841)	0.032*** (6.545)	0.023 (0.436)	0.191	7.84	548

Table 4.21: **Regression Results: Determinants of Diversification Levels**

Notes: Significance levels of F-values (all cases): Prob > F=0.0000

Significance levels of coefficients: * $p \leq 0.1$

** $p \leq 0.05$

*** $p \leq 0.01$

- The three independent variables in the regression explain between 15 and 24 percent in the variation of diversification levels, depending on the year and the diversification measure considered. Generally speaking, using n_c and E as independent variables produces more significant results than when r_c is used. Also, the R^2–values and the coefficients on the country dummies are lower when r_c is used as the independent variable than when n_c or E are used.
- As is suggested by the correlation coefficients reported in table 4.7, company size, as measured by the number of employees, is positively associated with diversification. The coefficients on employment are highly significant (at $p<0.01$) for every year from 1988 to 1994. *Ceteris paribus*, an additional 10,000 employees increase the number of activity lines (n_c) of companies by a margin of about 10-12 percent on average.
- The coefficients on the country dummies are positive in all cases. If diversification is measured by n_c or E, coefficient β_3 reaches significance in all years except 1988; if diversification is measured by r_c, β_3 takes on a significant value only for 1992. Based on these results, it is not possible to draw an unambiguous conclusion regarding the question of whether, during the period under consideration, German companies had a higher degree of diversification than their counterparts in the UK. The results do confirm, however, marked differences in *the timing of changes in diversification* between companies from the two countries, as suggested in tables 4.9 and 4.14. The companies in the UK sample reduced their average degree of diversification throughout the period from 1988 to 1994. The German companies did not follow this trend until 1992, but rather increased their degree of diversification, so that in this particular year they were significantly more diversified than the companies in the UK sample. After 1992, German companies began to de-diversify, moderately at first, and more decisively after 1993, so for 1993/94 it is unclear whether the differences between the two samples reach statistical significance.

Overall, the results of regression (1) allow to identify important determinants of diversification levels. Company size is positively and significantly associated with diversification. In addition, the results confirm that the trends in diversification have been different in the UK and West Germany: A continuous de-diversification in the

former country between 1988 and 1994, whereas in the latter de-diversification has started only after 1992.

(e) Determinants of Changes in Diversification

Furthermore, it is possible to isolate various determinants of changes in diversification. Following Markides (1992a, pp. 398ff.; 1993, pp. 2ff. et passim), it is arguable that those companies reduced their degree of diversification which, relative to their industry average, had a high degree of diversification (i.e., in his language, were 'over-diversified') until the beginning of their refocusing process. Moreover, it is worthwhile testing whether changes in the degree of diversification in individual companies were accompanied by employment changes. In order to test these two arguments, the following OLS regression is carried out:

$$(2) \qquad (div_{i,\,t=94} - div_{i,\,t=88}) = \beta_0 + \beta_1 \frac{div_{i,\,t=88}}{indav_{i,\,t=88}} + \beta_2 \frac{employment_{i,\,t=94}}{employment_{i,\,t=88}} + \varepsilon$$

where

$indav_{i,\,t=88}$ = average degree of diversification of the industry in which company i is operating, as of 1988 (using the 15 industries given in table 4.20)

The other notations are as in regression (1).

A country dummy is not included as the regression is carried out separately for the UK and West Germany.

If Markides' argument holds true, coefficient β_1 should take on negative and significant values. With respect to β_2, one should expect the coefficient to take on positive and significant values if any changes in diversification were associated with employment changes in the same direction, i.e. decreases in diversification by reductions in employment, and increases in diversification by expansions in employment. If, however, β_2 took on negative and significant values, any reductions in diversification would have been associated with employment increases. This would suggest that companies that de-diversified replaced their earlier diversification by an expansion of their remaining ('core') businesses (i.e. horizontal integration).

The results on regression (2) are displayed in table 4.22.

Diversification measure used	β_0 (t-values)	β_1 (t-values)	β_2 (t-values)	R^2	F-statistics	obs.
UK sample:						
n_c	0.754*** (10.385)	-0.794*** (-15.836)	-0.0001 (-0.114)	0.349	125.59	471
E	0.073*** (4.043)	-0.121*** (-10.955)	-5.32×10^{-6} (-0.019)	0.205	60.15	471
r_c	0.083*** (4.596)	-0.159*** (-14.632)	-0.0001 (-0.193)	0.314	107.19	471
German sample:						
n_c	0.326 (0.972)	-1.040*** (-4.698)	0.377** (2.088)	0.280	12.43	67
E	-0.087 (-1.004)	-0.082* (-1.867)	0.103** (2.002)	0.101	3.48$^{\Delta}$	65
r_c	-0.052 (-0.523)	-0.224*** (-5.118)	0.169*** (2.697)	0.334	15.54	65

Table 4.22: **Regression Results: Determinants of Changes in Diversification**

Notes: Significance levels of F-values: $^{\Delta}$Prob > F=0.0369; Prob > F=0.0000 otherwise

Significance levels of coefficients: * $p \leq 0.1$; ** $p \leq 0.05$; *** $p \leq 0.01$

The results can be summarised as follows:

- In the regressions using either sample, n_c and r_c perform better than E. Judging by the R^2-values of the regressions when n_c or r_c are used as diversification measures, the independent variables explain 28-35% of the variation in the dependent variable.
- The results on coefficient β_1 provide strong support for the hypothesis that those companies that were diversified relative to their respective industry averages decreased their degree of diversification. In other words, over-diversification has given way to a return to the 'middle', here perceived as the industry-specific average.
- With respect to the German sample, there is clear evidence that changes in diversification were associated with changes in employment in the same direction (i.e. reductions in diversification with reductions in employment, increases in diversification with increases in employment). For the sample of UK companies, the coefficient on employment changes (β_2) is extremely small and statistically insignificant regardless of the diversification measure used, so that no clear

relationship between changes in employment and changes in diversification can be established.[14]

To summarise, the results of regression (2) confirm that extensive diversification relative to the respective industry average as of 1988 has been a significant determinant of decreases in diversification during the 1988-1994 period.

4.3.2.4 Results from the FAME Data Set

The FAME data concern the 78 largest non-financial companies in the UK as of 1989 and 1995. Descriptive statistics on the various diversification indices that can be calculated from FAME are given in table 4.23.

	1989			1995			Mean
Vari-able	mean	std. dev.	range	mean	std. dev.	range	compa-rison test
a	2.01	1.23	0-5	1.38	1.05	0-4	p<0.001
b	1.00	0.97	0-4	0.78	0.98	0-5	p<0.1
c	1.18	1.17	0-5	1.03	1.04	0-4	n.s.
d	0.46	0.78	0-3	0.31	0.61	0-2	p<0.1
e	0.26	0.65	0-3	0.67	0.80	0-3	p<0.0001
n_d	5.60	2.50	2-11	4.49	2.13	1-10	p<0.01
n_e	5.85	2.62	2-14	5.15	2.30	1-11	p<0.1
r_d	1.43	0.74	0.06-3.19	1.04	0.64	0-2.88	p<0.0005
r_e	1.44	0.74	0.16-3.19	1.06	0.64	0-2.88	p<0.0005
r_d/n_d	0.25	0.07	0.03-0.5	0.21	0.09	0-0.38	p<0.005
r_e/n_e	0.25	0.08	0.04-0.5	0.19	0.08	0-0.38	p<0.0001

Table 4.23: **Descriptive Statistics on Diversification Indices, 78 Non-Financial Companies in the UK**

Note: Correlation coefficients between r_d and n_d (and between r_e and n_e respectively) are between 0.818 and 0.897 and are statistically significant at p<0.0001.

The results confirm that, between 1989 and 1995, the largest non-financial companies became significantly less diversified. The companies reduced the average number of their activity lines, as measured on the four-digit SIC level (n_d), from 5.6 in 1989 to 4.49 in 1995, a reduction of about 20%. This trend is even more clearly shown by a 27% reduction in r_d, which decreased from 1.43 to 1.04, and a similar reduction in r_e. The maximum number of business lines, as measured by n_d (n_e), decreased from 11 (14) to 10 (11). The changes in the various diversification measures are, with the exception of c, statistically significant, as mean comparison tests show.

An analysis of *a, b, c, d* and *e* shows *at which levels* the reductions in diversification have taken place. The results in table 4.23 show that, in particular, the reduction on the first ('divisionary-'), the second ('class-'), and fourth ('activity-') levels are statistically significant. The companies also appear to have become less diversified on the third ('group'-) level of the SIC codes, but the reduction does not stand the relevant significance tests. In this respect, the FAME data set differs from the CEP Data Set on Company Activities, as the latter shows a significant reduction in *c* from 1988 to 1994 (table 4.13), whereas according to the FAME data the reduction in *c* (between 1989 and 1995) is not significant. On the other hand, the data sets agree in that they show that companies have left complete divisions of activities (reduction in *a*) and, within divisions, classes of businesses (reduction in *b*).

The significant increase in *e* is accounted for by the change in JORDAN's reporting practices. This shows that the appropriate level of analysis is r_d (and, on the firm level, r_d', see below) rather than r_e and r_e' respectively.

It can also be asked whether the decrease of r_d and r_e is due only to the reduced number of business lines of companies, or whether, controlling for changes in the number of business lines, companies have become engaged in more closely related businesses. Dividing r_d by n_d and r_e by n_e respectively and comparing the means of these ratios for the two points in time shows that this is not the case: r_d/n_d decreased from, on average, 0.25 in 1989 to 0.21 in 1995 and r_e/n_e from 0.25 to 0.19. Both reductions are statistically highly significant. This shows that the companies have not only reduced the number of activities they are engaged in, but have also concentrated their activities within fewer groups of the SIC system. Therefore, in 1995, they tended to engage in more closely related businesses than in 1989.

In sum, the results reported in table 4.23 show that the largest non-financial companies in the UK tended to leave primarily those businesses which were most unrelated, as measured by the two highest levels of the SIC codes. The degree of unrelated diversification of non-financial companies in the UK has decreased substantially.

Table 4.24 details the distribution of the changes in the number of business lines of the 78 companies concerned.

Changes in the number of business lines	**% of companies** (78 obs.; 1.28% represent one company)
left 8 business lines	3.85
left 7 business lines	1.28
left 6 business lines	7.69
left 5 business lines	2.56
left 4 business lines	8.97
left 3 business lines	1.28
left 2 business lines	8.97
left 1 business line	16.67
no change in number of business lines	20.51
Added 1 business line	11.54
Added 2 business lines	8.97
Added 3 business lines	2.56
Added 4 business lines	2.56
Added 5 business lines	1.28
Added 6 business lines	1.28
Summary statistics:	
% of companies which added business lines:	**28.19**
% of companies which left business lines:	**51.27**

Table 4.24: Distribution of Changes in the Number of Business Lines

The data confirm that far more companies have reduced than increased the number of their business lines. In addition, it is noteworthy that companies have left up to eight business lines within the six-year period, while even the most expansive ones in the group drawn from FAME did not add more than six new lines.

Table 4.25 presents a sector breakdown of mean values of r_d for 1989 and 1995. In this context, 'sector' refers to the first digit of the primary SIC code of the companies in 1995.

SIC Division	Obs.	Mean value of r_d		Mean comparison test
		1989	1995	
2 (mineral extraction, steel, chemicals)	20	1.47	1.33	n.s.
3 (metal manufacturing)	14	1.10	0.91	n.s.
4 (clothing, consumer goods)	21	1.41	1.14	n.s.
6 (retail, hotels, catering)	10	1.61	0.58	$p<0.005$
other	13	1.64	0.90	$p<0.05$

Table 4.25: Changes in Diversification by Industry

For all five sectors listed in table 4.25 the mean values of r_d have decreased. The reduction has been particularly marked in sector 6 (retail, hotels, catering) and in the category 'others' which represents three companies in sector 1 (energy / water supply), four companies in sector 5 (construction), five companies in sector 8 (business services) and one company in sector 9 (other services). It should be noted that the companies in these two groups have changed not only their degree of diversification, but also their main business area, because they have left their primary manufacturing base by which they were classified in the 1989 sample. What has happened, therefore, is that highly diversified ('conglomerate') non-financial companies in the early 1990s altered their business strategy fundamentally and went into different industries in which they engaged in new, more narrowly defined activities.

If one switches the focus of analysis to the firm-level (table 4.26), using in particular r_d', one sees that the maximum value of r_d' reduces from 0.5131 (Lonrho) as of 1989 to 0.4121 (Dalgety) as of 1995. It is particularly the very diversified companies in 1989 (BET, Lonrho, Pearson; all three with $r_d' > 0.5$) that have reduced their diversity substantially: In 1995, their r_d'-values are 0, 0.1001 and 0.2 respectively. Many other firms with an r_d'-value in 1989 larger than 0.4 have reduced their degree of diversity as well (BICC, British Petroleum, Burmah Oil, Tate & Lyle). The examples given here illustrate the findings of the statistical analysis reported above.

Company	r_e' (1989)	r_e' (1995)	r_d' (1989)	r_d' (1995)
ALLIED-LYONS	.00202	.11101	.002	.111
AMEC	.21201	.21101	..212	.211
ARGYLL GROUP	.121	.11	.121	.11
ASDA GROUP	.2	.103	.2	.103
B.A.T INDUSTRIES	.24	.11	.24	.11
BASS	.21201	.21401	.212	.214
BEAZER	.2	.001	.2	.001
BERISFORD	.21112	.22001	.2111	.22
BET	.51	.00001	.51	0
BICC	.405	.202	.405	.202
BLUE CIRCLE	.202	.202	.202	.202
BOC	.3231	.223	.3231	.223
BOOKER	.211	.30001	.211	.3
BOOTS	.111	.211	.111	.211
BOWATER I.	.30001	.1012	.3	.1012
BRITISH AEROSPACE	.03	.13001	.03	.13
BRITISH PETROLEUM	.4201	.1	.4201	.1
BRITISH STEEL	.0021	.1031	.0021	.1031
BTR	.21	.21201	.21	.212
BUNZL	.2112	.21121	.2112	.2112
BURMAH OIL	.401	.201	.401	.201
BURTON GROUP	.2	.001	.2	.001
CADBURY SCHWEPPES	.101	.10101	.101	.101
COATS VIYELLA	.1121	.11211	.1121	.1121
COOKSON GROUP	.11211	.12112	.1121	.1211
COURTAULD	.212	.12	.212	.12
DALGETY	.11	.41213	.11	.4121
DAVY CORP.	.21321	.01001	.2132	.01
FISONS	.2	.201	.2	.201
FITCH LOVELL	.112	.01001	.112	.01
GEC	.1111	.0112	.1111	.0112
GEORGE WESTON	.1	.10001	.1	.1
GEORGE WIMPEY	.311	.30101	.311	.301
GKN	.2111	.01001	.2111	.01
GLAXO HOLDING	.3001	.3	.3001	.3
GRAND MET	.32301	.10001	.323	.1
GUINNESS	.101	.11101	.101	.111
HANSON	.21	.351	.21	.351
HARRISONS	.423	.4021	.423	.4021
HAWKER SI	.22202	.00102	.222	.001
IMI	.3121	.312	.3121	.312
ICI	.4311	.2021	.4311	.2021
J. SAINSBURY	.2	.011	.2	.011
JOHN MOWLEM	.211	.102	.211	.102
JOHNSON MATTHEY	.121	.21101	.121	.211
KWIK SAVE	.1	0	.1	0
LEX SERVICE	.331	.12001	.331	.12
LONRHO	.5131	.1001	.5131	.1001
LUCAS INDUSTRIES	.01	.01	.01	.01
NORTHERN FOOD	.00201	.10103	.002	.101
PEARSON	.5111	.20001	.5111	.2
PILKINGTON	.00013	.10013	.0001	.1001
RACAL ELECTRONICS	.1	.202	.1	.202
RANK ORGANISATION	.2	.20403	.2	.204
RANKS HOVELL	.312	.11201	.312	.112
RECKITT & COLMAN	.202	.204	.202	.204

REED INT.	.2111	.10001	.2111	.1
RMC GROUP	.1	.30101	.1	.301
ROLLS-ROYCE	.01001	.01002	.01	.01
S & N	.221	.22101	.221	.221
SEARS	.23233	.121	.2323	.121
SIEBE	.1102	0.00001	.1102	0
T & N	.211	.1212	.211	.1212
T I GROUP	.312	.3101	.312	.3101
TARMAC	.101	.20101	.101	.201
TATE & LYLE	.414	0	.414	0
TAYLOR WOODROW	.3	.12	.3	.12
THE RTZ CORP.	.2	.211	.2	.211
THORN EMI	.1053	.1	.1053	.1
TOMKINS	.22	.14212	.22	.1421
TRAFALGAR HOUSE	.411	.401	.411	.401
UNIGATE	.3111	.21111	.3111	.2111
UNILEVER	.1222	.11111	.1222	.1111
VICKERS	.1422	.0212	.1422	.0212
WELLCOME	.11	.11	.11	.11
WHITBREAD	.122	.12201	.122	.122
WOLSELEY	.3213	.31321	.3213	.3132
WPP GROUP	.3121	.00101	.3121	.001

Table 4.26: Diversification Values (r_d' and r_e') for Individual Companies (Data from FAME)

The case evidence coincides with the above findings in that particularly the companies with a high degree of diversification in the highest levels of the SIC system have become substantially less diversified between 1989 and 1995.

4.4 Chapter Summary and Conclusion

The aim of this chapter was to provide empirical evidence on recent diversification trends in large companies in the UK and West Germany, using appropriate diversification measures that reflect important aspects of corporate diversification such as the number of activities, their 'relatedness' and, where possible, the relative size of different activity lines. A number of conventional diversification measures were reviewed first. Thereafter, the SIC system was discussed and an index r defined that builds upon the activity descriptions of companies to which SIC codes are assigned. The particular advantage of the new index (and its constituents a to e) is seen in the fact that they take into account the degree of 'relatedness' of a company's various business lines, an important aspect of diversification. Moreover, the measures can be used even in those situations where data on activity shares of companies are not

available, so that many conventional diversification measures, such as entropy indices, are not applicable.

In the empirical part of the chapter, evidence on levels of and changes in the degree of diversification of large companies in the UK and West Germany since the second half of the 1980s is provided. Most of the extant literature, which is reviewed in section 4.3.1, suggests that diversification among large UK companies has decreased during this period, although the exact timing of any such changes remains unclear. Less evidence on diversification among West German companies is available, and the existing information is inconclusive.

In section 4.3.2, empirical evidence on diversification among large companies in the UK and West Germany is provided, using two data sets compiled by the author. The main findings from an analysis of the CEP Data Set on Company Activities are that

- diversification levels among large UK companies have declined significantly during the 1988-1994 period. There are significant differences in diversification levels across industries. As of 1994, average diversification levels are higher among manufacturing than among non-manufacturing companies, and diversification among non-financial companies exceeds the degree of diversification among financial services companies. On the other hand, by 1994 manufacturing companies had already undergone a significant de-diversification process that had been stronger than in non-manufacturing companies.
- among large companies in West Germany, various developments with respect to diversification have taken place. From 1988 to 1991/92, average diversification levels have increased rather than decreased, although these changes were not statistically significant. After that, a – first moderate, then more pronounced – decline in diversification has taken place. As in the UK, highly diversified companies in West Germany are concentrated in particular sectors, such as the transport and the engineering industries.
- comparisons between the samples from the UK and West Germany point primarily towards differences in the *timing* of de-diversification trends in the two countries. While a number of large, highly diversified companies exist in both countries, de-diversification trends seem to have been underway in the UK already during the second half of the 1980s, whereas in West Germany any such changes started only

after about 1992. From roughly comparable starting points - if 1988 can be taken as a benchmark – de-diversification in West Germany has started later, and has so far been less pronounced, than in the UK.

- de-diversification during the 1988-1994 period has been, at least in part, a reaction to over-diversification (as compared to the industry average) before 1988. In particular in the UK, unrelated diversification has given way to a focus on more closely related activities.

The findings from the analysis of a data set drawn from FAME on the 78 largest non-financial companies in the UK confirm that

- a significant de-diversification process has taken place among these companies in the 1989-1995 period. Companies have not only become engaged in fewer business lines, but have concentrated their activities in businesses that are more closely related.
- more than half (51.27%) of the 78 companies concerned have left business lines, while less than a third (28.19%) have added business lines. Case evidence shows that in particular those companies that were most diversified in 1989 have thereafter decreased their degree of diversification. This supports the econometric evidence presented before that de-diversification can be understood as a reaction to over-diversification.

The findings help re-evaluate and partly reconcile the empirical literature on diversification in the UK and West Germany summarised in section 4.3.1. With respect to the UK, the empirical results support the findings of most earlier authors – Whittington, Mayer et al. (1997) being the exception – that a pronounced de-diversification process has taken place since the second half of the 1980s. This is also consistent with the results of the questionnaire survey (section 3.3.1). With respect to West Germany, the data provide evidence for an incipient de-diversification trend as of 1992, up to which point diversification had increased. This is consistent with the results by Davies and Petts (1997), while it confirms the findings of the JP Morgan studies (1996, 1997) which – using a small sample – suggest 1992 to be the 'turning point' with respect to corporate diversification trends in Germany. The findings also

help re-interpret the results of the questionnaire survey, according to which a majority of German companies had refocused, while on the other hand a considerable proportion had increased diversification. Given that the survey refers to 1986-1996, the responses are likely to reflect the various trends that have taken place during this period, according to the statistical analysis presented in this chapter.

Overall, the chapter has provided evidence for significant changes in diversification, an important dimension of the boundaries of firms. Judged by this measure, corporate restructuring has taken place in both the UK and West Germany, but has started earlier and has been more pronounced in the former than in the latter country.

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[1] Kanter (1989, pp. 88ff.) also seems to suggest that American companies would benefit from greater 'focus'. - For a critique of this literature see Guest (1983).

[2] A more comprehensive concentration index is the Hirschman-Herfindahl Index (HHI) which is defined as the sum of the squared values of all firms' market shares in a given market (for details see Hirschman 1964, pp. 761-762).

[3] The following overview draws on Clarke (1985b, pp. 197-201).

[4] In Utton's index, the notations given under (c) are used, although Utton (1979, p. 15) suggests to measure the activity shares in terms of employment, rather than turnover.

[5] The two classification schemes are similar, so that it has become customary to refer to them as the 'Wrigley and Rumelt categories'. Whittington and Mayer (1997, without page) state that "the actual approach to classification differs slightly between the Wrigley and Rumelt traditions, the first being more historically-sensitive and the second highlighting vertical integration" (for a more detailed outline of the differences see Whittington and Mayer 1997, Appendix I).

[6] In the following, the term 'class' does not refer to the 'class' in the terminology of the Central Statistical Office.

[7] It would have been ideal to weight the observed *a, b, c* etc. with the inverse factor of the maximum values that they could take. The problem with this is that, because of the design of the SIC system, there are fewer digits on the fourth than on the third tier of the system [max(d)=112, whereas max(c)=121], so that the fourth tier would have obtained more weight than its preceding tier.

[8] In this table, the scopes of r_c to r_e and of r_c' to r_e' respectively are given, as these are the indices that are applied in the empirical analyses (sections 4.3.2.3 and 4.3.2.4).

[9] To be precise, the data show a *truncated* normal distribution between the limits denoted by the scopes of the two indicators. The Shapiro-Franica W' test for normality can be used for both truncated and non-truncated distributions.

[10] For a detailed review of Markides' 1995 book see Richter and Owen (1997c).

[11] Datastream assigns to companies a total of 74 industry codes within 16 industrial branches, which, with a few modifications to warrant sufficient group size and consistency, are used here. - The industry assignments do not change over time.

[12] The group of 'other manufacturing' is the most diversified one; however, this includes companies which Datastream describes as 'conglomerate', so that these companies are by definition very diversified.

[13] The transport industry (according to Datastream's assignment) is not a very homogenous group. For the purpose of research on diversification it may not be appropriate to group shipping companies (which are, in many cases, large and diversified) together with specialised airline operators and the like.

[14] Nevertheless, it may be noted that β_2 takes on negative values in all cases which suggests that, *if anything*, employment increases in primary activities have substituted for the loss of businesses through de-diversification.

5. A Case Study of Corporate Restructuring in the German Company Hoechst in Comparison to the British Company ICI[1]

5.1 Introduction

In the preceding chapters, an overview of recent corporate restructuring trends in the UK and West Germany from 1986 to 1996 (ch. 3), and of changes in diversification in these two countries (ch. 4), was provided. This chapter presents a case study of corporate restructuring in a German company, Hoechst AG, and compares Hoechst's case with the restructuring process that has been taking place at ICI plc in the UK. The aims of the chapter are as follows:

- First, *to provide an illustration of corporate restructuring processes in two large industrial companies*, using the concepts and analytical tools developed in chapter 2. In that chapter, it was argued that corporate restructuring involves changes in two respects: The firm's boundaries, and its internal organisation, and five crucial elements of each of these two dimensions of corporate structure were outlined (see the summary in section 2.4). In the application of this conceptual scheme in the case study, it is possible to identify potential linkages between the two key dimensions of corporate structure, thereby capturing the complexity of corporate restructuring processes. Also, the case study provides detail on particular aspects of corporate restructuring (in particular concerning the internal organisation of firms) which are difficult to investigate in settings where larger numbers of companies are analysed.
- Second, *to furnish further evidence on the cross-national differences in the timing and the extent of corporate restructuring suggested in chapters 3 and 4.* The results of the comparative case study are consistent with the findings of the earlier chapters. Detail on the sequence of corporate restructuring processes is provided.
- Third, *to develop – not to test – working hypotheses about factors that help explain these differences in the timing and the extent of corporate restructuring*, based on the observations as to which factors caused or hindered ICI and Hoechst to restructure. The working hypotheses developed here will be taken up in chapter

6, where they are integrated into a wider theory of the cross-national differences in corporate restructuring between the UK and West Germany.

In order to achieve these aims, the focus of the chapter is on two companies that share many basic features, so as to facilitate comparisons between their recent restructuring processes. For much of the post-war history, Hoechst and ICI have been the largest companies in the German and British chemical industry respectively[2], and the histories of the two companies show many similarities (sections 5.3.1 and 5.4.1). Their respective restructuring processes have been addressing comparable situations, namely excessive diversification, the combination of chemical and pharmaceutical activities in the same organisation, and overly large and cumbersome administrative structures. Also, the restructuring of the two companies has taken place on the background of the maturing of the chemical industry, as detailed below.

The chemical industry is primarily an intermediate industry, supplying mainly firms in other manufacturing industries. Therefore, much of the chemical industry is highly dependent on the general state of the manufacturing and construction industries, making the chemical industry very cyclical. Since the two oil shocks of 1973/74 and 1979/80, the chemical industry has suffered from high input prices, low growth in the demand for manufactured goods, and a declining share of manufacturing in GNP. From 1980 to 1993, turnover of basic industrial chemicals in the EU, in inflation-adjusted prices, has declined (European Commission 1997, p. 13). A second characteristic of the chemical industry is that many chemical processes require high initial investments into R&D and production capacities which often have very large minimum efficient scales (Chapman 1991, pp. 118-143). However, the resulting scale economies do not necessarily provide protection against new entrants, as increased competition in upstream petrochemicals from the emerging countries (e.g. in the Middle East, Mexico, South-East Asia) over the past 20-30 years shows.[3] Thirdly, the past 2-3 decades have not seen the fundamental innovations that – as they provided knowledge-based economies of scope – have shaped today's chemical industry (Arora and Gambardella 1998, pp. 390-399 and Arora et al. 1997, pp. 3-8):

(1) the commercialisation of *organic chemistry*, exemplified by the success of organic dyestuffs and related products (e.g. the early pharmaceuticals, photographic materials, etc.) from around 1860 onwards;
(2) the development of *polymer chemistry* in the 1930s and its commercial exploitation in the 1950s and 1960s;
(3) the rise of *chemical engineering*, i.e. scientific plant design that allows to capture the 'economics' of chemical processes.

Many chemical processes (see figure 5.1[4]) are highly interrelated, so that during the 1950s and 1960s a high degree of vertical integration (the German *Verbundproduktion*, still pursued by BASF) was widely regarded as an advantage. During the 1970s and 1980s, competition in basic petrochemicals and intermediates increased from two main sources. Firstly, as the technologies described above became widely available, new producers in the emerging markets began to build large production capacities, supplying the target markets of the export-oriented companies in the West. Secondly, the oil shocks gave a strategic advantage to oil producers that moved downstream into basic petrochemicals (Fayad and Motamen 1986, pp. 56-59). As a result of these pressures, many of the existing companies in basic chemicals have opted to move further downstream in the production chain, and to focus on areas where they see opportunities for product differentiation based on a better understanding of chemical applications, and of customer needs (Teltschik 1992, pp. 263-266).[5] Others have moved into pharmaceuticals and biochemistry, an area which is becoming increasingly distinct from chemicals due to the 'biotechnological revolution' (a series of innovations, many of which are centered around the newly-developed capability to analyse and manipulate the gene sequences in cells). Consequently, the 1980s and 1990s have been a period of heavy restructuring for much of the world's chemical industry (Lane 1992, pp. 239-287). Hoechst and ICI alike have been facing the same industry conditions set out above, and the comparative case study shows how the two companies have responded to these, thereby 'holding industry constant'.

The chapter focuses in greater depth on Hoechst than on ICI. The reason for this is that a substantial literature on ICI's restructuring over the past 10 to 15 years exists already[6], which, however, had to be updated and synthesised in a new way.

The structure of the chapter is as follows. Section 5.2 gives a brief overview of the methodology used to ascertain the data on which the case study is based. Section 5.3 focuses on ICI, giving an overview of its restructuring process since the early 1980s in addition to a brief outline of ICI's history. Section 5.4. investigates corporate restructuring processes at Hoechst, starting again with a historical section which facilitates a better understanding of the situation which Hoechst's restructuring was designed to address. Section 5.5 provides a direct comparison of ICI and Hoechst, focusing in particular on the factors that have caused or hindered restructuring in the two companies. Finally, the results of the chapter are summarised.

5.2 Data Collection Methodology

The case study draws on information from the following three types of sources:

(1) Written documents, including the results of the questionnaire survey[7]: Following the survey, we approached the responsible officers at ICI and Hoechst who had identified themselves in the questionnaire survey in which they had taken part. They kindly offered us assistance in elaborating on the information they had given and in providing further material. This gave us access to valuable internal documentation from the two companies, including manuscripts of speeches, organisation charts and the like, and the permission to visit Hoechst's archive. External information was collected from the business press, analysts' reports, corporate histories, electronic sources (e.g. Datastream, the Internet), annual reports, and other publicly available material.

(2) Interviews with company representatives: From October to December 1997, we conducted a series of unstructured interviews with senior Hoechst and ICI managers who had taken an active role in their companies' restructuring processes. Before the interviews, we sent a note to our interview partners to set out our main topics of interest. We first asked the interview participants to give an overview of the corporate restructuring process that had been taking place at their company since the beginning of the 1990s. These brief presentations, plus the fact that plenty of information on the companies' acquisitions, divestments, and the like is publicly available, provided us

with much of the factual information on changes in the boundaries of the two firms. More detailed information from the interview participants was requested on:

- *Changes in the internal organisation* of the two firms (e.g. changes in the role of the head office; centralisation / decentralisation of decision making processes, etc.);
- *Rationales* for the restructuring of the boundaries of the two firms (e.g. potential synergies among the various businesses; contribution of the head office in exploiting any linkages, etc.);
- *Key factors* that were perceived to have either caused / facilitated or hindered / decelerated the restructuring processes of the two companies.

Our interview partners provided valuable information on these issues. Unattributed quotes in the main sections of the chapter represent their statements.

(3) Other sources: Firstly, interviews were conducted with several outside consultants and analysts with respect to both companies, so as to ascertain independent opinions of the companies' restructuring processes. Secondly, we bought a token share in Hoechst which allowed us to take part in its annual general meeting on 6 May 1997 where the progress of the restructuring was discussed and the establishment of the 'Strategic Management Holding', a key element in Hoechst's reorganisation, was agreed. Thirdly, we met Mr. Stefan Sommer, Hoechst's officer in charge of controlling and strategy development, who gave insightful presentations at workshops at the Social Science Centre (WZB) in Berlin on 9-10 May and in London on 10 December 1997.

5.3 Corporate Restructuring at ICI

In the following section, ICI's history up to 1982 is sketched briefly, so as to provide the background for the analysis of the company's restructuring process since then in section 5.3.2.

5.3.1 Brief Overview of ICI's History

ICI was founded in 1926 through the merger of four British companies, the British Dyestuffs Corporation, Brunner, Mond & Co, Nobel Industries, and United Alkali Co.

(see Hardie and Pratt 1966, pp. 299-301; on the formation of ICI see Reader 1970, ch. 19, and on its general development Reader 1975). The foundation of ICI was a reaction to the formation of IG Farben in Germany (section 5.4.1). IG Farben in particular, but also Du Pont in the US, held many of the crucial patents and exerted extreme pressures on prices, which the four British companies could not withstand on their own. As a result of the four-way merger, ICI came into existence as a very diversified company. ICI's 1971 *Information Handbook* lists 14 major product areas for the time of its foundation: "heavy chemicals; explosives and accessories; fertilisers; insecticides; dyestuffs; domestic chemicals; leathercloth; printing; sporting ammunitions; non-ferrous metals; paints; gas mantles; lamps and accessories; and welding plant and equipment" (quoted from Clarke 1985a, p. 97). In the 1930s it also became, however hesitantly, involved in pharmaceuticals, an activity field that saw major additions during WW II (Cunliffe 1985, pp. 42f.). Similar to the German and American chemical companies, the wartime efforts led to further increases in ICI's diversification. From a geographical perspective, ICI's focus on the British and the commonwealth markets resulted from the dominance of cartels in the industry (Mirow and Maurer 1982, ch. 5). In 1929, ICI struck the 'Patents and Processes Agreement' with Du Pont to divide the markets up, with Du Pont covering Central America and the US, and ICI the British colonial markets (Hounshell and Smith 1988, pp. 191-205). During the 1950s and 1960s, ICI's performance lagged behind its German competitors (IG Farben's successor companies) which moved into capital-intensive, high value-added production (see Grant et al. 1988, pp. 8-9 and p. 43; Cox and Kriegbaum 1980, p. 30). As a result of its diversification, "rather than specializing in a few products that it could have efficiently manufactured in large plants, ICI manufactured hundreds of products inefficiently" (Derdak [ed.] 1988, p. 352). During the second half of the 1960s efficiency improved, but fell behind ICI's competitors again during the 1970s (Broadberry 1997, pp. 293-298).

In 1951, a US court forbade the further division of markets, so that ICI was confronted with increasing competition from foreign manufacturers in the British and the colonial markets where hitherto it had been the dominant supplier. At the same time, it was isolated from the strong economic growth in the continental European countries that began a process of economic and political integration.

In the post-war period, ICI also integrated vertically. It had established its first naphtha-crackers as early as 1951. In 1976/77 it invested directly into North Sea oil, partly in response to the oil crisis[8], so as to supply its large petrochemicals activities (Grant et al. 1988, p. 41).

With respect to ICI's geographical orientation, while ICI had always been a multinational company (for details see Clarke 1985a, ch. 4), it long maintained its distinctively 'British character' (see Pettigrew 1985, p. 387) that originated from its early orientation towards the colonial markets. "It took ICI twenty years after 1947 to develop significant European and American businesses" (Stopford and Turner 1985, p. 57), and the share of its sales generated outside the UK persistently lagged behind the respective figure for its German competitors. It began to address this situation during the mid-1960s when it made (mainly 'organic') investments into continental Europe, followed by several large acquisitions in the US during the first half of the 1970s and again in Europe during the late 1970s. It also reduced the share of its employment in the UK and increased its sales abroad (Clarke 1985a, pp. 125ff.). Despite this, as of 1980, ICI's share of sales generated outside the UK was, with 58% (Clarke 1985a, p. 117), still markedly lower than the comparable figure for Hoechst at 69% (Hoechst's German Annual Report 1986, p. 72), a situation that was reversed during the 1980s.

Since the four-way merger, ICI has had a divisional hierarchy[9] (More 1989, p. 293), managed from a large corporate head office in London. During the mid-1950s, the head office had about 2500 employees; this was reduced during the 1970s and reached about 1000 in the mid-1980s. Until 1981, when the central research laboratory was closed, R&D had been carried out on a mixed basis as the divisions had their own research functions, too. As of the mid-1970s, ICI distinguished between 14 divisions (based on product categories), centrally-provided functions, and administrative structures distinguished by geographical location (i.e. regional / country offices, in addition to the semi-independent activities in the former colonies, many of which have never been integrated into the group's structure). This often led to the problem of administrative referral (i.e. various units taking part in decision-making processes referred to each other before decisions could be reached), and ambiguous authority structures. In sum, ICI had a complex and large administrative body, resulting in slow decision-making processes.

One of ICI's major problem was its dependence on bulk chemicals, prices of which came under increasing pressure during the 1970s as a result of the maturing of the industry and general over-capacity. In addition to its poor operating performance, ICI suffered heavily from the 1980/81 recession and the weakness of the British economy (e.g. gradual decline of the British car industry, to which ICI had been an important supplier), and the strength of Sterling.

In sum, the situation of the company before the beginning of the restructuring can be described as follows:

- high degree of diversification;
- high degree of vertical integration;
- multinational activities, although ICI remained firmly British-based;
- a complex and cumbersome administrative structure;
- poor financial and operating performance.

5.3.2 Corporate Restructuring at ICI since 1982

In this section, ICI's restructuring process since 1982 is analysed, distinguishing between four restructuring phases. The emphasis is on the period since the beginning of the second restructuring phase, i.e. since about 1990, when ICI began to make a clearer break from its history of diversification than it had done before. The aim of the section is to outline the changes that have taken place with respect to both the boundaries of the firm and its internal organisation, to ascertain the timing of the restructuring process, and to describe the forces underlying it.

Since 1982, when Sir John Harvey-Jones became chairman, ICI has undergone four phases of restructuring:

(1) During the first phase, Harvey-Jones set in train the company's orientation towards higher value-added goods, in particular speciality chemicals[10] and biotechnological products, in an attempt to offset the weaknesses of ICI's petrochemicals operations that had become apparent during the 1980/81 recession. This strategy involved a combination of some divestments and a number of acquisitions. In 1982, ICI swapped its polythene production (which it had invented in

1935) against BP's PVC activities (Bower 1986, pp. 130-135). However, reducing the degree of vertical integration proved difficult as knock-on effects on other processes in the highly integrated production chain were feared (Grant 1991b, pp. 256-258). In 1985 it acquired Garst Seeds and Beatrice's chemicals division (this turned out to be a big failure, as ICI had overpaid for an under-performing company), Glidden Paint in 1986 and Stauffer (Agrochemicals) in 1987. ICI also considered further acquisitions in the pharmaceuticals industry (Beecham, Wellcome) which did not materialise for various reasons.

On balance, the first restructuring led to a further increase in ICI's degree of diversification and of vertical integration (Owen and Harrison 1995, pp. 133f.). The company's acquisitions were strongly geared towards the North American and, to a lesser extent, to the European market. Data on the geographical distribution of ICI's workforce (table 5.1 and graph 5.1) show a strong increase in the company's degree of 'multinationalisation' between 1986 and 1989. ICI also considered investing into Asia, but found itself unable to do so as its low share price restricted its ability to raise further funds in the external capital market.

Harvey-Jones also initiated changes in ICI's internal organisation, e.g. by reducing staffing levels at the company's corporate centre (even a move out of its Millbank headquarter was being planned). He also addressed the role of the board that had been described as a consensus-oriented 'debating club' (Pettigrew 1985, pp. 377ff.), and reduced its size.

(2) The second phase of restructuring started in 1990. Sir Denys Henderson, chairman since 1987, abolished the BCG-matrix portfolio planning (Lynch 1997, pp. 110ff.) that had guided ICI's policy during the first restructuring wave, and set up two task forces to analyse the company's strategy and structure (Kennedy ^{2}1993, Ch. 12). These teams identified seven 'core' businesses; the resolve was to divest all other activities. Under the added impact of the recession (see section 6.3.4) practical steps were taken from 1990 onwards, when ICI withdrew from its overseas fertilizer business and some other activities (e.g. the speciality compounds division), and sold its stake in Enterprise Oil (Timbrell and Tweedie [eds.] ^{5}1998, Vol. I, p. 754). The restructuring also involved organisational changes. Charles Miller Smith, ICI's Chief Executive since 1995, describes the background to the changes that took place in 1991

as follows: "Throughout the 1980s, ICI had a complicated structure trying to manage a diversified product portfolio with a wide geographical spread. It was a cumbersome matrix with little focus on ICI's competitive businesses. There was a lot of cross-subsidisation of the poor businesses by the good. In short, ICI's position as competition strengthened was increasingly untenable. Recognising this, ICI initiated a major restructuring programme. The number of international businesses was halved from 14 to seven. The geographical offices in individual countries were reduced in size and authority. The businesses were, for the first time, made fully accountable for their performances. Costs were cut substantially with employee numbers falling by 20 per cent".[11] The restructuring was given a further impetus through the oil price hike during the gulf war in early 1991.

(3) Taking advantage of ICI's low share price in early 1991, the Hanson Group, which had become famous for its activities as a corporate raider, bought quietly into ICI's shares to acquire a 2.8% stake in the company. When this became known in May 1991, it was widely seen as a takeover attempt, although Hanson never officially announced a takeover bid. The threat of hostile takeover first led to an intensification of the existing restructuring plans in the context of an aggressive takeover defense. At the end of 1991, while Hanson's takeover was still a possibility, a fresh look on ICI's restructuring was taken by John Mayo, then with ICI's advising bank SG Warburg. He found ICI's step-by-step restructuring too slow and – based on ideas that had already been developed more vaguely inside the company (see The Economist, 28 April 1990, p. 25) – proposed a demerger of ICI into two parts[12]. The preparation of the demerger and its implementation in 1993 mark ICI's third wave of restructuring. Building on the perception that ICI had become overly large and diversified, a "technological fault line within ICI" (Owen and Harrison 1995, p. 137) was recognised: The pharmaceuticals and agro-chemicals showed synergies in biotechnology research and development, whereas no synergies existed between them and the more traditional chemicals businesses. Technological synergies were also found between the pharmaceuticals and the dyestuffs businesses. The three businesses (pharmaceuticals and healthcare, agro-chemicals and seeds, and dyestuffs) were considered to be a 'natural group' and were put into a separate legal entity that was named Zeneca. ICI demerged itself from Zeneca on 1 January 1993. As many of the activities split off ICI were performed in

Western countries (e.g. US, UK), the share of ICI's employees in Asia and other regions increased substantially from 1992 to 1993 (table 5.1 and graph 5.1).

(4) The fourth phase of ICI's restructuring has been taking place since the completion of the demerger in 1993, with most of the decisive steps taken since mid-1997. The break-up left the company smaller and less diversified than it had been before. As of 1993/94, it had four major business lines (industrial chemicals [by far the biggest business], materials, explosives, paints), in addition to a sizeable set of separately run regional businesses (e.g. ICI Australia, ICI South Africa, etc.). For the first 12-18 months after the demerger, the focus was on improving the financial performance of the company by cutting costs and improving operating efficiency. A thorough analysis of the portfolio was only started in late 1994, revealing that the weaknesses already apparent during the 1980s remained unresolved in the chemical businesses with which ICI was left[13]:

- exposure to the cyclicality of the industrial chemicals businesses;
- strong price competition and low margins in commodity chemicals (e.g. PVC);
- while the portfolio had been reduced through the demerger, the remaining businesses still were essentially unrelated and offered little scope for synergies;
- the portfolio was fragmented in that many businesses were small as compared to their largest competitors, so that (relatively speaking) they were less-well positioned to exploit economies of scale;
- the combination of businesses in certain *product categories* on the one hand and independently-run *regional businesses* on the other hand in the ICI group;
- great environmental liabilities (e.g. in the Tioxide business);
- an unclear role of the corporate centre.

Since 1995, rumours about a potential takeover in connection with its low share price emerged again, so that ICI was under renewed capital market pressures[14]. In order to overcome the above weaknesses, ICI decided to shift into particular speciality chemicals with a greater consumer focus, and to leave its earlier industrial chemicals, explosives, plastics, and regional businesses. The underlying rationale for this move was that the company would not be able to attain sufficient scale economies in all of its businesses, so as to withstand competition in the price-sensitive commodity and

pseudo-commodity markets. It should best add to those activities that allowed higher margins due to their lower price elasticity of demand (as is generally the case in speciality chemicals; Stobaugh 1988, p. 162), and greater growth potential. Furthermore, it was argued that those activities should be given up where a high degree of backward vertical integration was a strategic advantage (especially the heavy chemicals businesses, themselves primarily upstream businesses, which rely on particular raw materials, e.g. oil). Instead, the company should focus selectively on more marketing-intensive specialities (Chemical Insight No. 622, January 1998, p. 7) with greater scope for product differentiation acting as entry barriers against competition.

In order to achieve these aims, the company had to restructure, implying a large number of acquisitions and organic investments on the one hand, and divestments on the other hand; an overview of these transactions is provided in table 5.3. Practical steps to strengthen the paints and acrylics businesses were taken from 1995 onwards (acquisition of Grow's paint business in the US in 1995), while a strong focus on speciality chemicals followed only after 1996. By far the most decisive step, taken in 1997, was the acquisition of Unilever's[15] speciality chemicals division for £4.9bn. This consisted of four discrete businesses, namely National Starch, a US-based producer of industrial adhesives and speciality starches; Quest (Netherlands), a fragrance and food ingredients company; Unichema (Netherlands), which produces fatty acids; and Crosfield (silicates, zeolites and silicas) which is now being sold on. At the same time, ICI divested many explosives and industrial chemicals businesses, particularly its polyester and Tioxide activities to Du Pont, and the largest of its regional businesses (e.g. its South African and Australian holdings). Its declared aim is to sell all of its remaining industrial chemicals and regional businesses (see figure 5.2), although this is proving more difficult than expected, and the time frame for completing these disposals had to be extended for another three years (FT, 2 July 1998, p. 30; see also FT, 25 September 1998, p. 27 on ICI's difficulties in obtaining regulatory approval for its deals).

From a geographical perspective, the fourth phase of corporate restructuring has been marked by ICI's orientation towards Asia and other emerging markets, where the bulk of ICI's organic investments (partly through entry joint ventures) has been located. In particular, ICI has built up several paint factories in China, where it has become the

largest paint producer, and has invested in India. The sale of the 'old' regional businesses means that the data on the geographical spread of activities (see table 5.1 and graph 5.1) since 1995 may conceal ICI's attempt to become more international in its outlook during the fourth restructuring phase.

In sum, during the fourth phase of ICI's restructuring process, substantial changes to the boundaries of ICI have taken place. The company is becoming less diversified, while at the same time integrating its chosen core businesses on a horizontal basis. This also implies changes with respect to the geographical spread of its operations, although due to the simultaneous abandonment of its regional businesses an even greater 'globalisation' of the company than had been achieved already may not immediately be obvious. Moreover, as the company focuses on speciality chemicals it is moving downstream in the chemical production chain (figure 5.1), thus implying changes regarding its degree of vertical integration.

In conjunction with the restructuring of ICI's 'boundaries', the company has also transformed its internal organisation. The main changes in this area can be summarised as follows:

- Both the size and the functions of the head office have changed substantially. According to the results of the questionnaire survey, the number of head office employees declined from 961 in 1986 to 263 in 1996 (with the most significant reductions having taken place in conjunction with the demerger), and to less than 250 in 1997/98.[16] This overall reduction has affected all head office functions. As of 1997/98, the main head office activities are in accounting, finance and taxation, legal matters, human resources, and public and investor relations (see figure 5.2). The executive team – a group of executive managers below board level – has the overall task of devising optimal exit and entry strategies.
- ICI's management structure has become more decentralised. ICI's core businesses, strengthened by their consolidation during the latest phase of restructuring, have developed or are currently developing their own administrative structures (e.g. a multidivisional structure at National Starch, with its own headquarters in the US), enabling them to make key decisions independent from the London head office.

Financial discretion of line managers has increased. Research & development activities have now been fully devolved from the centre and integrated into the operating businesses.

- Due to the rapid change in the composition of the portfolio it is difficult to track changes within the operating businesses over longer periods of time, but changes have been taking place there as well. In general, the company has reduced the number of managerial layers in its operating businesses, and decreased staffing levels in administration.
- The company has disintegrated many of its support services through the use of outsourcing and contracting-out. This has included IT services and property management. In 1997, it transferred 124 IT staff and IT contractors to IBM. As part of a global property initiative involving similar transactions, it has sold its own head office in London to a property management group from which it has leased back the building and procures maintenance services.

In sum, the restructuring of ICI's internal organisation has involved a decentralisation of the company, with a smaller administrative centre from which fewer services are provided, and more self-sufficient and independent operating businesses.

However, it should be pointed out that the role of the ICI group as a whole, beyond the completion of the current restructuring program, is unclear. The potential for synergies from the sharing of operations, research and know-how, and distribution channels among ICI's chosen speciality chemicals businesses is questionable. Also, many of the operating businesses (in particular Paints, National Starch and Quest) are sufficiently large to act as stand-alone units or as parts of even larger specialised companies. With a small head office, and no involvement of head office staff in either R&D or operational management, the role of the head office appears to be primarily in the area of accounting and financial controlling. However, Miller Smith (ICI Annual Report 1997, p. 9) argues that ICI would make "an excellent parent" for its businesses by exploiting synergies that would arise from the shared knowledge of customer needs and applications in 'sensory products' (e.g. flavours, fragrances and paints), and from the experience in project management. Also, many of the group's businesses would

share in specialist expertise in marketing and brand management, which the group has been aiming to acquire through the hiring of top managers (most importantly Chief Executive Charles Miller Smith from Unilever and Chief Operating Officer Brendan O'Neill from Guinness / Diageo). The various operating businesses would also benefit from the group's ability to attract scientists (through university contacts etc.). Whether, beyond the current restructuring, these considerations are sufficient to justify the existence of the combined group, remains unclear.

To summarise, four phases in ICI's restructuring since 1982 can be distinguished. Decisive steps to decrease its earlier diversification and vertical integration have been taken since 1990/91, marked by the demerger of its pharmaceuticals activities in 1993 and the orientation of the company towards speciality chemicals (and away from commodity chemicals) since 1995/96. Underlying the restructuring process have been various company- and industry-specific pressures, such as ICI's complex administrative structure, and strong competition in bulk chemicals. Importantly, however, these pressures on their own effected only a moderate and protracted reorganisation programme. More vigorous restructuring took place only when the firm- and industry-specific difficulties were mediated by capital market pressures (perceived threat of hostile takeover) and economy-wide pressures (recession). The ensuing restructuring has implied changes with respect to both the boundaries of the firm (e.g. reduced diversification, increased horizontal integration of activities) and its internal organisation (e.g. changes in head office size and functions, etc.).

5.4 Corporate Restructuring at Hoechst

In the following, a brief overview of Hoechst's general history is provided first, focusing in particular on the evolution of the firm's boundaries. Section 5.4.2 outlines the central features of Hoechst's internal organisation before the beginning of the restructuring process, which is then analysed in section 5.4.3.

5.4.1 Historical Background

Hoechst was founded in 1863 under the name *Offene Handelsgesellschaft Meister Lucius & Co.* to produce synthetic fuschia dye and other dyestuffs (e.g. Aniline) in Frankfurt-Hoechst. During the second half of the 19th century, the market for organic dyestuffs – originally a British invention (Campbell 1971, ch. 9) - expanded substantially, and Hoechst grew rapidly to employ a workforce of more than 4000 by the turn of the century.[17]

Hoechst evolved quickly into a technologically advanced company in its field. While dyestuffs remained its main product for forty years from its foundation, Hoechst became also involved in the development of drugs. The chemical composition of dyes and of many of the early drugs – general rather than illness-specific remedies – had similarities (Derdak [ed.] 1988, pp. 346-348). Hoechst also moved into other chemical products (e.g. fertilizers).

During the two world wars, the German chemicals companies were required to provide a broad range of chemicals and pharmaceuticals for war-related purposes. Therefore, both war periods led to a wide-ranging diversification of Hoechst's activities (e.g. engagement in photographic chemicals). The first world war also led to a co-ordination of the activities of different chemical companies, and these arrangements were not dismantled after 1918.[18] In 1925, the Interessengemeinschaft Farbenindustrie AG (IG Farben) was formed through a merger of Hoechst, Bayer, and BASF and the other members of the 'small IG'. The member companies lost their legal independence in the IG Farben, yet remained largely separate entities from an operational point of view.[19]

After WW II, the allied powers decided to break up IG Farben in order to reduce its power. Although the US initially favoured a breakup into smaller units, the organisation was dismantled into eight smaller and three large units which roughly coincided with the pre-war organisations of Hoechst, Bayer, and BASF. Hoechst was 're-founded' as a public limited company in 1951. With "a workforce of almost 15.000 - or just under 27.000 including the associated companies" (Hoechst AG 1991, p. 18), the new Hoechst AG was the smallest of the three large German chemical companies, yet its size was sufficient to play an active role in the world chemical industry.[20] The re-allocation of assets was largely concluded by 1953. Hoechst received a diversified portfolio (see Hoechst's 1955 product list in Krohn et al. 1984, p. 130).

The history of Hoechst after WW II is characterised by rapid growth, spurred by three, closely interrelated developments:

(1) Diversification: Hoechst diversified substantially and evolved into a broadly-based chemical company in the following fields: inorganic chemicals, petrochemicals and intermediates, plastics, fibers, paints, glosses and dyes, fertilizers, agricultural chemicals, plant machinery, industrial gases and welding technology, surfactants and detergents, printing materials, pharmaceuticals and cosmetics[21]. Hoechst's diversified portfolio was not centered around a dominant product or business line. The high degree of diversification suited the company well during the 1970s when the petrochemical activities were hit by the oil crisis and the competitive pressures described in section 5.1.

(2) Vertical integration: Hoechst followed a policy of highly integrated production (*Verbundproduktion*) where intermediate products generated in one step of the production process would be fed into other production steps. For example, Hoechst's acquisition of *Chemische Werke Albert* in 1964, which produced (amongst others) synthetic resins – in itself a diversifying move for Hoechst – led it into the production of glosses, with the acquisitions of Flamuco in 1969, Berger, Jenson & Nicholson in the UK in 1970 (Winnacker 1971, pp. 376-379), and Herberts in 1972.

While many of Hoechst's investments were into areas relatively far 'downstream' in the production chain displayed in figure 5.1, it also moved into some upstream processes and products. During the 1950s, Hoechst developed technologies for both crude-oil cracking and chemical intermediates, but in 1961, partly for the disadvantage of its geographical location, gave up the oil cracking business and opted instead for supply agreements with other producers (Stokes 1994, p. 177). The involvement in olefin-unsaturates (e.g. ethylene, propylene etc.), however, was maintained (Winnacker 1971, pp. 239ff.), so as to supply the production of plastics (e.g. polyethylene, polypropylene) and other products requiring the input of petrochemicals (Teltschik 1992, pp. 213-220). In order to secure its raw material supplies after the 1973/74 oil crisis (Schreier and Wex 1990, p. 309), Hoechst in 1975 acquired a 25% 'foothold' stake in *Union Rheinische Braunkohlen Kraftstoff AG, Wesseling* (UK Wesseling) which was exchanged against a share in Ruhrchemie in a 1983 asset swap. At the whole, Hoechst did not integrate as far upstream as BASF (see Derdak [ed.] 1988, pp. 305-308) or ICI with its naphtha crackers; in comparison with the latter company, it

had a higher degree of integration in downstream activities. One of the reasons for this was Hoechst's general policy during the 1960s not to compete directly with or to acquire its main suppliers and customers (Winnacker 1971, p. 373; Teltschik 1992, p. 223), although this principle was not always followed strictly. However, the technological innovations in organic chemistry, combined with general economic growth, enabled Hoechst to move into downstream activities and applications which had not been occupied before at all.

(3) Internationalisation: As early as 1953/54 Hoechst started to rebuild and extend its pre-war connections in research and development. Factories were built abroad, and the company extended its international sales network and its transport and distribution facilities (including ships and a port in the Netherlands). By 1957, "Hoechst was ... represented in 68 countries" (Hoechst AG 1991, p. 19), and by 1965, "in 119 countries" (ibid., p. 22). This development is further underlined by the increasing proportion of Hoechst's turnover achieved outside Germany, which was 29% in 1953 and 46% in 1966. Hoechst's internationalisation was achieved by both organic growth and by acquisitions. It invested in particular into foreign downstream chemical and pharmaceutical businesses, e.g. the acquisition of a 40% share in the French pharmaceutical company Roussel Uclaf in 1968 (the stake was later increased). Hoechst also attempted to consolidate its worldwide pharmaceutical activities during the 1970s. According to company representatives, this acquisition marks Hoechst's first orientation to what it now calls the 'life sciences', although one industry analyst remarked that before the formation of HMR (see below) Hoechst did not really integrate Roussel Uclaf into its own structure.

One factor behind Hoechst's international expansion was its strong position in agricultural chemicals, which it aimed to exploit in more rural economies. A second factor was the exploitation of patent rights - in particular in pharmaceuticals - across as many economies as possible, so as to recoup the large initial investments into research and development and achieve economies of scale in distribution. This included its leading position in the market for diabetics medication. Hoechst decided in particular to invest in the USA, which was the largest market for these drugs. In sum, Hoechst's internationalisation revolved around the exploitation of economies of scale and scope. For example, in order to benefit from large production batches generated in a limited domestic market, Hoechst had to guarantee a steady sales stream of its products,

leading to the establishment of international sales representatives. These, in turn, would have had enough capacities to market a variety of products, providing further impetus to Hoechst's diversification move.

Hoechst's expansion during the late 1950s and 1960s was funded by an increasing revenue stream on the back of a strongly growing economy. The two oil shocks during the 1970s hit the company hard, so that the years from 1975 to 1977 and from 1980 to 1982 marked a crisis for Hoechst. As compared to other chemical companies, however, Hoechst's diversification and its integration of downstream activities that were relatively independent from petrochemicals (e.g. pharmaceuticals, agrochemicals), offset the impact of the oil price hikes to some extent. As a result, during the 1970s and 1980s Hoechst did not reshape its portfolio fundamentally, but continued its earlier policies with further moves into speciality chemicals, applications and secondary processing industries (often on an international basis), without abandoning its upstream activities. It invested in particular into the following business lines:

- printing, reprographics and information technology (production of photocopiers and tele-copiers started in 1972 and 1974 respectively; acquisition of a stake in the printing machines producer Sixt in 1980; launch of the 'computer-to-plate' newspaper printing technology in 1982; etc.);
- cosmetics and body care (acquisition of Jade [1970], of Mouson Cosmetic GmbH and the perfume company Balenciaga S.A. [1978]; creation of the consumer products division in 1980 to consolidate the activities in this area; etc.);
- pharmaceuticals (significant expansion through organic growth and acquisitions, both in pharmaceuticals research and production [e.g. acquisition of Optrex in 1975] and in retailing / distribution [e.g. establishment of Cassella-med]) and other medical products [e.g. diagnostics]);
- insecticides; animal health products (i.e. veterinary drugs such as vaccines and animal foods);
- fibres (e.g. polyester fibres such as Trevira and polyacrylic fibres such as Dolan).

The most important step in this context was its acquisition in 1987 of the American company Celanese, which earlier ICI had considered buying. Celanese is a large

producer of basic chemicals, petrochemicals and fibres with know-how in the area of high-performance polymers (Teltschik 1992, pp. 294f.);

- technical ceramics (e.g. the 1985 acquisition of Rosenthal); graphite and carbon fibres for technical applications through its Sigri subsidiary.

As a result of Hoechst's investment into knowledge-intensive and high-value added activities[22], from 1983 onwards until the late 1980s it achieved high profitability which enabled it to carry even those businesses in its diversified portfolio which proved less profitable. In sum, the post-war history of Hoechst until about 1990 can be characterised by extensive diversification[23], increasingly international operations, and a high degree of vertical integration, in particular in activities that were relatively far 'downstream' from the perspective of the main chemical production chain.

5.4.2 Hoechst's Internal Structure since 1969

Hoechst's development from a functional organisation to a mixed structure with some multi-divisional features had taken place in an evolutionary way in the 1950s and 1960s. During this period, businesses had been assigned to activity fields on the basis of broadly defined product groups. Some of these activity fields received a degree of independence from the central office, while others remained under direct control of the management board. As a result of the growth and international expansion of the company (Hoechst AG 1991, p. 23), in 1969 Hoechst created a new organisational structure that remained in place until 1996/1997. The central feature of the new structure (figure 5.3) was the *product line-based divisionalisation* of the company, with the divisions being run by their own management with a considerable degree of autonomy from the head office. The basic elements of the structure were

- the Management Board (*Vorstand*) with 14 members as of 1976, all of whom reported on between one and three of the units below board level. However, management board members were not involved in the day-to-day running of the businesses. The Management Board devised general policies that were to be put into practice by managers further down the hierarchy. This examplifies the separation of policy making from execution that Sloan (1963, chs. 3 and 23),

Williamson (1971, pp. 343-386) and Chandler (1996, pp. 345-376) describe as a key attribute of the multi-divisional corporation.

- five Central Departments (*Zentrale Abteilungen*), which, together with the management board itself, formed the head office of the company in a narrower sense, fulfilling mainly internal tasks (e.g. internal audits);
- nine Central Functions (*Ressorts*) which, together with the Management Board and the Central Departments, formed the head office of the company in a wider sense. The Central Functions acted as internal service providers (e.g. in R&D) to the Management Board, the Central Departments, and the Divisions, charging internal transfer prices for their services, although apparently not always on a rigorous basis;
- 14 product category-based Divisions (*Geschäftsbereiche*) as of 1976, managed by a team consisting of a director, and the heads of five functions within each Division (production, sales, research, technology, and controlling). The Divisions were responsible for their product policies including marketing and pricing strategies, research and development, quality standards, and patenting issues. However, the Divisions did not have authority over the day-to-day running of the operating units, with which they were to negotiate performance targets and costs;
- the actual operating units, which operated on behalf of one or several Divisions, but had their own management. The operating units were divided into plants (i.e. immediate assets of Hoechst) and joint ventures (i.e. companies in which Hoechst held a share). Some of the plants were legally independent, while others were under direct control of Hoechst[24];
- two other consultative bodies, namely the Central Area Conference and the Central Regional Conference. Both 'Conferences' were basically committees in which the members of the management board met regularly with representatives of selected Functions, Divisions and operating units to gather performance data and discuss strategic issues. While the Central Area Conference was concerned with strategic issues along the lines of product areas and divisions, the Central Regional Conference addressed policies relevant primarily to the non-domestic activities.

The basic structure remained in place throughout the 1970s and 1980s. Several divisions were consolidated, while others were renamed to reflect changes in technology or business emphasis, but Hoechst's macro-organisational structure as a whole remained unaltered. In sum, Hoechst's internal structure from 1969 onwards was characterised by a high degree of complexity and an extensive administrative organisation. Many administrative functions were provided from the centre, yet were also existent on lower hierarchical levels, leading to duplication. Decision-making processes were deferred by the involvement of a multiplicity of participants, who had to refer back to each other before decisions could be taken. The organisational centre was large, with the head office, as of 1986, comprising 14148 employees, 1262 of whom were classified as managers (information from the questionnaire survey). One interview participant said that Hoechst's problem of the 1980s was "central thinking".

Plans to address these problems were developed in the late 1980s under the influence of Jürgen Dormann, a full member of the management board since 1986. The intention was to produce a more transparent overview of costs and profits in individual activities, to give the operating businesses more independence and self-sufficiency, and to reduce the problem of cross-subsidies. To this end, in 1991 Hoechst introduced a business unit structure in its operating businesses. These business units were based on a matrix system that combined regional and functional criteria: "Many of the divisions into which our company has been organized since 1970 have now come to resemble large companies in their own right. In order to react fast and flexibly to our customers' wishes, we have formed business units that run their operational business autonomously. Each looks after a particular product range in a specified region" (Management Board Chairman Wolfgang Hilger, Annual Report 1990, p. 3). This initiative, however, did not address Hoechst's central organisation.

5.4.3 Corporate Restructuring at Hoechst Since 1994

The Restructuring Decision

On the background of a downturn in the company's financial situation after 1992, the general plan to restructure was developed by Hoechst's management after Dormann

had become board chairman in April 1994. The restructuring decision was taken in response to a combination of general economic, industry-specific and firm-specific factors:

- A general recession that hit the West German manufacturing industry in 1993 (section 6.3.4) and thus lowered the demand for chemicals from the industry's main customers (e.g. the car and the construction industries), followed by further years of weak economic growth. The recession had started earlier in other countries (e.g. in the UK in 1990), but its onset was deferred in Germany, partly by the catch-up effect following unification.
- On the industry level, competition increased as new producers (see above section 5.1) moved further downstream into chemical intermediates and end products such as fibres, plastics and films. This affected Hoechst more severely than had been the case in the 1970s and early 1980s when competition from new suppliers had been largely confined to petrochemicals. Hoechst representatives said in the interviews that the new producers had built up large-scale production capacities at geographically advantageous locations, producing "everything from the oil to the final product", and were therefore able to add value in many steps of the production chain.[25]
- Specific to Hoechst was its above-described diversification. Many of its activities required major investments. Our interview partners estimated that, in the face of increased competition, over a period of five to ten years, approximately 100 billion DM would have been required to make Hoechst's industrial chemicals businesses internationally competitive.

Against this background in industrial chemicals, the longer-term perspectives for the pharmaceuticals and some other businesses in which Hoechst had been active[26] were regarded as more promising for the following reasons:

- The market for research-based, patent-protected drugs – as against generics – is divided by therapeutic groupings into a number of sub-markets. The near-impossibility of substitution among these sub-markets leads to very low cross-elasticity of demand. Within these sub-markets, price competition is restrained. Even if there are several drugs within a therapeutic group, the price elasticity of demand is often relatively low (Reekie 1975, Ch. 2). Where this is the case, companies can set prices above the

marginal cost of production, marketing and distribution (Garber 1993, p. 19). As a result, while pharmaceutical research is very risky, the resulting products are profit-intensive, and first-mover gains are substantial. The US market is particularly attractive, firstly because of its size, and secondly – in contrast to some European countries (Le Pen 1995, pp. 48-53) - because of the absence of price regulation in most therapeutic sub-markets (Bogner and Thomas 1992, p. 207).

- Entry barriers to the various drug markets are high, due to the high risks associated with, and the investments and the time frame required for, drug development. Entry barriers are also created by patent protection and product differentiation (e.g. branding). Some authors suggest that economies of scale and scope in research and in distribution (but not so much in drug production; Hancher 1990, pp. 51ff.) give the large firms an advantage over smaller companies, while others question the extent of this advantage. While numerous 'biotech-startups' have emerged in recent years, these usually have to license their research to the bigger firms, and the strategic advantage of the group of 15 or so big international pharmaceutical companies is relatively difficult to contest from outside this group.[27] Our interview partners said that they would not expect Hoechst to be challenged in pharmaceuticals in the way it had happened in chemicals. However, while entry barriers may make it difficult for 'newcomers' to build up fully-fledged pharmaceuticals operations that include both drug R&D and drug distribution, it is possible to drop out of the group of the leading pharmaceuticals companies, in particular if a company fails to launch new products.
- Many of Hoechst's drugs have been related to conditions such as Alzheimer, diabetics, and cardiovascular diseases. The aging of the populations of the Western societies with sufficient purchasing power was forecast to generate further growth for these pharmaceuticals, despite attempts to reduce health care costs.

However, in order to take advantage of the growth that it expected in research-based pharmaceuticals, Hoechst had to make significant investments into both drug research and distribution, where it lacked important capabilities. With respect to drug R&D, during the 1980s and early 1990s Hoechst had fallen behind the advances in biotechnology, drug design, screening technology, and so on (Gambardella 1995, pp. 21-41). With respect to drug marketing, which is important in an industry where

product and promotional competition, rather than price competition, are fierce, Hoechst's position in particular in the US market (where it had licensed many of its products; Bogner and Thomas 1992, pp. 207f.) was insufficient.

In sum, Hoechst had to make major investments into two broadly conceived business areas – industrial chemicals and pharmaceuticals (together with some other businesses; see below), for which, in a situation of poor financial performance, it could not generate sufficient internal funds. At the same time, while there were no obvious direct capital market pressures (e.g. threat of hostile takeover, etc.), general capital market conditions made it difficult for Hoechst to raise external funds for such major investments. At the beginning of the 1990s, interest rates in Germany were high (tables 6.6 and 6.7), while Hoechst's low share price made it disadvantageous to issue further equity.

As a result, in 1994/95 Hoechst's management decided to adopt a twofold strategy:

(1) to *extend*, *integrate* and *consolidate* a set of 'life science activities' (see below), building on its existing activities in this area;

(2) to *discontinue* the operative involvement in all businesses outside the remit of the 'life sciences'. While a variety of exit mechanisms would be chosen, proceeds from the sale of the former businesses would help finance investments in the latter.

The 'life science activities' targeted by Hoechst fall into two broad groups, which are further disaggregated into two businesses each (figure 5.4):

- Products for human health care: This group consists of (a) pharmaceuticals, the largest business in its 'new' portfolio, and (b) diagnostics. With respect to pharmaceuticals, Hoechst's focus is on research-based, 'ethical' products in selected drug sub-markets (e.g. cardiovascular diseases, diabetes, etc.).
- A set of agro-businesses, comprising (c) Hoechst's animal health products (feed additives, animal vaccines, etc.) and (d) its nutritional businesses. Most of the latter category are crop-related, e.g. seeds production and protection (herbicides, fungicides, but only some fertilizers).

During the interviews, the choice of these four businesses was not rationalised on the grounds of potential synergies among them, but on the basis of their longer-term prospects. Apart from some commonalities with respect to the recruitment of scientists, little overlap between the four business fields was perceived. Any existing synergies among them were thought to be diminishing as a result of specialisation (e.g. reduced commonality of crop protection and animal health products, as crop production and livestock rearing become less widely combined on farms), and Hoechst would not try to 'force' synergies.[28] However, economies of scale and scope were considered important *within* the four business fields (e.g. through joint drug distribution, experience / knowledge in the area of patent protection, licensing procedures, etc.), and even more so within the sub-markets for particular products.

The restructuring that has followed from the above-described strategy has involved changes with respect to both the boundaries of the firm and its internal organisation. In the following, these two dimensions of Hoechst's corporate restructuring are analysed in greater detail.

The Restructuring of Hoechst's Boundaries

The effect of the twofold strategy decision on Hoechst's boundaries can be summarised under five headings:

(1) Horizontal integration: Since 1995, Hoechst has aimed at expanding and consolidating each of the four activity fields that constitute its designated 'life science businesses'. This has involved a combination of acquisitions, joint ventures and organic growth. The most significant investments include its acquisition of the large American drugs company Marion Merrell Dow (MMD; itself the result of Merrell Dow's acquisition of Marion Labs) in 1995 and its buy-out of the minority shareholders (among them the French government[29]) in Roussel-Uclaf in 1996. Subsequently, it merged its existing pharmaceutical operations with MMD's into Hoechst Marion Roussel (HMR). In order to strengthen its drug research and testing activities, HMR has formed numerous strategic alliances and joint ventures with universities, hospitals, and smaller biotech-companies that offer access to particular, difficult-to-contract-

upon capabilities in pharmaceutical research.[30] These are mainly based in the US, although since 1996 - following the partial relaxation of genetic research legislation in Germany - Hoechst has also started to co-operate with German biotech firms, mainly in the Munich area.

In a similar way, Hoechst has aimed at expanding and integrating its other 'life science businesses'. For example, it consolidated the diagnostics activities in its Behring Diagnostics subsidiary (earlier: Behringwerke AG), made several acquisitions, and engaged in joint ventures (for an overview of these transactions see table 5.4). Similar to its strategy in pharmaceuticals, Hoechst aims at exploiting economies of scale and scope within diagnostic systems, e.g. through the provision of encompassing diagnostic 'packages' to health care providers. The crop protection business was consolidated in 1994 in a joint venture with Schering called AgrEvo. Biotechnological expertise in this area was gained through the acquisition of the American company Plant Genetic Systems in 1996. In the same year, it consolidated the veterinary drugs businesses of Hoechst and Roussel Uclaf in Hoechst Roussel Vet, which it expanded subsequently through acquisitions and joint ventures (table 5.4).

(2) De-diversification: In 1995, Hoechst began a successive process of discontinuing its operative involvement in all businesses outside the 'life science activities' described above. To this end, a variety of restructuring mechanisms has been used. These include partial and full divestments of businesses through trade sales, initial public offerings, and exit joint ventures. One of the first significant divestments concerned its cosmetics division (subsidiaries Schwarzkopf, Jade and Marbert) in 1995. Further divestments in speciality chemicals, carbon and graphite production, ceramics, printing plates, speciality phosphates, engineering and polystyrene production took effect between 1995 and 1997. Hoechst has also been selling its generic drugs businesses[31] and some non-core health care businesses (e.g. Roussel Uclaf's contraceptives business). Unusual for the German market, in August 1998 Hoechst sold its coatings subsidiary Herberts in an agreed to takeover to the American financial investor Kohlberg Kravis Roberts which had become famous for its activities as a corporate raider. However, a variety of significant industrial businesses (figure 5.5) could not be sold as quickly as planned, so that, according to Dormann, the completion of the divestment programme will take until 2000 or 2001.

(3) Reduction in vertical integration: Hoechst's abandonment of the diverse field of industrial chemicals businesses and its focus on 'life science activities' implies that its earlier strategy of an integrated chemicals production ('*Verbundproduktion*') was given up. Even the relationships among the industrial businesses still remaining have become more closely aligned with market transactions, as the consolidated business units have received greater autonomy and accountability for their activities (see below). The degree of vertical integration has also decreased due to a reduced in-house provision of support activities, and the sale of the engineering company Uhde in 1996 which had produced plant machinery for both Hoechst businesses and outside customers.

With respect to the issue of vertical integration in Hoechst's 'life science businesses', it may be noted that the physical production of drugs (for both human and veterinary purposes) takes place primarily in two stages (Hancher 1990, pp. 40ff.): firstly, the manufacture of the active ingredients; secondly, a downstream production phase (tableting, packaging, etc.). In both steps, standardised routines can be used, and quantities of output are small, so that "production is not a critical competitive factor" in pharmaceuticals (Gambardella 1995, p. 15).[32] Also, physical inputs into 'life science products' are fairly standardised and widely available, so that the incentive to integrate backwards into raw materials procurement is low. Value is added primarily in R&D and in distribution. Therefore, Hoechst's strategy implies that relatively long production chains in industrial chemicals (figure 5.1), in which high degrees of vertical integration were perceived to be advantageous, have been replaced with the shorter production chains in many 'life science activities', as measured by the number of identifiable, successive steps in physical production.

(4) Increased international involvement: Hoechst's focus on 'life science products' has involved an orientation towards those markets where the demand for these products is greatest. With respect to many agro-products, the West European markets are relatively stagnant, and supplies shift increasingly towards the Americas. Also, the US represents the largest and most attractive market for research-based health care products (Cueni 1995, pp. 60-63). However, with growing purchasing power, some Asian countries may gain greater importance in future. With respect to Hoechst's

operations, the geographic location of its workforce follows, broadly speaking, from the nature of its two major value-adding activities. Research and development is primarily located in Western Europe and the US, where highly skilled staff is available, while the personnel-intensive distribution activities are concentrated around the locations of Hoechst's customers. As a result, the share of the Americas (primarily the US) in the geographical breakdown of Hoechst's sales and employment data is increasing (table 5.2 and graph 5.1). The importance of the German base is diminishing. While a trend towards a greater international spread of activities has been taking place before Hoechst's restructuring, this has accelerated in connection with Hoechst's investments abroad since 1994.

(5) Use of hybrid modes of organisation: In the context of Hoechst's restructuring, it has been using a large number of joint ventures and strategic alliances, both for the purposes of entering new, and for exiting 'old' activities.[33] There are several reasons for this. First, as was pointed out by an interview participant (see endnote 28), the integration of scientists and researchers into extensive administrative hierarchies can prove difficult, so that a financial stake in an otherwise independent organisation may be preferable to an outright acquisition. Second, the use of equity joint ventures helps spread the risk involved in research-based activities across the venture partners. Conversely, in the case of exit joint ventures, the keeping of a financial stake in former businesses secures a relatively predictable income stream for Hoechst, without necessitating its operational involvement. (The most significant case concerns the sale of Hoechst's speciality chemicals business to the Swiss Clariant. As part of the deal, Hoechst has received a stake of 45% in Clariant's shares, which carry, however, only 10% of the voting rights. Similar exit joint ventures involve its European rigid films, its textile polyester, polypropylene-plastics and its acrylic fibres businesses). Third, many entry joint-ventures concern knowledge-intensive assets, the valuation of which is impeded by the 'information impactedness' problem (see section 2.3.1). The continued financial participation of the original owner can help reduce the problem of opportunistic behaviour in contracting upon the assets concerned. Therefore, Hoechst's strategy of expanding its 'life science activities' and abandoning its operational involvement in the industrial businesses made the use of hybrid modes of organisation appear advantageous in many cases.

Restructuring of Hoechst's Internal Organisation

As described on page 215, initial steps towards internal restructuring, taken in 1991, had been targeted towards the operating businesses, rather than Hoechst's central organisation. However, with the greater self-sufficiency and independence of the operating units and the duplication of the functional / regional structure on the operating level, the functional and regional services that were centrally provided became superfluous. As a result, Hoechst's large corporate functions came under scrutiny from 1991 onwards. The restructuring became an official, concern-wide programme (the 'Strategic Management Process') in 1994, when the centrally organised functions and regions were abolished, and the redesign of Hoechst's macro-organisational structure began. The restructuring process culminated in 1997 with the introduction of a new organisational setup, called the 'Strategic Management Holding' (SMH), following approval by the annual general meeting. The reorganisation process is scheduled to continue throughout the next three to four years. In sum, the restructuring of Hoechst's internal organisation has been taking place in parallel with the restructuring of the company's boundaries.

Hoechst's new macro-organisational structure (figure 5.5) differs from its earlier structure in two major respects:

(1) A new setup of Hoechst's corporate centre, implying a re-definition of the head office and of the centrally provided functions;

(2) The reassignment of Hoechst's businesses into legally and operationally independent companies.

These two aspects are analysed in turn.

(1) The corporate centre has been 'downsized' extensively. Staff in centrally provided services - the head office, corporate R&D, and other central services included - was reduced by 40% from almost 14000 in 1991 to some 8300 in 1996, while employees in central managerial functions saw a reduction by 35% from around 1200 in 1991 to 800 in 1996. Since 1996, a further reduction has been taking place.

The SMH itself consists of a *Corporate Center*[34] of 200-250 employees, three quarters of whom are in managerial positions - the others being in administrative functions -, and the management board. The management board was reduced from 11 in 1993 to 9

in 1994 and further to 7 in 1997. According to the questionnaire survey, all corporate head office functions except investor relationships (which have been extended), and public relations (which stayed level) were involved in the downsizing of the head office. The new *Corporate Center* is active in six mainly financial, accounting, strategic and legal functions (see figure 5.5)[35]. It also carries out corporate communications and investor relationships, and it has a few employees concerned with executive development, health, safety and environmental issues, and with government relationships. These various functions are staffed very sparsely, and many activities which in earlier years were carried out at corporate level have been integrated into the operating businesses (e.g. patenting). Many of the functions of the *Corporate Center* are so small that outside consultants and investment bankers are regularly drawn in. One interview participant said that up to 90% of strategy-related projects (e.g. acquisitions, divestments, etc.) were carried out by outside providers, while the 22 employees in Hoechst's Corporate Controlling and Development function were primarily concerned with project evaluation and implementation.

The main function of the *Corporate Center*, according to interview participants, was to steer the company through the restructuring process and "to devise optimal exit strategies". It was also said that the SMH would have to be rethought after the completion of the restructuring process, although Hoechst would maintain a small corporate head office even thereafter.

The reorganisation of Hoechst's *Corporate Center*, combined with the legal independence of all operating businesses, also means that the holding company is not any longer able to offset potential losses of individual operations against the profits of others for tax purposes. Thereby, Hoechst's new organisational structure provides incentives for the rigorous financial control of the operating businesses by the *Corporate Center* (Dormann in an interview with Manager Magazin 8/1997, pp. 42-49). In order to achieve this, Hoechst has been strengthening the performance-orientation of employees. Incentive payment schemes for its entire workforce have been implemented since 1994. For managers, bonus payments are made on the basis of pre-negotiated performance targets on business unit level, replacing an earlier system that had put more emphasis on seniority.[36] In addition, a reward scheme for employee suggestions has been put into operation. Project groups have been implemented, and greater responsibilities and decision-making powers have been given to shop floor

employees.[37] Hoechst has also taken steps to make its compensation systems internationally comparable, and has adopted the International Accounting Standards in 1994 to enhance financial transparency.

In connection with the setup of the *Corporate Center* as Hoechst's new head office, functions and services which earlier had been provided from the centre of the organisation have been devolved in the following way:

- In order to decentralise R&D activities – in the mid-1980s, about 8000 of its R&D staff of 14000 were working in Hoechst's central laboratories –, the company has been integrating R&D services into the operating businesses as far as possible. Hoechst has also been providing financial support for employees to set up small research-based firms. Other employees took up early retirement. For the remaining employees, however, Hoechst has set up a fully-owned subsidiary (Corporate Research and Technology), in which about 1000 employees were working as of October 1997; one interview partner described this subsidiary as "a leftover from the restructuring process". Many of these employees have been working in business areas which Hoechst wants to exit altogether (e.g. chemical process engineering). According to our interview partners, the reassignment of these employees would take several years to complete. Similar to the other central service organisations, Corporate Research and Technology seeks to provide commercial research services to businesses both within and outside Hoechst. The longer-term goal is the full decentralisation of R&D.
- A similar strategy applies to the new central materials procurement organisation which figures as an independent subsidiary in Hoechst's new structure. The 'restructuring report' (Hoechst AG 1997, p. 37) still justifies the existence of this subsidiary with the exploitation of potential scale and scope economies through bulk buying on behalf of the operating businesses. However, as the operating businesses are independent, it is left to them whether they use the services of the procurement organisation.
- All other central service organisations have been set up as legally independent businesses which enter contractual relationships with inside or outside customers. An example for this is corporate communications, which had been a Central Department before the restructuring process, with about 250 employees as of 1994. Around 50 of

these took up (early) retirement. Another 20-30 were selected for the Corporate Communications function within the *Corporate Center*. For the remaining 170-180, a fully owned, independently operating subsidiary ('CommServ') was founded which aims to sell services (e.g. report design) to the operating businesses and to outside customers.

- The management of Hoechst's infrastructure has generally been devolved to the operating units. On those locations where this was not possible (e.g. where several operating businesses shared in the use of the same site, such as in Frankfurt), parts of the infrastructure were consolidated in 13 limited partnerships. While Hoechst AG retains an interest in these service companies[38], they are being run as independent units, and the operating businesses have been acquiring stakes in them in proportion to their use of the services provided. While the service companies also aim to sell their services to outside businesses (by renting out plants etc.), the acquisition of customers who would use facilities specially designed for chemical works (e.g. pipelines) is said to be difficult.

The overall aim of the devolution of central services and functions has been to achieve a clearer assignment of costs and benefits to the operating businesses and to provide incentives to generate as much business as possible. Our interview partners said that during the 1980s, the divisions bore only about 50% of their operating costs, while the remainder was borne by Hoechst as a whole. As of 1997, more than 95% of the costs were borne by the operating businesses, thus creating incentives to contain costs at the operating level.

(2) The second major characteristic of Hoechst's new structure is the consolidation of its businesses in legally and operationally independent units (figures 5.4 and 5.5), after a substantial reassignment process. The aim was to consolidate all activities in four principal subsidiaries that would coincide with its four core 'life science businesses'. To this end, Hoechst had to devolve its immediate assets to the subsidiaries concerned, and combine them with the assets purchased through its acquisitions in the context of the overall restructuring process. For example, Hoechst's original pharmaceutical activities were combined with the ones of Roussel Uclaf and of MMD to form HMR, while Roussel Uclaf's veterinary medicine activities were integrated into Hoechst

Roussel Vet. The management boards of the subsidiaries decide on their organisational structure (e.g. a divisional structure at Celanese, a functional structure at HMR, or a combination between the two at Behring Diagnostics), and they take full management responsibility in every respect (e.g. employment policy, joint ventures, etc.). They also prepare their own reports, which will allow outside analysts to monitor the performance of Hoechst's subsidiaries more closely.

To summarise, Hoechst's restructuring that has been taking place since 1994 to culminate in 1997 has involved changes with respect to both its boundaries and its internal organisation. With respect to the former, the degree of horizontal integration and of internationalisation in its 'life science activities' has increased, while diversification and the degree of vertical integration have been reduced. The company has also become engaged in hybrid modes of organisation, such as joint ventures. In conjunction with the changes regarding the boundaries of the firm, the company has restructured its internal organisation by moving towards a smaller corporate centre, including both the head office and a much reduced set of centrally provided functions. Decision-making has been decentralised and the operating units have been consolidated, while profit orientation and financial accountability have been enhanced.

It should be pointed out, however, that doubts about Hoechst's long-term strategy remain. In addition to the manifold problems encountered during the ongoing restructuring process (e.g. regarding the integration of HMR, its unexpectedly low operating performance[39], the strength of its 'product pipeline', the breakdown of several joint ventures, etc.), to many observers it is unclear whether the combination of increasingly diverse 'life-science activities' in a single organisation can be managed efficiently. Also, the role of the (however small) *Corporate Center* beyond the current restructuring has not been fully defined as yet. Analysts have become more critical of Hoechst's strategy of de-diversification and vertical disintegration, given that other German companies (e.g. BASF; see Manager Magazin 10/1996, pp. 64-70 and FT, 19/8/1998, p. 26) have followed a different route.

5.5 Comparison of Corporate Restructuring at Hoechst and ICI

This section provides a comparison of Hoechst and ICI, focusing on three aspects:

(1) The *nature* and the *extent* of their restructuring processes; .

(2) The *timing* of the restructuring decisions and their subsequent implementation;

(3) The *factors* that have either caused (advanced), or hindered (slowed down) the restructuring of the two companies.

The main emphasis is on the third issue.

(1) Nature and extent of restructuring: According to the analyses provided in section 5.3 and 5.4, ICI and Hoechst have been undergoing *similar restructuring processes* in many respects. Both companies have been separating their pharmaceuticals and agrochemicals businesses from other activities, thereby reducing their earlier diversification. They have become oriented towards more marketing-intensive, downstream activities from the perspective of the main chemical production process, and reduced the degree of vertical integration. On a horizontal level, they have integrated and consolidated their respective target businesses, and have achieved a greater international spread of their operations. Also, both companies have changed their internal organisation in conjunction with their overall restructuring processes, with a greater emphasis on decentralised decision-making, and a reduced corporate centre. Some differences between ICI's and Hoechst's restructuring remain, however. For example, ICI has (at least so far) maintained a multi-product approach in chemicals, with only limited relationships among the constituent subsidiaries. Whether, in contrast, Hoechst can build a 'life sciences group' in which the sum of the businesses is worth more than the individual parts, is still unclear.

Both Hoechst representatives and outside analysts reported that, during the planning of Hoechst's restructuring, the example of the ICI-Zeneca demerger had served as a constant benchmark that had been studied in detail. One interview partner said that, upon completion of Hoechst's restructuring programme, the company aimed at being even more closely focused on life science businesses than Zeneca, which still generates about 20% of its sales in speciality chemicals (e.g. inks).

(2) Timing of corporate restructuring: The evidence provided in sections 5.3 and 5.4 indicates that *ICI has started its restructuring earlier*, and despite protracted decision-making processes, *has been quicker to implement restructuring decisions* once they were taken, than has been the case at Hoechst. Disregarding the mid-1980s, when acquisitions and divestments led to a net-increase in diversification at both companies (but more so at Hoechst than at ICI), ICI drew up plans to separate its pharmaceutical business from its other activities from about 1990 onwards, and elaborated a demerger proposal in 1991/92. In contrast, restructuring plans were developed at Hoechst after Dormann had become board chairman in 1994. However, the first practical steps, taken in 1995, were concerned primarily with the integration of 'life science businesses' (e.g. the acquisition of MMD), while disposals were still limited. A programme that explicitly proposed the separation of 'life science' from other activities was publicly announced by management in 1996, to be agreed by the Annual General Meeting in May 1997.

The restructuring at Hoechst might have proceeded more quickly if it had been able to demerge its 'life science businesses' from its other activities in the way ICI had done. This option was ruled out due to disadvantageous German capital gains tax legislation, so that Hoechst's restructuring had to proceed through stepwise disposals and flotation of its industrial businesses, scheduled to continue until about the year 2000.

It should be emphasised that slow decision-making has been a problem at ICI as well as at Hoechst. For example, after its demerger, it took ICI a long time to address the problems in its remaining businesses. However, far-reaching decisions were taken once capital market pressures became imminent. Moreover, once decisions had been taken in principle, management was very quick to implement them, so as to signal to investors their determination to address the situation. In sum, the evidence does not suggest that managers of either company have been more effective or more willing to restructure than managers of the other company, but that ICI's management has come under much greater capital market pressures to do so. In addition, the fact that the implementation of the restructuring proposals followed relatively quickly once they were decided suggests that ICI's management may have had greater unilateral decision-making power to put their proposals into practice than management at Hoechst.

(3) Causes of and obstacles to restructuring: Two sets of factors that have been influential in the restructuring of the two companies shall be discussed in greater detail:

(a) The role of the capital market: As emphasised above, capital market pressures in the form of takeover fears amidst a depressed share price have been an important catalyst of corporate restructuring at ICI. In Hoechst's case, capital market pressures have played a role, too, but these have been less immediate. Although Hoechst's share price has been low throughout much of the 1980s and early 1990s, at least until very recently a takeover bid for the company was unlikely for two reasons.[40] First, a set of economic and institutional factors, analysed in detail in section 6.3.1 below, shelter German companies - in particular firms with a strong public profile such as Hoechst - from hostile takeovers. Second, Hoechst's shareholder base has been relatively fragmented, with the largest shareholder – the state of Kuwait through the Kuwait Petroleum Corporation, which is regarded as an unlikely seller in case of a hostile bid - holding 24.5% of the shares. About 30% of Hoechst's shares are held by individuals, many of them current or former employees, who would hardly support a takeover attempt. The acquisition of significant stakes in Hoechst by international institutional investors has taken place only since 1996, possibly *in response* to Hoechst's restructuring plans which have been publicised as a 'shareholder value' initiative.
Despite the absence of immediate takeover threats, the company faced more general capital market pressures in the form of difficulties with respect to the raising of capital during a phase when large investments needed to be made. In parallel with the recession in 1993, interest rates in Germany were high (tables 6.6 and 6.7), contributing to the high costs of external capital. At the same time, the rise of new competitors described above meant that investors had the opportunity to invest into operations with about the same class of risk, but with much higher returns. Interview partners at Hoechst pointed repeatedly to increased capital market demands as an important reason behind Hoechst's restructuring, but also said that these pressures were a relatively recent phenomenon with which Hoechst had not been confronted during the 1980s.

(b) The role of labour representatives in decision-making processes: In ICI's case, restructuring was decided unilaterally by management, without any direct interference

from employee representatives in the decision-making processes. In contrast, Hoechst's restructuring constituted a 'change in the company' (*Betriebsänderung*) according to para 111 of the German Workplace Labour Relations Act (*Betriebsverfassungsgesetz*), and had potentially disadvantageous implications for employees. Under these conditions, it had to be agreed with the central works council (for details see section 6.3.2). The internal discussions and negotiations, which took place primarily in 1996, are estimated to have taken 1-1½ years. Employee representatives were concerned primarily about redundancies, and about the implications of the restructuring on the system of employee representation at Hoechst through works councils and the supervisory board. The latter issue could be resolved relatively easily in that Hoechst's supervisory board is unaffected by the restructuring, and the individual operating companies establish their own statutory representative bodies. With respect to employment policies, Hoechst has aimed at avoiding compulsory redundancies, using voluntary early retirement schemes instead. It has also tried to maintain its image as a 'socially responsible employer' by maintaining its highly regarded apprenticeship programs. Under these conditions, the central works council agreed to the restructuring which it ultimately could not have prevented. Nevertheless, the restructuring has been criticised harshly by employees, in particular since the end of 1997 when it became clear that the restructuring process did not deliver the rapid gains that had been hoped for[41].

In sum, two sets of factors can be identified that help explain the differences in the timing and the speed of implementation of the restructuring processes at ICI and Hoechst. First, ICI has been confronted with capital market pressures earlier and more directly than has been the case at Hoechst. Second, the restructuring process at Hoechst has been prolonged by the involvement of labour representatives. This gave management less unilateral decision-making powers, in particular in those decisions which did not relate to the expansion of the company (e.g. the acquisition of MMD), but to its separation from its industrial activities, and its internal reorganisation.

5.6 Chapter Summary and Conclusion

In this chapter, a comparative case study of corporate restructuring processes at two large chemical companies, Hoechst AG in Germany and ICI plc in the UK, has been presented. The particular focus of the chapter has been on the following three aspects:

(1) First, by providing qualitative detail on structural changes in two companies, the case study has shown that corporate restructuring is a multi-dimensional process, which involves inter-related changes with respect to both the boundaries of firms, and their internal organisation. Changes in particular respects (e.g., diversification), or through particular events (e.g., acquisitions or divestments), are part of a company's restructuring, but they do not provide a comprehensive picture of corporate restructuring as a whole. It has been shown, for example, that the de-diversification that has been taking place in both companies has been closely related to a concomitant reduction in vertical integration, and also to increases in horizontal integration in the companies' respective target businesses. Also, in both cases were changes with respect to the firms' boundaries accompanied by a restructuring of their internal organisation. The analytical scheme developed in chapter 2, in which the various elements of corporate structure were identified, has been a valuable set of tools in the context of the comparative case study.

(2) Second, the chapter has provided evidence on the timing and the extent of corporate restructuring in two companies from the UK and West Germany respectively which is consistent with the findings in chapters 3 and 4. In particular, it has been found that corporate restructuring has started later at Hoechst than at ICI, and that, once restructuring decisions were taken, they were implemented more quickly at ICI than at Hoechst. These findings raise the question as to how these differences can be explained, given that the two companies have experienced not only the same industry-specific pressures, but also similar organisational characteristics.

(3) Third, the chapter has analysed the underlying causes of corporate restructuring at the two companies, showing that, in both cases, firm-, industry- and country-specific factors have been at work. The latter set of factors include the general macro-economic conditions in the UK and West Germany, and also the legal-institutional environment in the two countries: the tax implications of demergers, which ruled out this option at Hoechst, and the less unilateral decision-making powers of Hoechst's

managers in the face of co-determination provisions which gave employee representatives a say in the transformation of the company. Most importantly, it has been shown that capital market pressures have been more demanding at ICI than at Hoechst, resulting in a rapid restructuring of the former company.[42] While such pressures are directed towards particular firms, it will be argued in section 6.3.1 below that, due to a complex set of economic and institutional factors, the capital market cultures of the two countries *in general* are markedly different. In sum, the findings of the comparative case study would be consistent with the hypothesis that cross-national differences in the timing and the extent of corporate restructuring reflect differences with respect to the economic and institutional environments in the UK and West Germany. This theme will be elaborated upon in the following chapter.

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[1] This chapter, including tables 5.3 and 5.4, is based on information available as of September 1998. More recent events, such as Hoechst's proposed merger with Rhône-Poulenc to create Aventis, could not be taken into account in this analysis. The author believes, however, that these events are in line with the thrust of the argument presented here.

[2] The chemical industry, in turn, represents about the same proportion of the total economy of each of the two countries. As of 1992, the chemical and pharmaceutical industry (ISIC codes 351 and 352) represents the fifth largest manufacturing industry by employment in both countries, employing 8% and 7% of total manufacturing employment in Germany and Britain respectively (information source: UNIDO International Yearbook of Industrial Statistics, Vienna 1995).

[3] Grant et al. (1988, pp. 233ff.) provide a list of such new producers of ethylene, polyethylene and PVC from 1980 to 1986. Nadarajah (1997, p. 7) provides data on capacity editions in ethylene from 1990 to 1995, showing that most capacity has been added outside the Western countries (see Tandy 1997, p. 1, for forecasts until 2010). The data by Fayad and Motamen (1986, p. 128) show the continually increasing share of the developing countries in the production of petrochemicals and thermoplastics. See Barnett and Bubley (1994, pp. 10-17) on the overcapacity problem in the world petrochemical market.

[4] For ease of presentation, all figures, graphs and tables are presented at chapter end.

[5] It should be emphasised that moving into downstream activities is not the only possible strategy (Arora and Gambardella 1996, p. 24). Some Western companies (e.g. Huntsman, Quantum, Borealis) have been focusing strongly on particular commodity chemicals, increasing operating efficiency and production volumes, and cutting costs as decisively as possible (e.g. cutting out R&D, etc.). Also, there are still particular market niches in basic chemicals where firms can gain competitive advantage through technological leadership (e.g. BP in Acrylonitrile).

[6] See in particular Owen and Harrison (1995), but also Pettigrew (1985) and the more popular account by Kennedy (^{2}1993).

[7] Both companies have kindly allowed us to publish the results of their questionnaires in the context of this case study.

[8] ICI's North Sea oil activities were later sold to Enterprise Oil in which it held a 25% stake. The disposal of this stake in 1990 ended ICI's involvement in the oil industry.

[9] Hannah (1983, p. 83) states that in the late 1920s ICI's divisional structure was "in germ". It was clarified and developed in a McKinsey-led reorganisation in 1965.

[10] The notion of speciality chemicals refers to a variety of differentiated chemical products which are designed to solve specific customer problems and are therefore 'application intensive' (Chemical Insight, November 1997, p. 5), such as in the case of glues, detergents, pigments, and food

ingredients. Apart from speciality chemicals, Wei et al. (1979, pp. 252-259) list three types of chemicals:

- Commodity chemicals: i.e. undifferentiated chemicals produced in large quantities to uniform standards (e.g. ethylene). Competition is based primarily on price.
- Pseudo-commodities: differentiated products produced in large quantities (e.g. synthetic fibres). Competition is based on price, but also on product performance. However, as production technologies become more widely available, the scope for product differentiation through quality decreases.
- Fine chemicals: undifferentiated products made in low volumes, but at high quality specifications (e.g. vitamins). Fine chemicals represent the smallest market segment, with commodities and pseudo-commodities being the largest segments, and speciality chemicals a medium-sized market segment.

[11] C. Miller Smith: *A View from the Top as Seen from Europe.* Address to the World Chemical Congress in August 1997. Typescript, p. 5.

[12] ICI's demerger followed two role models: Courtauld's demerger in 1990 (R. Hampel in a speech in December 1992, mimeo, p. 12), and the 'unbundling' of the conglomerate BAT under the threat of the corporate raider Sir John Goldsmith, also in 1990. One of the questions that guided the strategists who planned ICI's demerger was what Hanson would have done with ICI. Judging from Hanson's general raiding technique (Goold et al. 1994, pp. 227-233), a breakup would have been a probable solution, combined with a marked reorganisation of the group through decentralisation, reduction in administrative staff, abolition of cross-subsidies etc. (Ireland 1990, pp. 1-12).

[13] See Sir Ronald Hampel's speech *'Beyond the Millenium'* at the SCI meeting, 23 April 1997 typescript), and his address to ICI's Extraordinary General Meeting on 16 June 1997 (typescript).

[14] See Sunday Telegraph (Business Section), 31 May 1998, p. 6.

[15] It should also be mentioned that the deal marks an important step in Unilever's own refocusing program.

[16] Sir Ronald Hampel in his address to ICI's Annual General Meeting, 23 April 1998.

[17] On the dominance of the German dyestuffs industry before WWI see Landes 1969, pp. 275f. - Historical data on Hoechst's workforce, capital, turnover, and profit are contained in Hoechst's corporate history by Schreier and Wex (1990, pp. 353-358).

[18] In 1918, the 'small IG' (*Kleine IG*; official name: *Interessengemeinschaft der deutschen Teerfabriken*) was founded out of the combination of the already existing cartels Hoechst-Cassella-Kalle and Bayer-BASF-AGFA with the companies Griesheim-Elektron and Weiler-ter Meer. In contrast to the 'large IG', during the lifetime of the 'small IG' the individual companies remained legally independent.

[19] For details on IG Farben's internal structure see Kreutle (1991, pp. 155-235) and the organisation charts in Hayes (1987, pp. 388-391).

[20] The documents about the dissolution of the IG Farben and the history of Hoechst between 1945 and 1953 are contained in *Dokumente aus Hoechst-Archiven*, Vol. 48-50 by K. Trouet (1976 and 1978a and 1978b). For the decision to re-establish Hoechst as a company which would be sufficiently large to compete on the world market and to represent a serious competitor to Bayer in pharmaceuticals and to BASF in fertilizers and petrochemicals see in particular the 1950 report of the Tripartite Investigation Team (Trouet 1978a, pp. 100-106).

[21] The following statement by Hoechst's management board chairman K. Winnacker (1971, p. 373; translation and emphasis A.R.) on acquisition policies shows that diversification was regarded as a positive aim: "Acquisitions and mergers make sense only if they *open up* for the company an activity area which presents a valuable and desirable *addition*" (sc. to the company's existing activities; A.R.).

[22] During the 1980s, Hoechst's strategy was expressed in its logo "Hoechst HighChem"; see Harvard Business School Case Study 9-390-146 (1990), p. 10.

[23] In an article in Manager Magazin (1995, No. 5, p. 36) it was estimated that Hoechst had 40000 different products.

[24] According to both Hoechst representatives and outside analysts, the mixed structure described above resulted in insufficient transparency and hindered the implementation of stringent financial controls, thereby giving rise to cross-subsidisation among the businesses.

[25] "Look at the role of the Middle East countries such as Saudi Arabia and their investment plans. Look at the Shells, Exxons and BPs of this world, going upstream and downstream. Should Hoechst invest heavily to create an integrated production facility in China? That is not our priority. There are other areas where we are more competent. [...]. Chemicals are an excellent option for others, not necessarily for us" (Jürgen Dormann in an interview with the Hoechst magazine *Future* 3/97, p. 8).

[26] The pharmaceuticals group is the major one of four business areas on which Hoechst is focusing in the context of its restructuring; these will be analysed below in more detail. The general economic conditions in some of the other areas (e.g. in animal health products) bear some similarities to the pharmaceutical market (with respect to research intensity, patent protection etc.), as described here.

[27] These companies include Abbott Laboratories, Bayer, Boehringer Ingelheim, Bristol Myers Squibb, GlaxoWellcome, Hoechst, Hoffmann LaRoche, Merck, Novartis, Pfizer, Pharmacia & Upjohn, Rhone Poulenc, Schering, SmithKline Beecham, and Zeneca (see Owen 1994b for a list as of 1991). While many movements within this group of 'top players' have taken place, partly through mergers and acquisitions (including Hoechst's acquisition of Roussel Uclaf and Marion Merrell Dow, and many others), no new players have entered this group in recent years. "It is possible to look upon the various sub-markets as merely a large number of simultaneous games of musical chairs being played by one unchanging group of large drug firms" (Reekie 1975, p. 45).

[28] "If synergies exist to a limited extent, our decision in the present situation is to ignore them, because apparent synergies can prevent us from taking a clear view. So, unless there are tremendous arguments for synergies - and I do not see those today - there are no synergies. In the future, there could be potential synergies in a life sciences company. [...] In the past, if one business was losing money it was subsidized from elsewhere in the Group. Blowing away the fog of synergies will help everyone have a clear understanding of the future." (Jürgen Dormann in an interview with the Hoechst magazine *Future* 3/97, p. 10)

[29] Hoechst decided to buy out the minority interests in RU in order to safeguard its long-term interest in RU's pharmaceuticals business, in the face of political uncertainty in France.

[30] One of our interview partners, referring to the 17 joint ventures that Hoechst had engaged in by the time of the interview, said that, in his opinion, Hoechst had already too many joint ventures, for the managerial problems of control and coordination. On the other hand, he described the difficulty of integrating biotech firms as a "problem of fluctuating minds": "The people in the biotech firms want to work hard, but they don't want to be told to work hard". It was therefore difficult to integrate these mostly young, innovative scientists into the administrative hierarchies of larger companies.

[31] The generic drug markets is far more price competitive than the market for ethical drugs. Industry analysts estimated that Hoechst's generic drug subsidiaries had been performing poorly.

[32] However, there are exceptions to this rule, e.g. the importance of quality controls in the physical production of drugs. – As of 1995, Hoechst aimed at reducing "the number of sites involved in the production of pharmaceutical intermediates and active ingredients [...] from 16 to 10" (Annual Report 1995, p. 32).

[33] Hoechst managers even describe the future of the group, without being too specific, as an "international network of companies" (see Dormann's interview in *Future* 3/97, p. 10).

[34] The term *Corporate Center* (printed in italics) refers specifically to Hoechst's new head office, using Hoechst's own terminology (Hoechst 1997, p. 37 et passim), while the term 'corporate centre' is used here in an inclusive sense, refering to all centrally provided services.

[35] This emerges from an organisation chart drawn up by Hoechst's Corporate Controlling & Development function in October 1997.

[36] "I couldn't believe that the way you got more pay at Hoechst before was by getting older" (E. Drew, former board member of Hoechst, quoted in *Hoechst,* Supplement to *Chemical Week*, 26/6/1996, p. s2).

[37] Hoechst's Annual Reports (e.g. 1994, p. 12) also report the adoption of 'leaner organisational structures' and 'flatter hierarchies'. However, it has not been possible in the questionnaire and the interviews to ascertain these developments quantitatively. One difficulty in this respect might be that with the greater independence of Hoechst's operating businesses, the *Corporate Center* may not be as well-informed about such changes as it used to be. Also, while in 1994 personnel policies were still devised at the centre, this is not any longer the case, so that particular practices in the individual businesses might already diverge.

[38] This setup was chosen partly because of Hoechst's legal and environmental liabilities for its old sites; for details see Hoechst AG 1997, pp. 34-36.

[39] The performance of pharmaceuticals companies is widely measured in terms of return on sales (ROS), which was 11.8% in 1997 for HMR. This is considerably lower than the ROS of many big pharmaceuticals companies (e.g. Zeneca: 20.9%).

[40] However, it is worthwhile noting that the Financial Times (9/6/1993) commented the appointment of Dormann as board chairman with the words "Mr Dormann is [...] credited with strengthening the

group's anti-takeover defenses." This seems to indicate that, while unlikely, a takeover could not any longer be ruled out completely.

[41] See Die ZEIT, 22/1/1998, p. 21.

[42] The comparative case study confirms the hypothesis by Chandler et al. (1998, p. 417) who suggest that corporate restructuring among the world's largest chemical companies, while serving similar strategic purposes (reduced exposure to commodity chemicals, etc.), reflects cross-national differences in corporate governance systems.

Year	Geographical Distribution of Sales (by location of final customer)				Geographical Distribution of Employment			
	Europe (%)	The Ameri-cas (%)	Other (%)	M_s	Europe (%)	The Ameri-cas (%)	Other (%)	M_w
1986	50.0	25.3	24.7	1.039	58.9	18.7	22.3	0.960
1987	49.6	27.4	23.0	1.040	55.8	23.1	21.1	0.992
1988	48.7	27.6	23.7	1.047	54.5	24.5	20.9	1.003
1989	46.9	29.4	23.8	1.056	53.4	25.3	21.3	1.012
1990	49.2	28.3	22.5	1.042	53.8	24.7	21.5	1.009
1991	46.3	30.7	23.0	1.057	54.1	24.1	21.8	1.007
1992	45.5	31.0	23.5	1.062	53.1	24.6	22.2	1.016
1993	33.4	22.4	44.2	1.062	49.5	23.8	26.8	1.042
1994	41.7	27.4	30.9	1.082	40.7	22.2	37.0	1.068
1995	41.6	27.0	31.4	1.082	38.6	24.1	37.3	1.078
1996	39.4	29.4	31.2	1.090	37.2	25.9	36.9	1.086
1997	45.5	31.0	23.5	1.062	41.5	34.7	23.8	1.074

Table 5.1: **Geographical Distribution of ICI's Sales and Its Workforce**
Note: M_S and M_W are entropy indices of multinationalisation with respect to sales and employment respectively, calculated as $M_s = -\sum s_k ln s_k$ and $M_w = -\sum w_k ln w_k$, with s_k and w_k denoting the proportion of sales from and employment in the three regions (k) respectively (see Davies and Petts 1997, p. 21).
Source: Own calculations, based on Annual Reports.

Year	Geographical Distribution of Sales				Geographical Distribution of Employment			
	Europe (%)	The Ameri-cas (%)	Other (%)	M_s	Europe (%)	The Ameri-cas (%)	Other (%)	M_w
1986	66.6%	18.9%	14.5%	0.865	78.9%	13.0%	8.1%	0.656
1987	60.2%	26.2%	13.6%	0.928	72.6%	20.8%	6.5%	0.737
1988	58.7%	27.1%	14.2%	0.943	72.1%	21.8%	6.1%	0.738
1989	57.8%	27.9%	14.4%	0.952	~72%	~22%	~6%	0.738
1990	61.9%	24.0%	14.2%	0.916	~73%	~21%	~6%	0.726
1991	57.5%	27.0%	15.5%	0.961	~69%	~25%	~6%	0.771
1992	57.6%	28.0%	14.5%	0.954	~68%	~26%	~6%	0.781
1993	52.8%	31.6%	15.6%	0.991	~67%	~26%	~7%	0.805
1994	53.2%	30.7%	16.1%	0.992	64.7%	26.0%	9.4%	0.854
1995	53.3%	30.1%	16.5%	0.994	60.0%	30.7%	10.3%	0.902
1996	49.9%	34.0%	16.1%	1.007	57.6%	30.7%	11.8%	0.932
1997	48.9%	36.3%	14.8%	1.001	57.3%	31.3%	11.4%	0.930

Table 5.2: **Geographical Distribution of Hoechst's Sales and Its Workforce**
Note: Notes to table 5.1 apply.
Source: Own calculations, based on Annual Reports.

Year	Acquisitions	Divestments	Joint Ventures
1994		• Reduction of ICI's share in several exit joint ventures • Sale of the Monckton Coke & Chemical Company (UK) • Disposal of two businesses in the US	
1995	• Acquisition of Grow's paint business in the US • Acquisition of Fuller O'Brien (paints) in the US • Acquisition of the Corona decorative business in France • Acquisition of Kloeckner Pentatec (acrylics, Germany)	• Sale of the European ethylene oxide and derivatives operations • Some other, minor disposals	• Joint venture between Tioxide and a Korean pigment producer • Agrochemicals joint venture between ICI India and Zeneca
1996	• Acquisition of Bunge Paints (South America) • Acquisition of a controlling stake in Thai Poly Acrylic PCL • ICI South Africa buys Expert Explosives (Pty) Ltd	• Disposal of some fixed assets (e.g. the Teesside Gas Transportation Ltd.)	• Joint venture with The Ensign-Bickford Company (US) in explosives
1997	• Acquisition of the Speciality Chemicals businesses (National Starch, Quest, Unichema, Crosfield) from Unilever • Acquisition of a minority stake (9.1%) in Kotak Mahindra (paints, India) • Acquisition of Superior Paint Manufacturing Co. (Puerto Rico) • Acquisition of a Polish paints company • Acquisition of BASF's Syngas business • Acquisition of a Canadian distributor of	• Sale of the polyester, Tioxide and films businesses to DuPont (completed in 1998) • Sale of ICI's 62.4% stake in ICI Australia • Sale of ICI's Canadian forest products business • Sale of ICI's UK fertilizer business • Sale of ICI's 51% stake in its South African explosives business • Sale of the London Headquarter (to be leased back) • Sale of the American and European explosives	• Joint venture with Coates Italia SpA (coatings)

Year	Acquisitions	Divestments	Joint Ventures
	decorative materials • Acquisition of Ritz & Huber, Switzerland (car paints)	activities (completed in 1998)	
1998	• Acquisition of selected home improvement businesses from Williams plc • Acquisition of Acheson Industries (speciality electronics materials) • Acquisition of Mona Industries (speciality and personal care ingredients) • Acquisition of Mydrin AGS GmbH (adhesives) in Germany by National Starch	• Announcement to float ICI's Eutech engineering consultancy on the stock market • Sale of ICI's methylamines and derivatives business • Sale of ICI's polypropylene films business • Sale of most of ICI's global explosives businesses • Sale of Crosfield (subject to regulatory approval) • Sale of the US Tioxide business to NL Industries	• Two paint production joint ventures with Swire Pacific in China, with ICI taking majority stakes • ICI India to form a joint venture with GSFC in acrylics • Exit joint venture with BF Goodrich in Thermoplastic Polyure-thanes

Table 5.3: **ICI's Major Acquisitions, Divestments and Joint Ventures since 1994**
Source: Data from Annual Reports, press releases, Internet Websites.

Year	Acquisitions	Divestments	Joint Ventures
1994	• Capital increases in several subsidiaries		• Formation of the AgrEvo joint venture between Hoechst (60%) and Schering (40%)
1995	• Acquisition of 71% of Marion Merrell Dow (pharmaceuticals) • Acquisition of Syva (diagnostics)	• Sale of Schwarzkopf, Jade and Marbert (cosmetics); • Sale of Riedel-de Haën (specialty chemicals) to AlliedSignal • Sale of some shares in SGL Carbon in connection with its IPO • Sale of Soekami Lefrancq and of the majority in Camillo Corvi • Sale of the printing division to Agfa-Gevaert, effective 1996	• Formation of the Centeon joint venture (plasma products) with Armour Pharmaceuticals (US) (effective as of 1996) • Transfer of the polypropylene business to a joint venture with Courtaulds (effective as of 1996)
1996	• Buy-out of minority shares (43% of the total shares) in Roussel-Uclaf for DM5.4bn ($3.22bn) • Acquisition of Plant Genetic Systems (US) (agricultural biotechnology)	• Sale of the speciality chemicals business to Clariant, in which Hoechst receives a 45% financial stake • Sale of Uhde (engineering) to Krupp / Hoesch • Sale of CeramTec (ceramics) to Dynamit Nobel • Sale of BK Ladenburg, Lutsia and Henning; • Sale of the remaining shares in SGL Carbon and of 49% of the vaccines businesses	• Transfer of Kalle Pentaplast (rigid films) to a joint venture with Klöckner
1997	• Acquisition of the Indian company BAIF (vaccines and veterinary drugs)	• Sale of the Rugby Group (generic drugs) to Watson Pharmaceuticals • Sale of the Dutch polystyrene producer Depron	• Polyester joint venture with P.T. Multikarsa Investama from Indonesia, with P.T. Multikarsa holding the majority stake • Fibres joint venture with Courtaulds, with Courtaulds owning the majority stake

Year	Acquisitions	Divestments	Joint Ventures
			• Veterinary products joint venture with Asahi Chemicals Industry (Japan) • Joint venture with Dade International (US) (diagnostics)
1998	• AgrEvo acquires Cargill Hybrid Seeds North America	• Sale of Herberts to Kohlberg Kravis Roberts • IPOs planned for Messer, Celanese and Ticona • Sale of Hoechst's Japanese generic drug unit to Germany's Hexal • Sale of the European generic drug business to Alpharma	

Table 5.4: **Hoechst's Major Acquisitions, Divestments and Joint Ventures since 1994**
Source: Data from Annual Reports, press releases, Internet Websites.

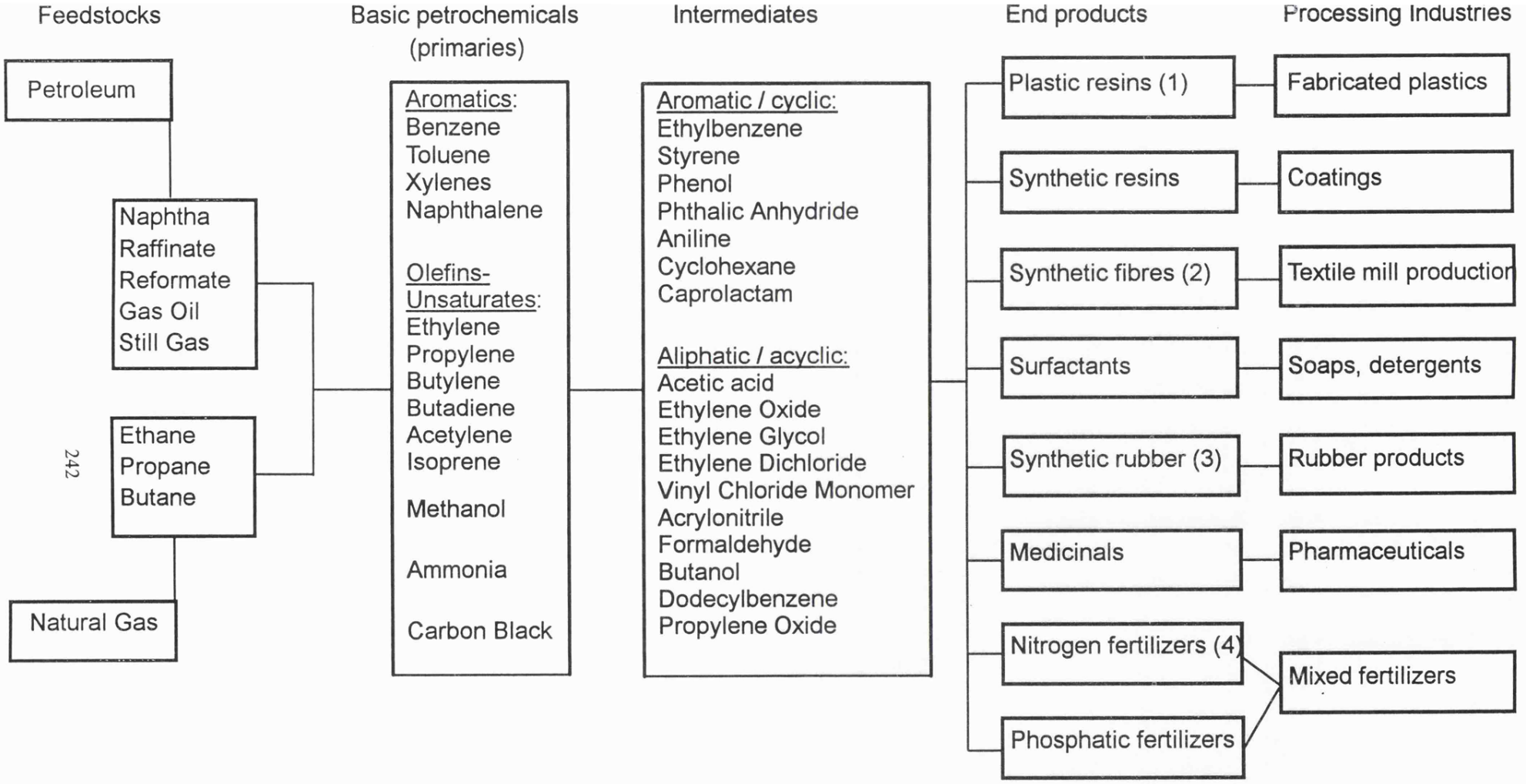


Figure 5.1: **Production Chain in the Petrochemical Industry**

Notes: (1) Plastic resins include HD polyethylene, LD polyethylene, polypropylene, polystyrene, PVC ABS vinyl acetate
(2) Synthetic fibres include acrylic fibres, nylon (polyamide) fibres and polyester fibres
(3) Synthetic rubbers include polybutadiene, SBR, polyisoprene, butyl rubber
(4) Nitrogen fertilizers include urea, ammonia nitrate, etc.

Source: Fayad and Motamen 1986, p. 16, substantially adapted on the basis of information from Stobaugh 1988, p. 165.

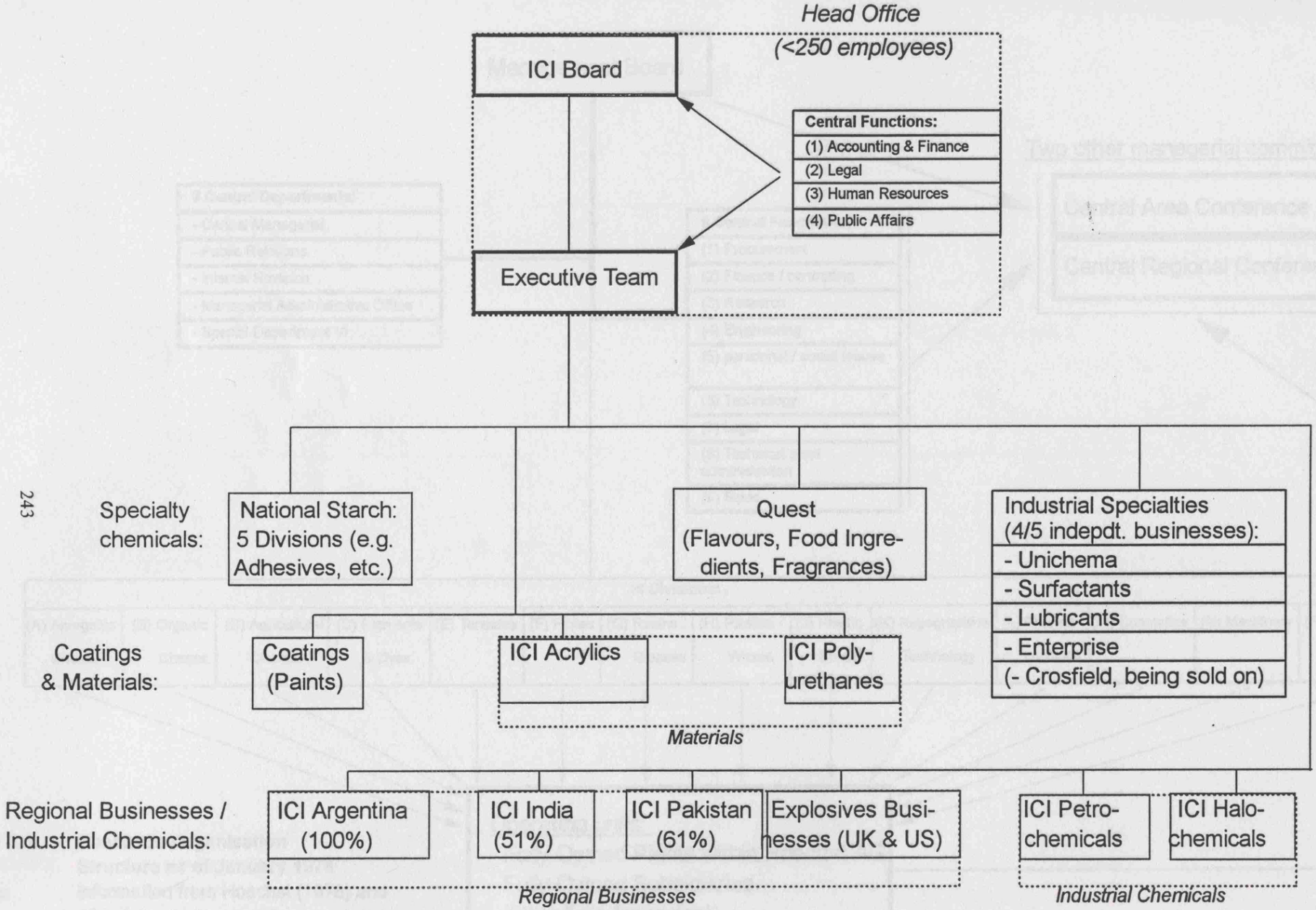


Figure 5.2: **ICI's Organisational Structure as of June 1998**
Source: Information from Annual Reports and the *ICI Factbook 1998*.

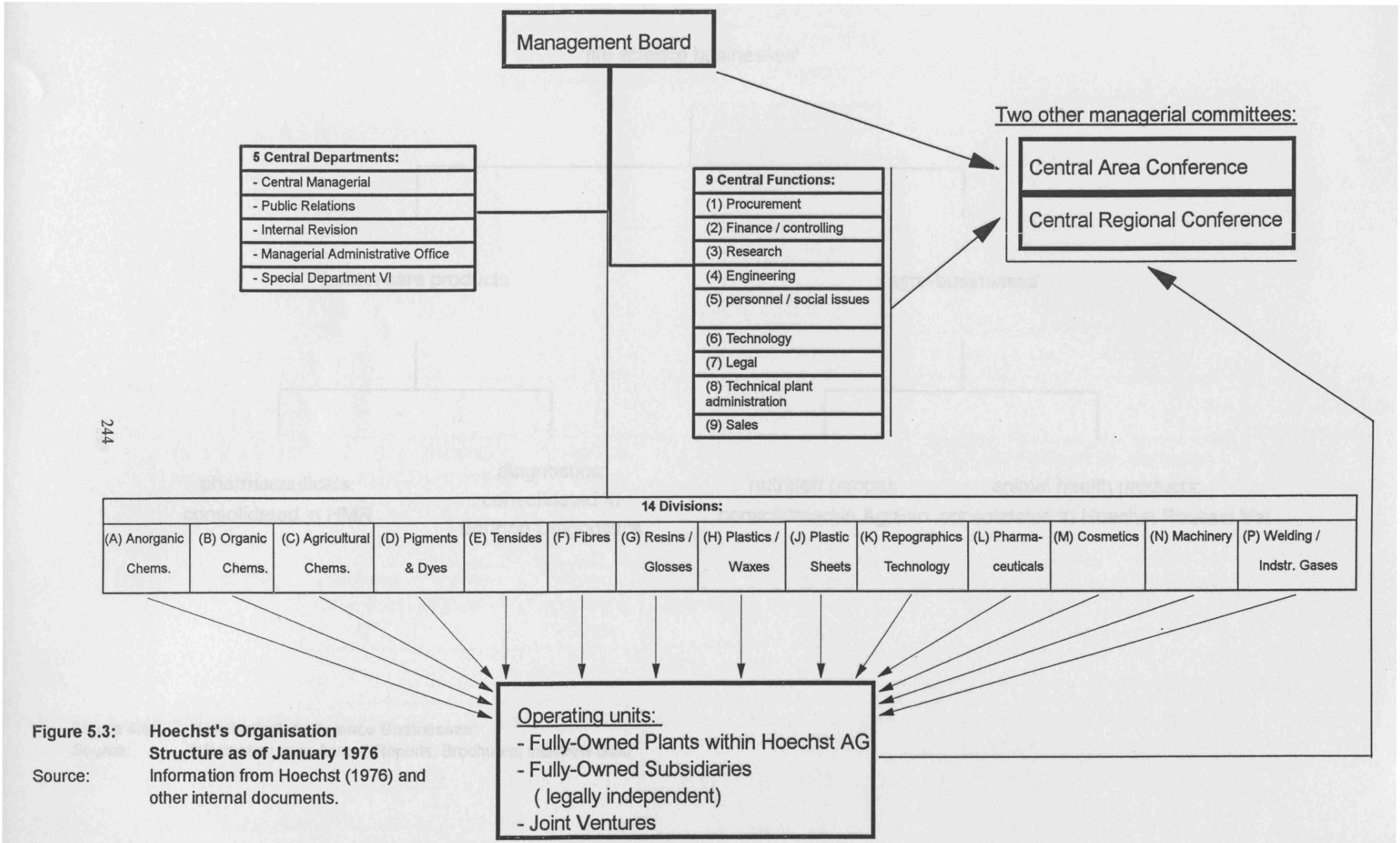


Figure 5.3: **Hoechst's Organisation Structure as of January 1976**

Source: Information from Hoechst (1976) and other internal documents.

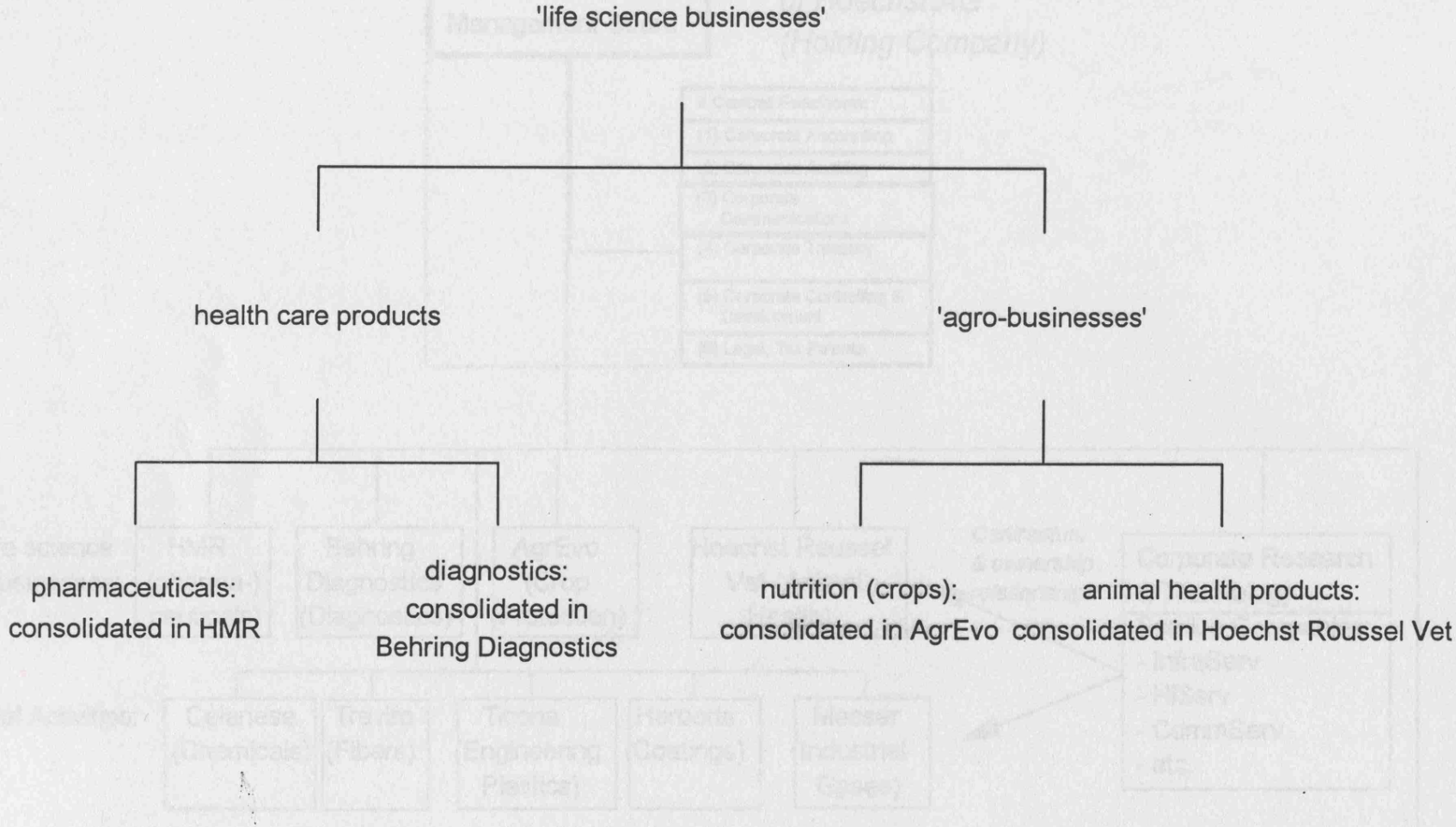


Figure 5.4: **Hoechst's 'Life Science Businesses'**
Source: Information from Annual Reports, Brochures, Interview Data.

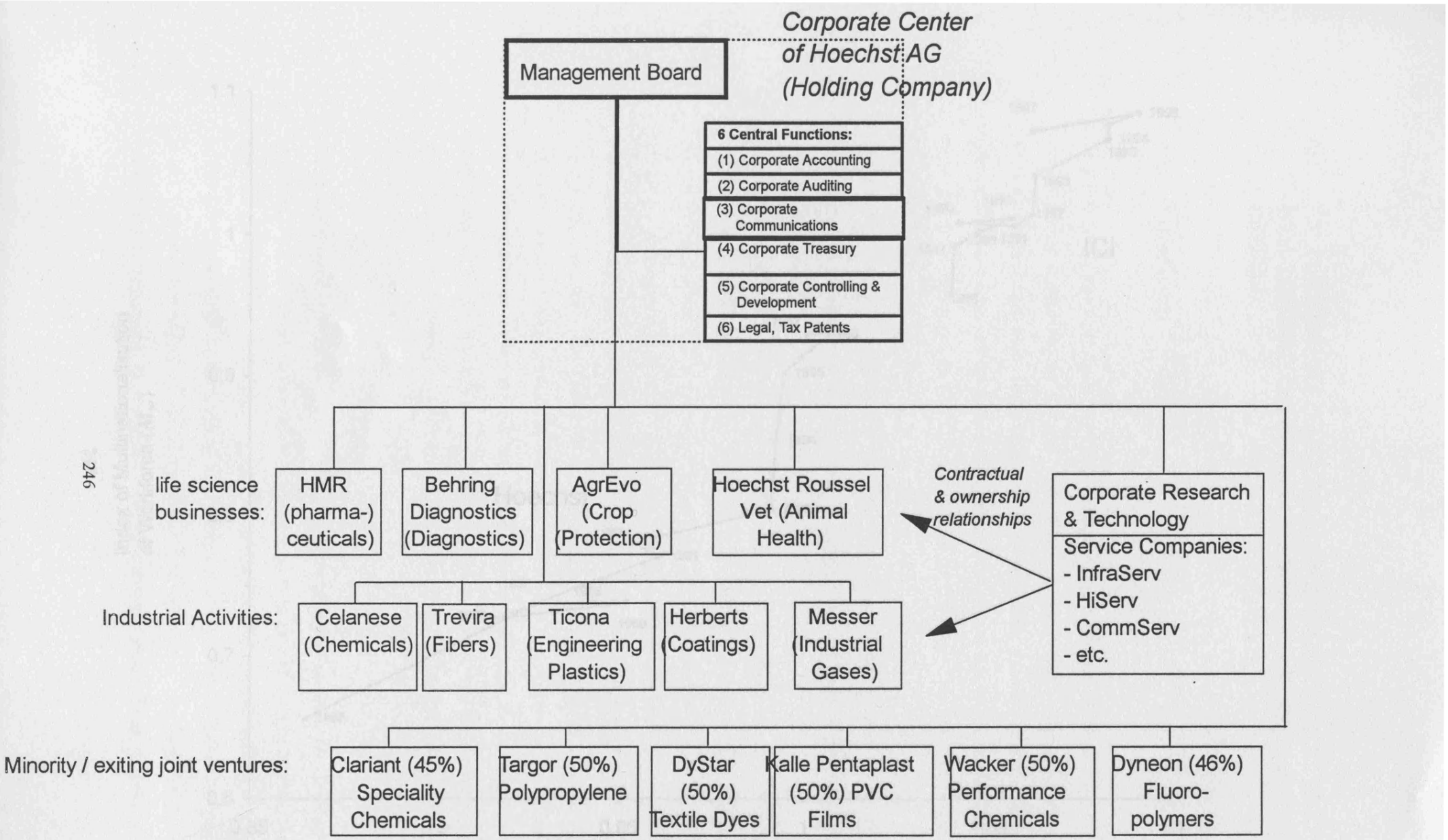
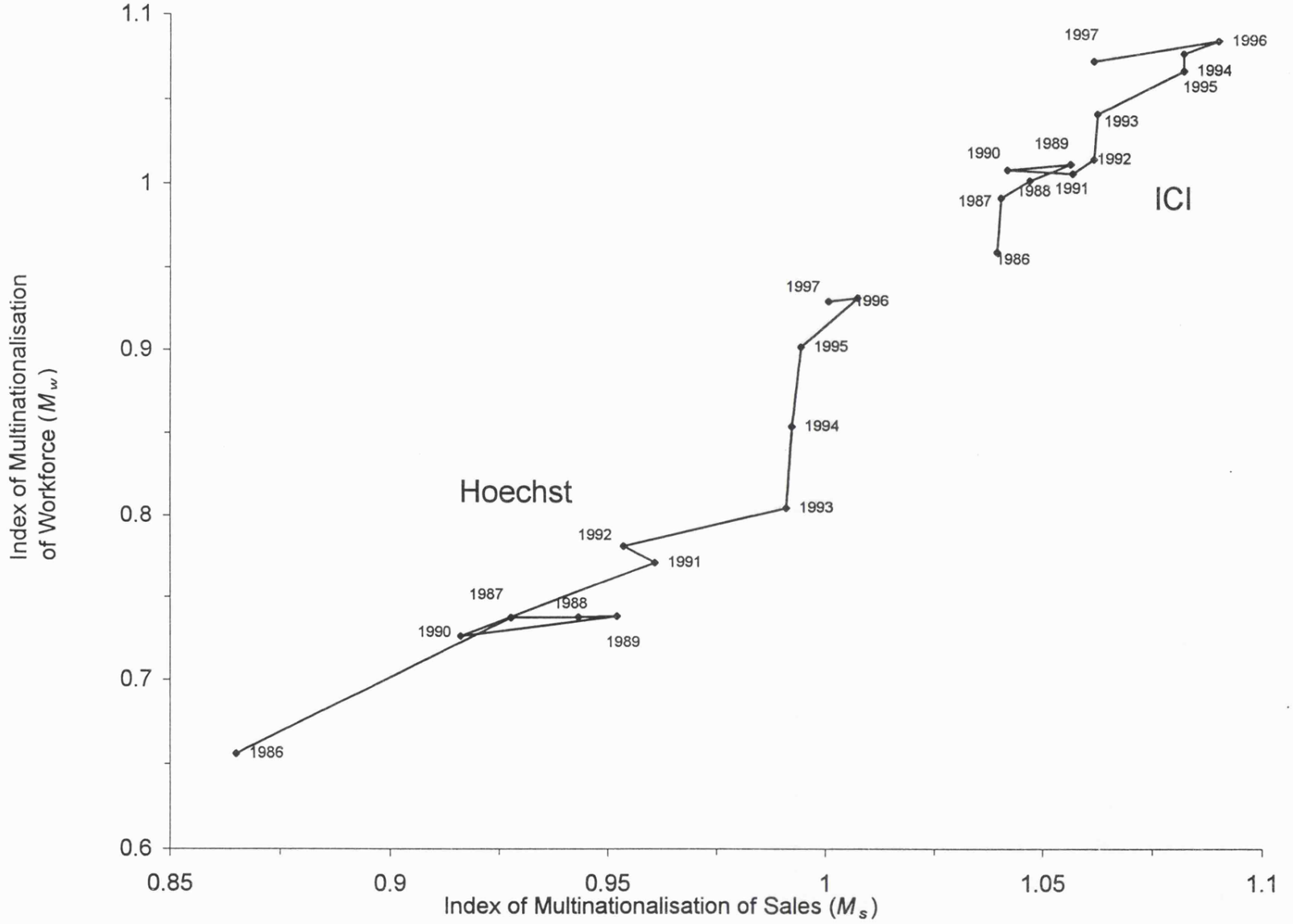


Figure 5.5: **Hoechst's Organisation Structure as of October 1997**
Source: Information from Annual Reports, Internal Documentation, Brochures, etc.



Graph 5.1: Multinationalisation of Hoechst's and ICI's Sales and Workforce
Source: Own calculations, based on data from Annual Reports

6. An Interpretative Approach to the Cross-National Differences in Corporate Restructuring Between the UK and West Germany

6.1 Introduction

The preceding chapters have provided evidence on corporate restructuring in large non-financial companies in the UK and West Germany since the mid-1980s. The general finding has been that, while in both countries a considerable number of companies have engaged in restructuring, this development has started earlier, and has been more far-reaching, in the UK than in West Germany. Without neglecting the similarities between companies in the two countries, the focus of this chapter is on these *cross-national differences in the extent and the timing of corporate restructuring*. Its aim is to identify a set of *country-specific factors* that help explain these differences.

One can distinguish between three sets of determinants of corporate restructuring (for a related argument see Fligstein 1987, p. 45). Firstly, corporate restructuring, as conceived in chapter 2, is a firm-level phenomenon and is therefore likely to be partly driven by *firm-specific factors.*[1] Secondly, firms compete with other firms in their particular industries, and *industry-specific factors* – as analysed in industrial organisation theory - are therefore of importance. Thirdly, *country-specific factors* relate the national environment of economic activity to organisational structures and their changes over time, as Zysman (1994) argues.[2] As this study consists of a comparison of firms in two countries, this chapter is confined to the *country-specific determinants of corporate restructuring*. This does not imply that the two other sets of factors are irrelevant.

The chapter proceeds in two steps. On a theoretical level, section 6.2 develops the argument that corporate structures are affected by two sets of factors in the country-specific environment, namely particular institutional[3] and economic settings. A model of the firm as a nexus of contractual relationships among various classes of 'patrons' is set out and the effect of the institutional and economic environment on these contractual relationships is discussed. The underlying idea of the section is that

corporate restructuring can be interpreted as the result of explicit or implicit recontracting processes among the various classes of patrons (see also Gilson 1998, pp. 2-3). It is argued that changes in the institutional and economic environment, mainly in the UK, have enhanced the position of shareholders to the disadvantage of other classes of patrons during the 1980s and 1990s, and that companies were forced to align their organisational structures more closely with shareholder preferences.
Section 6.3 identifies four sets of factors in the British and German institutional and economic environment which help explain why the above-mentioned shifts in the balance of power have started to take place earlier and have so far been more pronounced in the UK than in West Germany. It is argued that the cross-national differences in corporate restructuring reflect the particular institutional and economic settings of the two countries. The findings of the chapter are summarised in section 6.4.

6.2 Analytical Framework: The Firm and Its Environment

6.2.1 The Firm as a Nexus of Contractual Relationships

The following section builds upon Reve's (1990, pp. 133-161) and Williamson's (1990, pp. 1-8) conception of the firm as a 'nexus of contractual relationships'.[4] The parties which transact with the firm are called its *patrons* (the term 'stakeholders' is avoided due to its political connotations). As depicted in figure 6.1, the chief classes of a firm's patrons are

- *Employees* as the providers of labour. It will be useful below to distinguish between three classes of employees: operating personnel, administrative and managerial staff at lower and middle level, and top managers, meant to include the executive directors of the company concerned;
- External *suppliers* of intermediate goods and services;
- *Customers*;
- *Providers of financial capital*.[5]

The *owners* of a firm are those entities who share two formal rights: (1) "the right to control the firm", and (2) "the right to appropriate the firm's profits", i.e. the residual

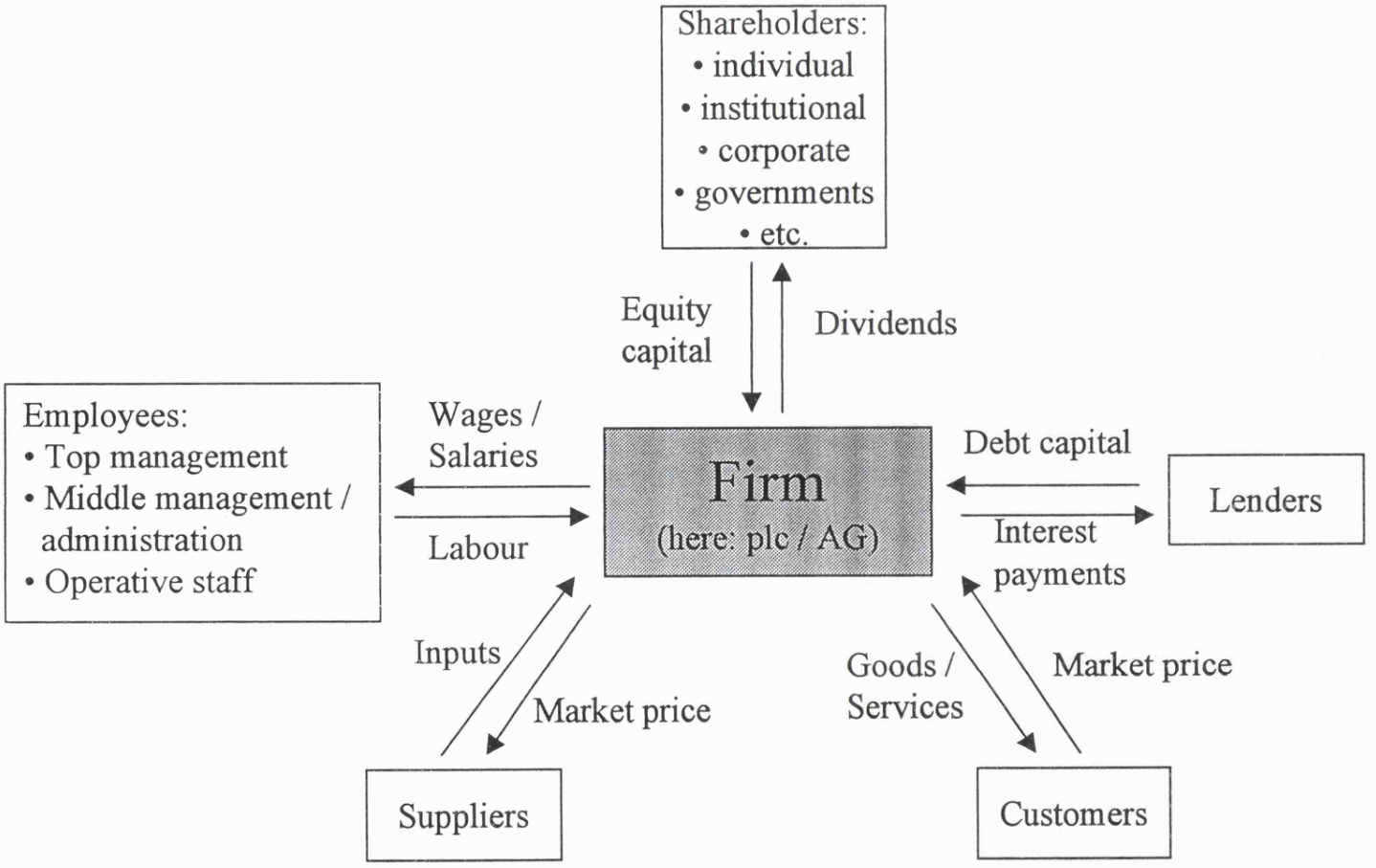


Figure 6.1: The Firm as a Nexus of Contractual Relationships
Source: Blair 1995, pp. 31 and 47, substantially adapted.

earnings (Hansmann 1996, p. 11). Ownership rests often, but not necessarily, with one class of patron, as the ownership relation may reduce transaction costs between the firm and its patrons. If the allocation of ownership rights is to be optimal, in addition to the transaction cost effects of ownership the costs of ownership itself (i.e. the costs of controlling the firm in its operations) have to be taken into account. Hansmann (1996, p. 47) argues that "the efficient assignment of ownership minimizes the sum, over all the patrons of the firm, of the costs of market contracting and the costs of ownership".

Despite some exceptions, ownership of most large industrial firms in the Western countries rests with a subclass of the investors of financial capital. In firms that issue stock (public limited companies in the UK and *Aktiengesellschaften* in Germany), these investor-owners are the shareholders. Hansmann (1996, Ch. 4) puts forward a variety of reasons why the assignment of ownership rights to investors of financial capital often fulfils the above efficiency criterion. He thinks that it would be transaction cost inefficient if companies were to borrow all the financial capital they need. Furthermore, he argues that the governance costs for shareholders are generally low as compared to other classes of patrons. The governance costs of controlling the firm arise primarily from the agency relationship between the owners as principals and managers as their agents (Sappington 1991, p. 45-66), which results from the separation of ownership and control as observed by Berle and Means (1932). If principals and agents try to maximise their private utilities, their interests will not be perfectly aligned. As a result, principals and potentially also agents incur *agency costs* which Jensen and Meckling (1976, p. 308) define as "the sum of (1) the monitoring expenditures by the principal, (2) the bonding expenditure by the agent, (3) the residual loss", the latter being the monetary value "of the reduction in welfare experienced by the principal due to this divergence" of interests.[6]

For example, Jensen (1986, pp. 323-329) strongly argues that managers, in the absence of controls by principals, exhibit a tendency to build 'managerial empires' through sub-optimal acquisition and diversification policies and the creation of unnecessarily large managerial hierarchies. The reason for this is that such empire-building can increase managers' utility in that it raises managerial status, promotion opportunities, and pay (see Nelson and Winter 1982, pp. 53-59; for empirical studies see Jensen and Murphy 1990; Gregg et al. 1993; Khalaf 1997, Ch. 8). Mueller (1986, Ch. 5) compares a managerial model of the firm, in which managers pursue their

private goals on the expense of shareholders, with a 'stockholder welfare maximization model', and finds strong empirical support for the former rather than the latter model. Williamson (1964, Ch. 1) argues that the extent to which managerial discretionary behaviour is possible depends on the stringency of the selection environment, which he sees as constituted by competition from both product and capital markets.

6.2.2 The Firm in Its Institutional and Economic Environment

In this section, it is argued that the power of the various classes of patrons, and therefore the balance of power among them, is affected by a *combination of institutional and economic factors*. This concept is first developed in general terms. In section 6.2.3 it is applied to particular classes of patrons.

A wide variety of theories that conceive the interaction among organisations and their environments have been suggested in the literature (for an overview see Nohria and Gulati 1994, pp. 529-555). Following North (1981; 1990; 1991; 1992; 1996), in pointing towards institutional and economic factors as important determinants of firm structure, a specifically *economic* perspective on the firm–environment relationship is taken. This approach overcomes the criticism by Granovetter (1985) that the transaction-cost economic theory of the firm, as developed in section 2.3, neglects the 'embeddedness' of firms in their societal environment.

(a) The Role of the Institutional Environment

North (1991, p. 97; see also 1992, p. 5) defines institutions as "the humanly devised constraints that structure political, economic and social interaction". He distinguishes institutions from organisations[7], although the latter may decisively influence the formation, alteration or abandonment of institutions. Organisations are defined as "groups of individuals bound by some common purpose to achieve objectives" (North 1990, p. 5), including political, social and economic objectives.

North (1990, Chs. 5-6) distinguishes between informal and formal institutions. Informal institutions are part of the socially transmitted culture in which individuals live. They originate from conventions among actors and from internally enforced codes of conduct, e.g. internalised rules of behaviour. In contrast to formal

institutions, informal ones cannot be changed at short notice by intentional action. They evolve gradually and thereby link the behaviour of past and present actors even if formal institutions have changed. In this way, informal institutions provide for the path-dependent evolution of behaviour (Nelson 1994, pp. 131f.).

By formal constraints, North refers to political, judicial and economic rules. Formal institutions are characterised by a higher degree of explicitness and standardisation than informal ones, although the distinction between these two classes is somewhat fluid.

The key function of institutions is that, by giving a structure to social interaction, they reduce uncertainty and limit the choice set of actors. Within a particular institutional framework, the range of acceptable ways of behaviour is narrowed down. Institutions reduce the costs of favourable types of behaviour and raise the costs of less favourable ones. In this way, institutions provide an incentive structure for economic behaviour (see North and Thomas [1970] 1998, pp. 147ff.). Following Parsons ([1960] 1988, pp. 80f.), North puts particular emphasis on the incentive structure provided by the prevalent system of property rights. For example, commercial and tax laws have a strong influence on the degree to which the owners of capital can appropriate the rents from their investments.

Within the context of economic exchange, the general function of institutions consists of the fact that they provide a framework for transactions among contractual partners.[8] With respect to firms, institutions increase (decrease) the costs of unacceptable (acceptable) behaviour by the various classes of patrons, and, therefore, their relative power. Institutions affect

(1) the *level* of

   (a) the costs of contracting (transaction costs) to the various classes of patrons within the 'nexus of contractual relationships';

   (b) the governance costs incurred by the various parties to ensure that their contractual rights are fulfilled;

(2) the *distribution* of both transaction and governance costs among the various classes of patrons.[9]

For example, it will be shown below that the legal institutions in Germany provide for the existence of formal means of employee representation. Such legally enshrined rights provide a basis of employees' bargaining power with respect to corporate

decisions. Therefore, institutional settings shape the structural features of organisations by defining the relative basis of power of the various classes of patrons. "Changes in bargaining power lead to efforts to restructure contracts, political as well as economic" (North 1990, p. 84).

Following Commons' (1931, pp. 656-657) suggestion that institutional economics should deal primarily with legal control, in section 6.3 below particular emphasis is placed on formal institutions, mainly of the legal kind. This is not to neglect informal institutions, but to provide examples for *tangible*, country-specific differences between the UK and Germany with respect to their respective institutional environments.

(b) The Role of the Economic Environment

Apart from the institutional setting, the exchange relationship between the firm and its various classes of patrons is affected by *economic factors*. These determine the relative basis of power of the various classes of patrons, and thereby the extent to which the latter are able to press for organisational alignment in accordance with their interests.

In the context of this study, 'economic factors' include specifically the demand for the firm's output, and the three cost parameters w, c, p_s in the function[10]

$$\Pi = R - wN - cK - p_s S = R - \sum_{i=1}^{n} d_i \qquad (1)$$

where

R = revenue — d_i= factor owner i's contractual income

N = employment — w = wage

K = capital stock — c = opportunity cost of capital

S = supplies procured from outside — p_s= price of external supplies

Π = 'value added' or 'rent' (Kay 1993, Ch. 2), 'supernormal profit' (Nickell 1995, p. 3) or 'economic profit' (Besanko et al. 1996, p. 115)

In addition, total income (Y) of factor owner i is given by

$$Y_i = d_i + \alpha_i \Pi \qquad (2)$$

where α_i is the share of the rent accruing to factor owner i, and $\sum_{i}^{n} \alpha_i = 1$

Economic factors affect

(1) the *level* of rents (Π) generated by the firm (equation 1);

(2) the *distribution* of rents among the factor owners as the principle classes of the patrons set out in figure 6.1 (equation 2).[11] Thereby, economic factors determine the resources that underpin the power position of particular classes of patrons, relative to others.

However, economic factors translate into changes in the structure of firms only to the extent that (a) the factors of production are mobile[12] and (b) there is substitutability between the different factors of production. As an example, it is argued in section 6.3.4 that the power of shareholders over other classes of patrons (in particular employees) has increased in recent years due to their greater ability to move capital to high-yield investment projects, regardless of their geographical location.

'Economic factors', as conceived here, result from a wide array of firm-, industry- and country-specific determinants. Input prices, for example, are determined by the supply and demand conditions in the respective factor markets. The focus in section 6.3.4 is on two sets of macroeconomic factors (general demand conditions, capital costs) that are specific to the two *countries* investigated here.

To summarise sections (a) and (b), it is argued that the balance of power among the various classes of patrons is determined by a combination of institutional and economic factors.

6.2.3 Shareholder Power and Corporate Restructuring

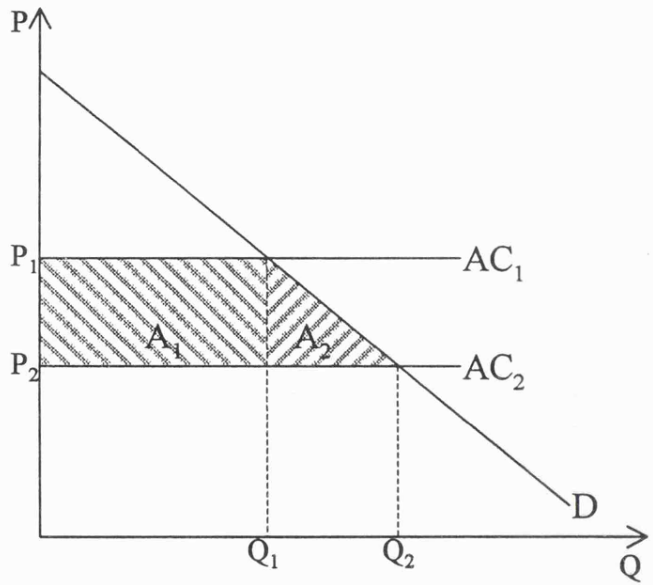
The preceding sections have analysed the firm as a nexus of contractual relationships among various classes of patrons, and institutional and economic factors as key country-specific factors determining the balance of power among them. This section puts forward the argument that in recent years there have been shifts in the balance of power to the advantage of some classes of patrons, mainly shareholders, to the disadvantage of others, such as administrative and middle-management personnel. The literature identifies this shift in power for the American context during the 1980s. In the application of the argument to the situation in the UK and West Germany in section 6.3 it will become clear that this shift has been much stronger in the former than in the latter.

The section proceeds in three steps. First, the reasons underlying the shift in power towards shareholders are set out. Second, the potential benefits of corporate restructuring to shareholders, i.e. the incentives for investors to press for restructuring, are discussed. Finally, the situation of other classes of patrons apart from shareholders and employees is reviewed.

(1) The Shift in Power towards Shareholders

Following Shleifer and Summers (1988), Useem (1992; 1993) and Donaldson (1994) identify the wealth transfer from 'jobholders' - to use Donaldson's term - to shareholders as the fundamental reason for the restructuring of American corporations during the 1980s. While the 'corporate agenda' during the 1960s and 1970s had been dominated by the "investors of human capital", during the 1980s it became increasingly dominated by the "investors of financial capital" (Donaldson 1994, p. 12).

Shleifer and Summers (1988) explore the wealth transfer argument in the context of hostile takeovers, although the approach can be applied to other corporate restructuring measures as well.[13] They argue that hostile takeovers enable the acquirers to renege on implicit or explicit promises made to employees by their firms regarding job security, high wages and the like. Employees have to accept these changes to the extent that they have made firm-specific investments into human capital which are not perfectly redeployable and would therefore be lost upon leaving the firm. One could also add that rising unemployment throughout the 1980s has increased the dependency of workers on their companies. Due to cuts in wages and benefits, average production costs decrease from AC_1 to AC_2 (graph 6.1). As long as the average cost function (AC_1) of other firms is unaffected, the firm concerned is not forced to reduce prices to P_2, but can continue selling at P_1. Area A_1, which reflects investments made by employees for which the firm is not any longer willing to pay in form of high wages, represents wealth transferred from employees to shareholders. According to Shleifer and Summers, shareholder gains following hostile takeovers are due to wealth transfer effects without corresponding efficiency gains. In the long run, efficiency might even decline due to workers' reduced willingness to make firm-specific investments into human capital.



Graph 6.1: The Welfare Consequences of Hostile Takeover
Source: Adapted from Williamson (1988b, p. 65) and Martin and Kensinger (1990, p. 97).

Williamson (1988b, pp. 61-67) presents a different interpretation of graph 6.1. In his view, wealth transfers from employees (a) accrue only in the short run to shareholders, but in the longer run to consumers, and (b) are matched by efficiency improvements in the form of reductions in managerial discretion. He argues that managers tend to maximise their own utility by over-paying workers and unnecessarily inflating administrative bureaucracies, in order to gain status, labour peace, and to buy themselves a 'quiet life'. Following corporate control contests, managerial discretion is reduced through wage cuts and slimming-down of administrative hierarchies. As a result, average costs decrease from AC_1 to AC_2. Area A_1, formerly a 'quiet life premium', is temporarily transferred from employees to shareholders, until product-market competition erodes these gains and forces the firm to reduce prices to P_2. In the longer run, gains (amounting to area A_2) accrue to customers in the form of lower prices, allowing them to buy quantity Q_2 rather than Q_1.

While Shleifer and Summer interpret gains from hostile takeover as the result of wealth transfer effects *without* corresponding efficiency gains, and Williamson interprets them as result of wealth transfer *with* efficiency gains, a third possibility is to interpret them as the result of efficiency gains *without* accompanying wealth transfer effects. This would obtain if wealth increases from efficiency gains would be distributed proportionately to the various classes of patrons concerned. If, for example, in the case of hostile takeover, incumbent management would be replaced by a better management team which pursues more innovative activities, the resulting value increases could be distributed appropriately to shareholders, workers and managers alike.

It is an empirical matter which of the above three approaches to the effects of hostile takeovers and other forms of corporate restructuring apply (Martin and Kensinger 1990, pp. 98-99). Disregarding the issue of efficiency gains, most authors support the view in which both Shleifer / Summers, and Williamson agree, namely that a wealth transfer away from employees has taken place in recent years, and that at least for the shorter run shareholders have gained from this development. Behind this development they see a fundamental shift in power due to the following reasons.

(1) In line with Mueller's (1986, pp. 17-19) argument that power rests with the most mobile factor in the economy, Donaldson (1994, Ch. 1) suggests that the mobility of the investors of capital has increased in recent years. Behind this development he sees

the emergence of a global securities market with large, internationally active players (e.g. investment banks). At the same time, the mobility of employees had at best remained unchanged or even declined due to the increase in dual-income households.[14]

(2) Stearns and Allan (1996, pp. 704-706) argue that through deregulation and the growth of mutual and pension funds, in combination with the invention of junk bond finance, increased amounts of capital were available for takeovers by corporate raiders. This increased the takeover threat to poorly performing companies and led them to engage in pre-emptive restructuring, or to be restructured by corporate raiders such as T. Boone Pickens, Carl Icahn, and, in the UK, Sir John Goldsmith and Lord Hanson (Stonham 1997a, pp. 267). Also, the re-concentration of ownership in the hands of institutional investors led to a greater participation of investors in corporate governance (Gaved 1995, pp. 15ff.).

(3) Enhanced information on companies through information technology and improved analytical methods reduced the costs of governance incurred by financial institutions in monitoring non-financial companies (Stewart III and Glassman 1988a, p. 89). Investors were able to identify more easily companies whose market value was below their potential level and to realise gains by acquiring them, improving their market value through restructuring, or selling their assets. Jensen (1996 [[1]1989], p. 325) argues that "with its vast increases in data, talent and technology, Wall Street can allocate capital among competing businesses and discipline management more effectively than the CEO and headquarters staff of the typical diversified company". This meant that central management lost its comparative advantage in running an 'internal capital market' (Williamson 1975, Ch. 8), namely its superior knowledge of the business, to the external capital market. Thereby, the locus of diversification moved from companies to shareholders, "for whom the market was the portfolio and the individual firm an incidental data point" (Donaldson 1992, p. 81).

(4) The US recession in 1980-82 and the bad financial performance of firms in the following years widened the gap between shareholders' demands and corporate returns on capital. Donaldson (1994, Chs. 2-3) argues that increases in size and diversification, strategies that benefited primarily managers, had been accepted by investors in times of high profitability and sufficient returns to investment. As these were low during the 1980s, shareholders were probing into potentials for efficiency

improvements that could lift the value of their investments, and managerial actions became subjected to greater scrutiny.
(5) Winter (1992, pp. 59ff.) regards high real interest rates in the climate of low inflation during the 1980s as a crucial factor that had increased the power of investors. With increased costs of capital, competition for finance became harder, and companies had to liquidate assets and search for efficiency reserves to satisfy investors' demands. He also asserts that under increased capital market pressures companies invested less into 'unconventional assets' such as employee skills and knowledge. However, the latter argument is inconsistent with Hall's (1991a, p. 7) finding that corporate restructuring in the form of leveraged buy-outs and acquisitions has little impact on R&D investment (see also Coffee 1992, pp. 83-86).

According to the economic literature, the move towards greater shareholder power has not been to the detriment of all types of employees. The 'losers' of corporate restructuring were primarily middle management and administrative staff, rather than top management on the one hand and operative staff on the other. According to Yago (1993, p. 218), corporate restructuring in the US has been directed primarily against overly large managerial hierarchies and the overhead costs generated by them. Employment losses with respect to operative staff in the wake of acquisitions were, in his opinion, often followed by employment increases later on, and the initial losses were smaller than in cases where takeover bids were defeated. Similarly, Shleifer and Vishny (1991, pp. 49-56) find that takeovers during the 1980s were followed primarily by reductions in corporate head office staff, whereas the effects on operative employees – both in terms of employment and of their wages – were insignificant. Their results are supported by Lichtenberg and Siegel (1990, p. 192). However, other authors (e.g. Kanter 1989, Ch. 3) describe the disruptive effects that corporate restructuring can have on organisations as a whole, leading to feelings of insecurity and lower commitment among the workforce.

Initial shareholder gains from corporate restructuring also help explain why corporate restructuring occurs in a wave-like fashion. Stearns and Allan (1996, pp. 706-715) present a leader-follower model of corporate restructuring, according to which the success of a group of 'challengers', in the form of corporate raiders, invited the

imitation of their techniques by the larger financial players. Thereby, the increase in power in the hands of shareholders became a self-reinforcing development.

(2) *The Benefit of Corporate Restructuring to Shareholders*

With respect to the potential benefits of corporate restructuring to shareholders, one can distinguish between the effects of changes in corporate boundaries (e.g. through changes in diversification), and the effects of changes in the internal organisation of firms, thus using the conception of corporate restructuring developed in chapter 2.

With respect to the restructuring of corporate boundaries, many authors follow Jensen's argument that the aim of corporate restructuring during the 1980s has been to return free cash flow from managers to shareholders. Changes in the boundaries of firms through divestitures, demergers and contracting-out are regarded as indicators of this reversal. Firstly, in order to put their financial resources to best use, companies had to review their operations and separate themselves from activities that would yield higher returns in the hands of other companies. This had led to reductions in diversification and vertical integration. Therefore, "businesses trimmed back on less profitable peripheral activities, refocused on core competence, returned excess resources to the capital markets for alternative investment, managed resources more aggressively, and garnered a larger share of value-added for the owners" (Donaldson 1994, p. 159). Secondly, on the receiving end, companies had to look for operations in which they would have unique advantages over other businesses, so that mergers and acquisitions, primarily on a horizontal basis, were also among the techniques resorted to in order to raise shareholder value. For the period 1979-1988 in the US, Bowman and Singh (1990, pp. 12-15) find that divestitures by large companies even outnumbered their acquisitions, whereas according to section 3.3.5 these developments seem to have been somewhat less strong in the UK and least strong in Germany. Thirdly, in order to exploit existing assets and competencies best and to yield scale economies that would also raise entrance barriers to competitors, companies became increasingly active on a global scale (Dunning 1993b, pp. 128-132). Fourthly, Bleeke et al. (1992, pp. 103-110) argue that the primary aim of joint ventures and strategic alliances has been to raise shareholder value, and that, empirically, many alliances have been successful in achieving this. In sum, corporate

restructuring for the purpose of reducing free cash flow and raising returns to equity involved all the dimensions of corporate boundaries identified in Ch. 2.

Black and Grundfest (1988, pp. 5-15) calculate the shareholder gains from takeovers, divestitures, and leveraged recapitalisations in the US from 1981 to 1986 to amount to $162bn. Similarly, McTaggart (1990, pp. 56-66) argues that restructuring during the 1980s has helped to close the 'value gap' between the actual and the potential value of companies. Martin and Kensinger (1990, pp. 30-38) show that most changes in the composition of corporate assets have resulted in statistically significant, positive abnormal returns. In contrast, Nickell (1995, pp. 33ff.; similarly Pène 1995, p. 932) summarises evidence according to which the gains from takeover accrue primarily to the shareholders of the acquired companies rather than to the bidder. It should also be pointed out that results from the US are not necessarily transferable to other countries. In an analysis of the German M&A market, Bühner (1990a, pp. 41ff.) finds that gains by shareholders of acquired companies represent at least in part losses by shareholders of the acquiring company, with total shareholder value remaining at best level. Also, acquisitions were not followed by improvements in financial performance.

With respect to the shareholder gains from internal restructuring, Useem (1993) describes the restructuring of American companies during the 1980s as "organisational alignment with shareholder value" (p. 8). Ownership-disciplined alignment increasingly replaced management-controlled alignment. Based on seven case studies, he argues that this process was indicated by

- Reductions in central managerial and professional staff, in particular at head office level, as more responsibilities were pushed down to the operating units. Head offices became smaller, and while some decisions and functions stayed at head office level (e.g. decisions regarding acquisitions and divestments, and investor relations), many other functions (e.g. human resources management) were moved out of the head office. The function of head offices moved towards financial controlling, which became more geared towards measures of shareholder value. Cibin's and Grant's (1996, p. 297) study of the oil industry confirms that reductions in head office personnel have been an important characteristic of corporate restructuring in the industry. They also argue that "the desire for improved returns to shareholders was the primary objective which unified the

various aspects of the strategic and organizational changes during 1982-1990" (Cibin and Grant 1996, p. 294).

- Decreasing numbers of managerial layers, so that the number of employees per corporate manager increased and "the traditional Weberian pyramid gave way to a leaner and flatter organisational chart" (Useem 1993, p. 84). This is echoed by Kanter (1991, pp. 66-69) who argues that during the 1980s American companies reduced the number of 'intervenors', i.e. employees whose primary function was to monitor others rather than carry out operative tasks.
- Decentralisation of decision-making. Operating units gained more autonomy from the head office and the amounts of finance over which they could dispose without authorisation from the head office increased. At the same time, operating managers came under much greater pressure to manage resources effectively. More information on managers themselves became available, allowing companies to dismiss ineffective managers more easily. At the same time, companies made increasing use of incentive schemes (e.g. stock options), so that managers received greater inducement to pursue policies to raise shareholder value (Stewart III and Glassman 1988a, pp. 92-94). Sesil (forthcoming, Ch. 4) reports that the use of executive share option schemes has risen substantially in the US and, more recently, in the UK.
- Useem (1993, Ch. 5) also argues that companies began to manage their shareholder relations much more aggressively. They expanded their investor relations departments, and became more active in informing shareholders and mobilising their support (see also Chapman [1994, pp. 146-148] who describes ICI's extensive investor relations activities). In Useem's view, this shows that companies learned to regard shareholders as their 'ultimate constituency', to which they had to communicate their efforts to align organisational structures.

Little evidence is available as to whether changes in the internal organisation of companies have actually delivered the improvements in shareholder value that they were expected to produce. Bowman et al. (1996, pp. 17ff.) summarise studies which find no or only minor effects of organisational changes on corporate performance. On the other hand, these studies look at isolated types of changes (e.g. changes in the divisional structure of firms), rather than to evaluate the various parameters of corporate organisation in their entirety. In sum, it can be said that changes with

respect to both the boundaries of firms and their internal organisation represent *responses* to greater investor demands, in an attempt to increase shareholder value.

(3) The Effects of Restructuring on Other Classes of Patrons and on the Wider Public

The literature discussed focuses primarily on the effects of restructuring on shareholders and employees. The position of other classes of patrons is less widely considered.

Debtholders are often subsumed jointly with shareholders under the heading 'investors of capital', although conflicts between shareholders and debtholders may well arise in corporate restructuring. Kudla and McInish (1984, pp. 53-56) point out that shareholder wealth gains in demergers and divestitures may be due to wealth transfer effects from debtholders. When a subsidiary is spun off from its parent company, its cash flow cannot support the debt payments of its parent, which reduces the value of the parent's bonds and increases the wealth of the parent's shareholders. Wealth transfer effects could be avoided if the spun-off subsidiary would take on a share of the parent company's debt that equals its share in the combined cash flows of the two entities, but in practice it is often difficult to estimate the cash flow of the two entities, and in particular the one of the demerged subsidiary, before the split.

Also, increases in leverage which accompany many forms of corporate restructuring can be to the detriment of debtholders if loans are not fully protected, e.g. through collateral or debt covenants. Bowman and Singh (1990, p. 20) argue that corporate restructuring has increased the riskiness of debtholders' investment, as could be seen from the crash of the US junk bond market in 1989.

Very little is known about the effect of restructuring on supplier relations. However, it has been suggested that a more drastic approach by German companies to cost reductions might lead to the dissolution of the system of 'relational contracting' that has been attributed to many German companies (Lane 1996, pp. 288ff.). Goodhart (1994, pp. 54-57) warns against the spreading of the 'Lopez-phenomenon'[15] in German companies, but also thinks that the closely-knit system of supplier relations might *facilitate* corporate restructuring in the form of reliable outsourcing and contracting-out (see also Semlinger 1993, pp. 161-178).

The effect of corporate restructuring on the wider public is even less clear. Much of the literature that takes a critical stance towards restructuring suggests that corporate restructuring, in the form of 'downsizing', has detrimental effects on the families and communities of displaced employees (Bluestone and Harrison 1987, pp. 72-104). Useem (1993, Ch. 6) maintains that, through the organisational alignment with shareholder preferences, companies became more 'private' entities that reduced those types of political involvement which were of no immediate benefit in their dealings with shareholders. He finds, for example, that since the middle of the 1980s companies reduced their donations to charities and political action committees which they had increased during the 1970s and early 1980s (see Useem 1984, p. 133, with data on the UK).

To summarise the results of section 6.2.3, the available evidence (which refers primarily to the US) suggests that corporate restructuring during the 1980s and 1990s has been a response to the demands of shareholders whose power, relative to other classes of firms' patrons, increased. This enabled shareholders to press for the limitation of free cash flow at managerial discretion and for the alignment of organisational structures with their preferences. The primary 'losers' of this restructuring process have been non-operative staff, such as administrative employees and middle management.

6.3 Application: The Effects of Institutional and Economic Factors on Corporate Restructuring in the UK and West Germany since the mid-1980s

6.3.1 Shareholder Pressure and the Threat of Hostile Takeover

This section details the following argument: In the UK, an active market for corporate control "restrains managerial independence" (Marris 1964, p. 45) in that it presents a considerable threat to top management, forcing them to pay close consideration to shareholder preferences. Hostile bids have been important catalysts for corporate restructuring in two ways: First, hostile takeovers have often been followed by corporate restructuring. Second, their mere threat has led many companies to engage in pre-emptive organisational alignment with supposed shareholder preferences. Apart

from the threat of hostile takeover, in recent years shareholder power has also been enhanced through the re-concentration of ownership in the hands of institutional investors which are reported to engage increasingly actively (although usually through informal means) in the governance of British corporations (see Gaved 1995, pp. 84ff.).

In Germany, a combination of institutional and economic factors shelters top managers from hostile takeovers, and with only four hostile bids having taken place so far, the threat of hostile takeover is low. In addition, despite an increase in the shareholdings of institutional investors in German companies, their power is still considerably more limited than is the case in the UK. Thus, capital market pressures to align corporate structures with shareholder preferences have been lower in Germany than in the UK. Only during the first half of the 1990s have a few German companies begun to pay more attention to shareholder value.[16]

In the UK, hostile takeover bids are a relatively frequent phenomenon. Jenkinson and Mayer (1994, pp. 6-8) estimate that, from 1984 to 1989, an average of 26% of all takeover bids for publicly listed companies were hostile in that they were initially rejected by the management of the target companies concerned. They also find that hostile bids are particularly frequent in the case of large takeovers, with about two thirds of the 10 largest UK takeovers being of a hostile nature. While in more than 50% of all cases the targets' managements succeed in rejecting the bid initially, in most instances they eventually succumb to the first or to another bidder. With targets' directors having to leave in 70-80% of all hostile takeovers, hostile bids present a considerable threat to top management.

Jenkinson and Mayer (1994, p. 12) also find that hostile takeovers are usually followed by a radical restructuring of the acquired company, mostly through asset disposals and significant reductions in size. They also find that the *mere threat* of hostile takeover exerts a strong pressure on companies to restructure: "Even if hostile bids are successfully repelled, rationalisations still occur in nearly 90% of target firms" (Jenkinson and Mayer 1994, p. 12). They state that in 21% of the hostile bids investigated by them, pre-emptive restructurings were employed as takeover defenses (ibid., p. 40). According to Milgrom and Roberts (1992, p. 515), management buy-outs have often been used to prevent takeovers (ibid., p. 484). More generally speaking, the threat of hostile takeover exerts a strong pressure on the management of

publicly quoted companies in the UK to keep the share price of their companies high and to conform to shareholders' expectations.[17]

In Germany, five hostile takeover bids have occurred since 1988; before this date, they had been absent from Germany. Franks and Mayer (1997a) analyse the first four of these, to which the one by Krupp Hoesch against Thyssen has to be added:

Year	Bidder	Target	Outcome
1988	Flick family	Feldmühle	Bid failed
1989	Veba	Feldmühle	Bid failed
1990	Krupp	Hoesch	Hoesch was forced into discussions about a merger which was agreed in 1992.
1990	Pirelli	Continental	Bid failed
1997	Krupp Hoesch	Thyssen	Bid was withdrawn under the condition that the two companies would engage in discussions about merging their steel interests. The merger is currently taking place.

These data show that hostile takeover bids are extremely rare in Germany. Only one of the bids (Krupp - Hoesch) succeeded in the form envisioned by the bidder's management. In the four other cases, the bid was rejected by the target's management, although in one case (Krupp Hoesch – Thyssen) a partial merger took place eventually. In all five cases the behaviour of banks was crucial to the outcome of the respective bid (Franks and Mayer 1997a, pp. 12-13). In sum, the threat of a hostile bid for German companies is very low.[18]

Three sets of factors help explain these differences between the two countries:
(1) Hostile takeovers are concentrated in countries in which companies are highly dependent on the stock market. The British stock market is far larger than the German one.

Year	UK		Germany	
	Number of domestic (all) quoted companies	**Market capitalisation (million US$)**	**Number of domestic (all) quoted companies**	**Market capitalisation (million US$)**
1990	1946 (2559)	850011.8	649 (n.a.)	355310.8
1991	1852 (2572)	986107.2	662 (1243)	392470.1
1992	1918 (2440)	928392.6	665 (1259)	346891.0
1993	1927 (2412)	1150557.3	664 (1297)	460753.6
1994	1747 (2416)	1145290.4	666 (1467)	499278.4
1995	1971 (2502)	1346640.7	678 (1622)	577364.8
1996	2091 (2623)	1642582.4	681 (1971)	664913.2

Table 6.1: Size of the British and German Stock Markets (figures refer to year-end)
Source: Deutsches Aktieninstitut e.V.

This table shows that there are more than three times as many British companies quoted at the London Stock Exchange than there are German companies quoted in Germany. The sharp increase since 1993 in the number of companies quoted in Germany is mainly due to foreign companies seeking listing in Germany. The overall stock market capitalisation is lower, and the average stock market capitalisation per company is US$337m in Germany as compared to US$626m in the UK. As of March 1997, stock market capitalisation as a percentage of GDP was 31.4% in Germany and 154.4% in Great Britain, up from 14% and 81% respectively in 1985 (Prowse 1994, p. 30). The difference between the British and the German situation is even starker once market capitalisation is calculated net of cross-holdings (Wenger and Kaserer 1997b, p. 7). Among the reasons for the low number of quoted companies are high listing costs and rigid *ex ante* publicity laws in Germany. Whereas the average age of companies that decide to go public is 8 years in Britain, in Germany it is 55 years (Baums 1996b, p. 3). Data from the Deutsches Aktieninstitut e.V. also show that, in 1996, the turnover of equities in Britain was, at DM 8684362m, more than 3.5 times as high than in Germany with DM 2441848m.

(2) Even for those German companies which are quoted on the stock exchange, the importance of equity as a source of finance is typically lower than for companies in the UK, as the following data show.

Germany	1980	1985	1990	1995
Retained earnings and other	58.1	67.3	60.8	66.9
Debt	39.6	30.2	34.5	27.5
Short-term	20.6	9.7	14.6	13.9
Long-term	19.0	20.5	19.9	13.6
Share capital	2.3	2.5	4.8	5.6

Table 6.2: **Financial Structure of Non-Financial Companies in Germany in % (1980-1990: West Germany; 1995: all Germany); flow of funds.**
Source: OECD 1996b, p. 204.

UK	1980	1985	1990	1995
Retained earnings and other	28.4	41.0	41.1	55.3
Debt	53.4	51.0	51.6	21.3
Short-term	42.7	42.5	31.7	15.7
Long-term	10.7	8.5	19.9	5.6
Share capital	18.2	8.0	7.3	23.4

Table 6.3: **Financial Structure of Non-Financial Companies in the UK in % (flow of funds).**
Source: 1980-1990: OECD 1994b, p. 138; 1995: own calculations, based on Central Statistical Office: Financial Statistics, January 1998, No. 429, p. 204.

A comparison of tables 6.2 and 6.3 shows that

- German companies rely to a much greater extent on retained earnings than their counterparts in the UK (see also Prowse 1994, p. 32). The German tax and accounting system allows to build up substantial reserves at preferential tax rates and encourages thereby self-financing of companies. In addition, the system of corporate pensions means that many large companies hold reserves for their future pension liabilities on their balance sheets, and finance investments out of these reserves (Edwards and Fischer 1994, pp. 53ff.).
- British companies rely more on short-term debt, e.g. supplier credits and short-term bank loans, than German firms. Long-term debt, when calculated as a percentage of all *external* liabilities, plays a much greater role in Germany (see also Marklew 1995, pp. 23-34).
- The importance of equity as a source of finance for German firms is low, although it has been increasing slowly since the mid-1980s.

(3) The system of corporate ownership, and the role of banks in the governance of companies: In comparison with the UK, in Germany corporate ownership of the quoted sector is highly concentrated. Franks and Mayer (1997b, p. 8), using a sample

of 171 quoted companies, find that "for 85% of the companies there is at least one large shareholder owning more than 25% of voting shares; for 57% of companies there is a majority shareholder and for 22% the holding is sufficiently large to prevent a blocking minority". The most important shareholders in quoted industrial companies in Germany are other industrial and commercial companies. Many of the largest German corporations are linked with each other in a system of cross-shareholdings (Wenger and Kaserer 1997b, figure 1). German law hardly restricts direct mutual shareholdings (see para 328 AktG), while indirect holdings are not regulated at all. Windolf (1996, p. 13) shows that cross-shareholdings are frequently supported by personal relationships through the membership of executives on other companies' supervisory boards. The close interweaving of large German companies through both ownership and personal relationships acts as a protection against the threat of hostile takeover. The second largest shareholders of German corporations are a small number of families, often with historical links to 'their' companies. Equity ownership by private households is relatively uncommon, with only about 5% of German households' financial assets held in equities (Deutsche Bundesbank 1997, pp. 27-40). Institutional investors (pension funds, investment funds, etc.) play only a subordinate role in the ownership structure of German companies, although their role has been increasing slowly. Against the widespread perception that banks are significant owners of industrial companies, their share stakes are actually relatively small, and some high-profile German banks (e.g. Deutsche Bank) have publicly expressed their intention to reduce their share stakes further. The influence of the large banks on German industrial corporations originates mainly from four sources. First, banks, together with families, are often on the top of corporate holding pyramids, a position which gives them large control rights at low cost in relation to their shareholdings and dilutes the control rights of shareholders further down the pyramidal hierarchy (Franks and Mayer 1997b, pp. 14 ff.). Second, German banks exert proxy votes on behalf of smaller shareholders, although since 1965 the banks have to follow the shareholders' voting instructions. About two thirds of the voting rights from bank-deposited shares are permanently transferred to the banks (Wenger 1992, pp. 77ff.; Wenger and Kaserer 1997a, pp. 28-34). Third, bank representatives often sit on the supervisory boards of large corporations in connection with their functions as corporate lenders. Although according to para 93(1) in connection with para 116 AktG bank representatives on supervisory boards are required to maintain secrecy as

against their bank, this rule is hardly enforceable. Fourth, banks have substantial influence through their mere operational involvement with German companies. As German companies 'go public' rather late, and as small and medium-sized firms are generally financed through long-term debt, companies develop long-standing relationships with their lenders and in particular with their 'house bank' (*Hausbank*). Furthermore, the system of 'universal banks' (*Universalbanken*) in Germany which provide the entire range of banking services means that customer information used to be available to all departments in a bank (Mülbert 1997, pp. 7ff.). This has changed through the Securities Trading Act (*Wertpapierhandelsgesetz* WpHG) in 1995 which substantially restricted access to information within banks. The German financial system has been described as bank-based (Zysman 1983, pp. 260-265), in contrast with the market-based system in the Anglo-Saxon countries (Coates 1994, p. 157; Lazonick 1997, pp. 1-34).

In sum, a closely-knit system of inter-corporate ownership, control, and personal relationships shields German companies from the threat of hostile takeovers that is characteristic of the more anonymous, market-based system in the UK.

There has been an extensive debate of the *comparative efficiency* of the German and the Anglo-Saxon system of corporate governance. Carney (1992, p. 74) argues that the monitoring through a few, large banks is less efficient than monitoring through a multiplicity of stock market investors (see also Hansmann 1996, p. 59). Others find that the German system has its own control mechanisms, including the dismissal of managers in the case of under-performance (Kaplan 1997, pp. 88-92). In the context of this study, however, the efficiency debate is less crucial than the mere observation that the two corporate governance systems *give power to different classes of patrons.* The threat of hostile takeover in the Anglo-Saxon countries, and the increased availability of acquisition capital (Stearns and Allan 1996, pp. 703ff.) have shifted the balance of power in favour of shareholders, who became able to press for leaner and more focused companies. This power shift has been much less pronounced in the German environment.

Within the UK, however, capital market pressures have increased due to the re-concentration of ownership in the hands of institutional investors in recent years. This

has reduced the free-rider problem that exists if ownership is dispersed and monitoring by owners is costly. With more concentrated shareholdings, large shareholders are more likely to monitor their holdings and, if necessary, to use 'voice' mechanisms[19], i.e. to engage in active corporate governance.

In a report compiled by Gaved, the Conference Board (1997b, p. 17) shows that institutional investors own 60.2% of the total outstanding equity (of domestic companies) in the UK stock market, as compared to 30.3% in Germany. The report (p. 15) also shows that German institutional investors, with 12% of their assets in equities and 83% in bonds and loans, follow a more cautious investment strategy than their British counterparts, which hold 69% of their assets in equities. In addition, whereas involvement by institutional investors in corporate control has traditionally been low (see Gaved 1997, pp. 27ff.), this has increased in recent years. This may partly be due to greater public interest in corporate governance following the Cadbury, Greenbury and Hampel committees, the exhortation by the Cadbury committee to exercise voting rights (Potter 1995, p. 288)[20], and the concerns about executive pay (Riley and Ryland 1995, pp. 181-197). With greater involvement by professional analysts, and more regular meetings between investors and corporate managers, the latter are more likely to adjust pre-emptively to the preferences of the owners of their corporations.[21]

To summarise section 6.3.1, British companies are typically under far greater pressure from the stock market than German companies. In the former country, the threat of hostile takeover exerts considerable pressure on management to pay attention to shareholders' preferences, and this pressure has even increased in recent years. In Germany, a combination of economic and institutional factors attenuate stock market pressures. Companies are generally less dependent on the stock market. Even if they are quoted, the pattern of corporate ownership makes hostile bids difficult to conduct. On the other hand, changes in the German economic and institutional environment means that the pressure on German companies to reduce costs and to align their organisations with shareholder preferences may increase in future.

6.3.2 Labour Market Regulation and the Position of Employees

In this section, two arguments are put forward:

- First, a more firmly institutionalised industrial relations framework means that top management in German companies has less unilateral power in aligning corporate structures with shareholder preferences than management in British firms. In the UK, the ability of employees to influence corporate structures depends primarily on the relative bargaining power of labour versus management.
- Due to a combination of economic factors and the removal of institutional barriers since 1979 in the UK, the bargaining power of labour has diminished substantially during the 1980s. This has given management greater freedom to restructure and to use even those measures (e.g. layoffs, workplace transfers) which strongly affected employees. The high degree of institutionalisation of labour relations in Germany means that economic pressures had little effect on labour's ability to mitigate the effects of restructuring on employees. In contrast to the UK, the institutional framework itself has changed little over the past two decades.

According to British law, the public corporation is defined by a private contract between the shareholders as principals and their agents, i.e. the executives who are hired to run the corporation on behalf of its owners (Kay and Silberston 1995, pp. 84-86). The law makes hardly any mention of employee interests, except that companies are encouraged to engage in employee involvement programmes, and that in companies with more than 250 employees the annual report shall contain a description of the company's employee involvement policies during the financial year (Companies Act 1985, Schedule 7, Part V, para 11(3)). Companies decide whether and to what extent they engage in collective bargaining and in general co-operation with trade unions or whether to run their personnel policies largely on an individualised basis. This, in turn, depends crucially on the ability of collective interest organisation (e.g. trade unions, professional bodies) to organise the interests of employees, as in large corporations individual employees will hardly be able to check or alter managerial decisions to align organisational structures.

During the 1980s, the UK has seen a fundamental transformation of industrial relations. Union membership has declined significantly (Millward 1990, p. 30). From 1984 to 1990, "the number of establishments recognising unions for collective bargaining fell from two thirds to one half" (Metcalf 1994, p. 128). This process has been due both to de-recognition of unions and, more importantly, to the lack of new recognitions (Fernie, Metcalf and Woodland 1994, p. 2). The number of joint consultative committees, the British analogue to the continental works councils, has also decreased. Collective bargaining has become far more decentralised (Gregg and Machin 1994). Membership of employers' organisations has also decreased. Through the decline of pluralist practices on both sides of the employment relation, managerial bargaining power and management's ability to initiate change has increased substantially (Metcalf 1994, pp. 131-132).

A variety of factors help explain the demise of collective industrial relations, which has involved a power shift from labour towards employers. Important among these have been legal changes (Brown and Wadhwani 1990, pp. 58-60) and the general retreat of the State from industrial relations (Clark 1996, p. 55), in combination with economic factors such as product market competition and high unemployment. As an example for the legal changes, the 1988 Employment Act restored the 1971 Act which forbade the dismissal of non-union members, thus rendering post-entry 'closed shops' unlawful. Preferential hiring of union members (the arrangement on which pre-entry 'closed shops' depended) were outlawed by the government in 1990, following EU legislation (Dunn and Metcalf 1994, pp. 11-12 and 18-21). An addition to the 1993 Employment Act allowed employers to treat union members differently from non-union members, so that it became less attractive for the latter to engage in collective action. "The State's industrial strategy really boils down to one of encouraging employers to pursue extra flexibility at all costs. As Crouch [...] argues, this essentially encourages employers to follow any industrial relations policy they like" (Clark 1996, p. 55).

One of the key mechanisms through which employees can exercise pressure on management is the strike threat. Although most strike action in Britain occurs in the context of disputes about wages (Millward et al. 1992, p. 285), the ability of workers and their labour unions to initiate industrial action can be regarded as an *indicator* for their general bargaining power in relation to employers, and therefore for the potential resistance which employers may face if they initiate unilateral changes. Since the

miners' strike in 1982/83, in which the unions failed to accomplish their goals, strike activity in Britain has decreased sharply (Ingram, Metcalf and Wadsworth 1993, p. 712 and Milner and Metcalf 1993, pp. 236-262), and the strike threat to employers has receded. A combination of economic and legal-institutional factors account for this phenomenon. The macro-level strike literature (Wheeler 1984, p. 263, drawing on Paldam and Pedersen 1982) argues that macroeconomic conditions have a strong impact on the level of strike activity. However, the negative relationship between the unemployment rate and strike incidence which Ashenfelter and Johnson found for the US has not been confirmed for the UK (Kennan 1986, pp. 1122-1123). The decline of traditionally strike-prone sectors, such as the shipbuilding and coal industries, is another major factor that accounts for the reduction in strikes. With respect to legal-institutional factors, Clark (1996, p. 45) and Dunn and Metcalf (1996, p. 70), following Freeman and Pelletier (1990, p. 153) and McConnell and Takla (1990), argue that the following changes in the legal environment have made it more difficult to organise strikes:

- The Employment Act of 1980 outlawed secondary picketing, and the 1990 Act forbade all secondary strikes and boycotts;
- The 1982 Employment Act restored the legal personality of trade unions and made them liable for any damages arising from strikes. This raised the financial risks involved in strikes;
- The introduction of compulsory pre-strike ballots in 1984;
- The 1990 Employment Act allowed employers to dismiss unofficial strikers selectively.

These legal changes, in addition to the general weakening of trade unions for legal and economic reasons, mean that union power to exert pressure on employers through strikes has eroded substantially since 1979. Non-strike forms of industrial action (e.g. overtime bans) have actually been more prevalent than strikes during the 1980s, but their impact and deterrence effect is very low as compared to strikes (Milner 1994, p. 522).

In sum, *de jure* employees in British companies have a very limited say in the organisation and management of their companies. Their *de facto* ability to counterbalance managerial and shareholder power depends critically on their ability to

organise their interests on a collective basis, on the employers' behaviour, and on the resources of the parties involved which underpin their positions. Through changes in the legal-institutional and in the economic environment, the balance of power between organised labour on the one hand and shareholders and their corporate-level representatives (i.e. top managers) on the other has shifted significantly towards the latter party. Shareholders became therefore better able to press for greater organisational alignment with their own preferences in the form of corporate restructuring.

In contrast to the situation in the UK, German law regards companies as 'public entities' in which, in addition to owners, other parties have certain decision-making rights. The employees of larger German companies have two formal means of representation, which are discussed in turn.[22]

(1) The most important representative body is the works council (*Betriebsrat*) which is elected by the employees in companies with a workforce of five or more. The costs of the works council, mainly in terms of working time lost and salaries of professional employee representatives, are borne by the company (para 40 BetrVG). In larger companies, around one third of the works councillors are full-time, professional employee representatives (for details see para 38 BetrVG). Works councils represent the workforce in all respects of concern. In addition to wide-ranging consultation rights, they also have co-determination rights in certain areas. With respect to corporate restructuring, the following areas of co-determination are worth detailing:

First, the works council partakes in all decisions regarding personnel planning, both with respect to the hiring of employees (para 92-95 BetrVG), and, more importantly, with respect to dismissals (para 99-105 BetrVG). The works council can object to dismissals if social considerations were not taken into account by management. In case of irreconcilable disagreement between employer and works council the issue will be taken to the industrial tribunal (*Arbeitsgericht*). The works council also has wide-ranging co-determination rights with respect to issues of social concern, e.g. overtime work or the installation of monitoring devices (para 87 BetrVG).

Second, para 111 BetrVG (translation A.R.) states that "(1) in companies with [...] more than 20 [...] employees, the employer has to inform in a timely and comprehensive manner the works council about planned changes in the company

which may lead to considerable disadvantages for the workforce of for considerable parts of the workforce. (2) 'Changes in the company' in the sense of sentence (1) are

1. Reduction or closure of the entire company or of considerable parts thereof,
2. Transfer of the entire company or of considerable parts thereof,
3. Merger with other companies or the demerger of companies,
4. Fundamental changes in the organisation of the company, the purpose of the company, or of its installation,
5. The introduction of largely new work methods and production processes".

If these forms of restructuring involve disadvantages for the workforce, the employer and the works council have to negotiate a binding agreement regarding the alleviation of disadvantages. In case of redundancies of 10 to 20% of the workforce or more (depending on the overall size of the company; see para 112 BetrVG), the agreement takes the form of a 'social plan' (*Sozialplan*) which specifies for example compensation payments for dismissals and employee transfers (Brox [11]1993, p. 252). Redundancies are also regulated by the Dismissal Protection Act (*Kündigungsschutzgesetz*) of 1969. Through its regional employment office, and ultimately through the industrial tribunals, the state provides arbitration services in cases of irreconcilable differences between works councils and employers.

In practice, the relationship between the works councils and the employers is often co-operative. Works councils do not usually attempt to block managerial decisions, but rather to transform them so as to attenuate potential disadvantages for employees. On the other hand, management is less likely to present the works council with 'radical' proposals which it would probably reject. Also, negotiations with the works council can substantially defer decision-making on restructuring. It should be pointed out that the co-determination system is linked to other features of the German corporate governance system that can restrain corporate restructuring. Wenger and Kaserer (1997b, p. 6), for example, argue that "the German codetermination system has undoubtedly supported the emergence of cross-holdings. Employees tend to collude with management in this regard, because they have a strong bias against distributing a company's profits and any other kind of down-sizing."

(2) The second company-level body in which employees are represented is the supervisory board (*Aufsichtsrat*). Supervisory boards exist in all companies with 2000 employees and more (para 1 MitbestG), and in smaller public limited companies (*Aktiengesellschaften*) and companies limited by shares with one ore more general

partners (*Kommanditgesellschaften auf Aktien*) by virtue of their legal form (para 95-116 and para 287 AktG). In companies with 10000 employees and more the supervisory board consists of 12-20 members. Half of these are elected by the Annual General Meeting and represent the equity-owners. The other half consists of labour representatives, namely of current employees (often members of the works council) and of a minority of union representatives (for details see para 7 MitbestG). Despite their numeric equality, the representatives of the equity-owners have a slim majority over the labour representatives, as the former elect the chairman of the supervisory board who has a casting vote in case of a tie (see para 27 and 29 MitbestG). This is not the case, however, in the coal and steel industry (*Montanindustrie*), where equity-owners and labour representatives are on a par.

The general function of the supervisory board is to monitor the company's performance and to appoint the members of the management board (para 84, 90 and 111 AktG). The supervisory board is not allowed to make individual policy decisions, but it can make particular classes of managerial decisions (e.g. divestments) contingent on its approval (para 111(4) AktG). Additional regulations concern acquisitions and the subsequent restructuring of acquired companies (through asset transfers, etc.) which require the explicit approval of the equity-holders' representatives on the supervisory board (para 32 MitbestG). Also, the supervisory board appoints a labour director to the management board (para 33 MitbestG). This means that industrial relations and personnel management are functions which are regularly carried out at head office level in German companies (see section 3.3.12).

In sum, the institutional industrial relations system in Germany gives employees substantial power to counterbalance pressures for organisational alignment with shareholder preferences. This does not mean that the German co-determination legislation makes the restructuring of companies impossible. Employee representatives are hardly in the position to block restructuring, nor do they always intend to do so, given the generally less adversarial shop floor level industrial relations in Germany than has been traditionally the case in the UK (Dore 1996a, p. 170, quoting Streeck's notion of occasional 'wildcat co-operation' between works councils and individual employers against the will of the wider unions and the employers' organisations respectively). If management is able to persuade the works council that a reorganisation is necessary, an agreement with employee

representatives can even mean that decisions are implemented effectively due to greater support from the shop floor. Turner (1992, pp. 226ff.) provides evidence that this has been the case at Volkswagen, although he also quotes counter-examples (e.g. Opel Bochum). However, the institutions of employee representation are often able to *defer* restructuring decisions and to reduce potentially negative impacts on workers. For example, where management aims at reducing the workforce, works councils often negotiate agreements to avoid compulsory redundancies, in return for early retirement schemes, greater flexibility, and lower wages. Ad-hoc mass redundancies are therefore less likely. The limited ability of an acquirer to restructure an acquired company according to his preferences makes it less attractive to pursue these kinds of acquisitions in the first place, and thereby reduces potential bid premiums.

Germany's institutional industrial relations framework has not changed fundamentally during the 1980s and 1990s. The decline in union membership and the fact that many employers, in particular in East Germany, have been leaving the employers' association, has had an impact mainly in the area of wage negotiations. Katz (1993, p. 8) finds that there has been a general shift from industry-level to plant- and company-level negotiations between employers and works councils. Rising unemployment may have made the employees' side somewhat more cautious in pursuing their demands, but the institutional framework that underpins their ability to counterbalance managerial power in corporate decision-making has not weakened.

To summarise, the highly juridified corporate governance system in Germany gives substantial power to employees to attenuate potentially disadvantageous effects of organisational alignment. These institutional provisions have not been affected by the general weakening of the trade union movement, nor has the conservative government in Germany from 1982 to 1998 sought to alter them. British corporate and industrial relations legislation grants less power to organisations for employee representation. Through a combination of economic and institutional factors, the ability of trade unions and other organisations for employee representation to counterbalance employers' unilateral decision-making power has diminished substantially.

6.3.3 Privatisation Policy

In this section, two arguments are put forward. First, it is argued that during the 1980s and 1990s the British government has engaged in privatisation activities to a much greater extent than has been the case in West Germany. It has to be taken into account that during the 1970s more businesses in the UK were in public ownership than in West Germany, so that the scope for privatisation in the former country was greater. Second, evidence is summarised which shows that privatisation is often followed by the restructuring of the companies concerned and that in many cases companies have been prepared for privatisation through restructuring. Emphasis is placed on the fact that cross-national differences in policies on state-ownership do not only reflect the political preferences of individual governments, but underlying differences in the legal-institutional and economic settings between countries.[23]

Overview of Privatisation Activities in the UK and West Germany

While during the 1980s and 1990s the governments of many industrialised countries have reduced their business ownership, nowhere has this movement been as strong as in the UK. Between 1979 and 1991, £44.5bn worth of private assets were taken out of public ownership in the UK, as compared to just £3.34bn in West Germany between 1979 and 1990 (Stevens 1992, p. 6). The privatisation wave in the UK reversed the policies of the Wilson, Heath and Callaghan governments during the 1960s and 1970s which had brought a great number of economic activities into public ownership. As of 1979, more than 9% of the British workforce was employed in the state sector. This proportion had halved to less than 5% by 1991 already (Stevens 1992, p. 4), and has reduced further since then.

The British privatisation programme is intimately linked with the election of the conservative government in 1979. Although Thatcher's election campaign was centred around the promise to 'roll back the frontiers of the State' (Fine and Poletti 1992, pp. 315f.), it did not declare specific policies on privatisation. An ambitious privatisation campaign started in 1983. Two phases of the privatisation programme can be distinguished.[24] During the first phase from 1983 to 1988, most of the companies sold by the government were in steel production and manufacturing, and in

transport, gas and oil exploration. After almost all of its assets in manufacturing had been sold, from 1989 onwards the government concentrated on the networked industries, i.e. mainly water and electricity companies, but also on the remaining businesses in transport and communications. Apart from the outright sale of businesses, mostly through stock market flotation, the government also engaged in privatisation through extensive outsourcing and contracting-out of public services, and through the sale of real estate holdings.

In West Germany during the post-war period, despite substantial public ownership in utilities and infrastructure such as transport and communication, private ownership of business has been essential to the state's self-identity (Owen Smith 1994, p. 462). Therefore, few companies in manufacturing and the like have been in the ownership of the Federal State in West Germany.

Similar to the situation in the UK, when the conservative government in Germany came into power in October 1982 its promise was to reconsider the role of the state in general, but it did not have an explicit privatisation policy. A decision to privatise some of the industrial holdings was taken in March 1985. This policy was put into practise from 1986 to 1991, with most of the initial objectives achieved by 1989 (Tofaute 1994, chs. 1 and 5). In comparison with the situation in the UK, the privatisation activities during these years were relatively small-scale. First, in some of the companies that were 'privatised' (e.g. VEBA, VW), the Federal State had held only minority stakes before the privatisation. Second, the Federal State often used 'piecemeal' privatisation techniques, for example the reduction of its holdings through the non-participation in share issues (e.g. Lufthansa 1987-89). Smaller companies were sold directly to particular bidders, whereas large-scale flotation on the stock market, as has often been the case in the UK, was less frequently used. Flotation is made more difficult by the mandatory 2-year preparation period (Owen Smith 1994, p. 474). Third, many of the companies that were privatised in West Germany were smaller than the large companies in the UK that were concerned by privatisation during the 1980s. In view of this, Esser (1989, pp. 66-69) speaks of the first phase of the Federal privatisation programme as largely 'symbolic'.

In 1991/92 the Federal government decided to take privatisation further (see Bundesministerium der Finanzen 1996, pp. 42ff.) and to consider the following types of holdings:

- its remaining direct and indirect holdings in industrial, and commercial companies, most of which were comparatively small;
- its big monopolistic organisations in communications (Deutsche Bundespost, Deutsche Telekom) and transport (Deutsche Bahn AG);
- its holdings in real estate.

Since 1992 these privatisation policies have been put into practise, with 17 mostly smaller holdings sold until 1995. A major step towards privatisation was taken in 1996 when the flotation of Deutsche Telekom began. Other companies (e.g. Deutsche Bahn AG) have been restructured to prepare for privatisation, but shares have not been sold as yet.

In sum, the privatisation programme of the Federal State in West Germany has (a) started later and (b) taken place much more slowly than has been the case in the UK. Apart from the above-described fact that there has been much greater scope for privatisation in the UK, the prime reason for these differences consist of the legal-constitutional differences between the two countries. In contrast with the 'unitary' state in the UK, Germany has a federalist structure according to articles 20-37 of the German constitution (*Grundgesetz*), with power resting with the Federal government, the *Länder* governments, and the municipalities. The latter two pursue their own policies, including on issues such as privatisation. Both the *Länder* and the municipalities have significant stakes in a variety of businesses with regional and local importance. These include regional banks, housing associations, gas, water and electricity companies and regional or local transport companies. In addition, some *Länder* – notably Lower Saxony and Bavaria – have holdings in industrial companies which are of high importance to the region. However, majority stakes in industrial companies are very rare. As of 1987, the Federal Republic of Germany had 11 *Länder* and 7565 independent municipalities; through unification, this has increased to 16 and 14458 respectively. This constitutional set-up means that there is no common policy on public ownership and privatisation. Wellenstein (1992, Ch. 4.3) provides case studies of the privatisation policies of four *Länder* (Baden-Württemberg, Rhineland-Palatinate, Hesse, Lower Saxony) during the 1980s, showing that in none of these decisive steps towards privatisation were taken, even under conservative governments. This means that the *Länder* and, to a lesser extent, the municipalities,

have maintained their holdings in exactly those kinds of utility companies which have been privatised in the UK by the central government. For the 1990s, Owen Smith (1994, p. 464) argues that the then mostly SPD-governed *Länder* have even been increasing public ownership. With respect to the municipalities, Reidenbach (1997, p. 83) shows that the manifold businesses owned by the municipalities are generally smaller and more decentralised than their counterparts in the UK, but also that the privatisation debate on the local level has started only very recently and has not led to a significant number of practical steps towards privatisation.

Apart from the reasons outlined above, the following factors help explain the differences between the UK and Germany with respect to privatisation (Bös 1993, pp. 100-101):

- Privatisation in many Western countries has taken place to reduce public debt. Stevens (1992, p. 11) shows that in the two countries opposite developments have taken place since 1985. Whereas central government budget deficit, as a percentage of GNP, was significantly higher in the UK in the mid-1980s than in West Germany, it reduced significantly in the decade thereafter. Partly due to unification, Germany's federal budget deficit has increased substantially throughout the 1990s. This means that budgetary pressures hit the UK much earlier than Germany. The fact that privatisation started earlier in the UK than in Germany can partly be attributed to these differences in the build-up of economic pressures. There is also evidence that companies in the state sector have generally increased the UK's Public Sector Borrowing Requirements in the mid-1980s (Vickers and Yarrow 1988, p. 144), and that privatisation occurred at a time when many utilities and other privatised businesses required substantial investments (Helm et al. 1992, p. 34).
- Even on the federal level, the particular political set-up of Germany means that the government is almost inevitably formed by a coalition of several parties. This fact can make it more difficult to unite the various parties involved in a coalition in a common privatisation policy, especially when particular parties have strong regional ties. This has been the case during the 1980s when the CSU, as a member of the Federal government, opposed privatisation of the national airline (Lufthansa) for fear of job losses in Bavaria where its constituency is based. In

contrast, "the advantage enjoyed by Mrs Thatcher was that she did not need the support of other political parties to push through the programme. Throughout the 1980s, the Thatcher administration possessed an absolute majority in Parliament, and hence were able to steamroller through their privatisation programme" (Curwen and Hartley [4]1997, p. 482).

- Many authors argue that it had been an implicit aim of privatisation in the UK to reduce the power of the trade unions and to give the new owners greater autonomy over the companies concerned than the state could have. Without developing this argument in detail here, shifting the balance of power among the various classes of patrons has not been the prime rationale for privatisation in West Germany. Even *Länder* with conservative governments have aimed at preserving jobs in their privatisation activities, which may account for their 'piecemeal' privatisation strategies. In the UK, the government has been criticised for having given away many assets too cheaply to the benefit of the new shareholders and financial intermediaries (Curwen and Hartley [4]1997, p. 479). Union representatives have argued that privatisation was to enable the new owners to cut employment and alter working conditions to an extent not possible under state ownership (see Trade Union Congress 1986). In this view, the privatisation wave in the UK has contributed to the general shift in power towards shareholders, whereas this has not happened to the same extent in Germany.

The Relationship between Privatisation and Corporate Restructuring

Primarily with respect to the British experience, casual evidence is available which suggests that privatisation is related to corporate restructuring. Fine and Poletti (1992, p. 319) assert that "privatisation has contributed to the restructuring of productive capital". In the following, post-privatisation restructuring is discussed first. Thereafter, pre-privatisation restructuring is briefly analysed.

In the UK, it has been a declared aim of privatisation in general to improve efficiency and performance (Vickers and Yarrow 1988, p. 157). This implies that the corporate strategies and structures in place under state ownership were not optimal and needed change, although the extent of post-privatisation restructuring seems to depend on whether the companies concerned were already under competitive pressures before their privatisation or not (Parker 1994, p. 21). Although the differences between the

private and the public sector are to be taken into account (Allison [6]1996, pp. 291-307; Williamson 1997), the general finding has been that private companies perform better than nationalised companies (e.g. Boardman and Vining 1989, pp. 1-33). The following three sets of factors indicate that privatisation has often been followed by the restructuring of the companies concerned:

- Parker (1993, pp. 16-18) shows that privatisation has in many cases been followed by changes in the internal organisation of British companies. He points in particular to the adoption of more decentralised decision-making structures (often through the replacement of U-form by M-form structures, as confirmed by Bishop and Thompson 1994, pp. 355-361), reduction in bureaucracy and administration, and the scaling-down of corporate head offices.
- Helm et al. (1992) provide evidence that the privatised utilities have engaged in substantial restructuring of their 'corporate borders' after privatisation. Under state ownership, they had been confined to work exclusively in a particular business and in a particular geographical area. With these constraints being removed, the privatised utilities engaged in wide-ranging acquisition policies, often on a diversifying basis. Parker (1994, p. 21) agrees that all of the organisations studied by him "have taken advantage of the new freedom that comes from being in the private sector to make acquisitions and enter joint ventures, both at home and overseas". These trends are confirmed by the findings of the questionnaire survey (section 3.3.1) according to which four out of the ten British companies which increased their diversity during the survey period were privatised utilities. These responses represent exceptions to the general trend towards greater focus and reduced diversification.
- Of the 44 large British companies privatised between 1979 and 1996, 12 were taken over during this period, in many cases very soon after privatisation (Curwen and Hartley [4]1997, p. 485). Half of these takeovers were by foreign companies. Other privatised companies came under the threat of hostile takeover, which forced them to restructure (e.g. the attempted takeover of British Aerospace by GEC in 1991; see Field and Whittington 1992, p. 103). Privatised companies both engaged in restructuring through own acquisitions and the like, and also enlarged the pool of potential acquisition targets to other companies.

With respect to pre-privatisation restructuring of companies, Fine and Poletti (1992, pp. 319) argue that the British government often initiated extensive re-organisation programmes in the 'run-up' to privatisation. A main aim of these programmes was to achieve a better price in the eventual sale. As an example, the pre-privatisation restructuring of the water companies included substantial job cuts and organisational reforms.

Systematic evidence on the pre-privatisation programme of British Steel is provided by Beauman (1996), Aylen (1994) and others. Beauman (1996, pp. 26-27) shows that restructuring started already during the 1970s under the Labour government, and was initially not related to the prospect of privatisation, but was driven by the aim to improve efficiency and to become independent of state funding. Between 1979 and 1988, employment was reduced by more than two thirds, performance targets were set, and internal changes initiated. The restructuring programme, which led to British Steel's return to profitability in 1985/86, then became the *pre-condition* for the company's privatisation in 1988.

To summarise the argument of this section, the privatisation of businesses has given additional impetus to the restructuring of companies and has contributed to the corporate restructuring waves in the countries concerned. On the background of extensive ownership of businesses by the central state, the conservative government in the UK throughout the 1980s and early 1990s has followed a rigorous privatisation policy. The fact that privatisation has often been followed by restructuring, and that the restructuring of companies has in many cases preceded privatisation, helps explain the intensity of corporate restructuring in the UK from the mid-1980s onwards. Due to its legal-constitutional set-up and economic conditions, privatisation in West Germany has taken place much more slowly than in the UK, giving less impetus to corporate restructuring.

6.3.4 Macroeconomic Factors

Finally, the relationship between two sets of macroeconomic variables and corporate restructuring is considered. First, it is argued that slumps in the economic cycle induce corporate restructuring by forcing companies to eliminate waste and improve efficiency. British business engaged heavily in cost-cutting measures in the wake of

the 1991/92 recession. In West Germany, the recession was delayed due to the increase in domestic demand in 1990/91, in connection with German unification. The 1993 recession in Germany, and weak economic conditions thereafter, helps explain the increase in corporate restructuring activity in Germany since then.

Second, the relationship between the costs of capital and corporate restructuring is considered. High real interest rates, taken as an indicator for capital costs, exert pressure on companies to improve performance in two ways: For once, they make it more expensive for companies to borrow, and thereby create an incentive to use under-utilised resources more fully, or to liquidate them. This latter approach includes the disposal of assets which have a higher value in the hands of other companies. Secondly, following Blair and Schary (1992) and Winter (1992), it is argued that high real interest rates reinforce the incentive of equity-holders to push for higher returns on investment, and force companies to restructure. It is shown that interest rates are generally lower and less variable in Germany than in the UK. Moreover, following Young (1997) it is argued that the emergence of production and investment opportunities in the Eastern countries neighbouring Germany during the first half of the 1990s has given additional impetus to German companies to restructure, either by shifting production there, or by reducing costs and increasing productivity within Germany.

Movements in the Business Cycle

Implicit in Donaldson's argument discussed in section 6.2.3 is the notion that those particular characteristics of the structure of American firms (e.g. diversification, extensive vertical integration) that were dismantled during the 1980s, had been built during the years of buoyant demand and general economic growth during the 1960s. Companies invested part of their profits into unrelated businesses and extended corporate hierarchies. In this view, the recession at the beginning of the 1980s forced American companies to reconsider their structures and strategies in place (Donaldson 1994, p. 146).

With respect to the British situation, Geroski and Gregg (1993, 1994 and 1997) show that the 1991/92 recession in Britain had a profound impact on the structure of companies. They find that not only smaller companies were affected by the recession,

but that even larger "holding companies proved to be surprisingly vulnerable to the recession" (Geroski and Gregg 1994, p. 8). As key organisational responses to economic pressures they identify (a) the focus on the core business, and the shedding of more peripheral businesses; and (b) measures for cost control, including plant closure, downsizing, and the reduction of head office costs and overhead costs in general (ibid., p. 9ff.).

The mechanism which links corporate restructuring to changes in economic conditions consists of companies' attempts to reduce costs in times of slack demand and low revenue and thereby minimise potential losses or maximise the remaining profits. As variable costs shift in line with changes in output, in periods of low demand companies will be forced to reconsider in particular their fixed costs, so as to reduce their total costs. Therefore, particular attention will be paid to cost positions such as administrative overheads, general corporate functions, and interest payments. Accordingly, companies will aim to reduce their administrative component, replace fixed corporate functions with terminable costs[25] (e.g. through outsourcing), and dispose of sub-optimally used assets so as to reduce their debt burden. Moreover, Stonham (1997a, p. 267) argues that recessions tend to depress share prices, thus inviting takeover and inducing restructuring by corporate raiders. In sum, the argument is that downturns in the business cycle give impetus to companies to restructure, and that differences in the 'timing' and the severity of recessions help explain cross-national differences in the extent of corporate restructuring.

In the following, two indicators are used to shed light on the macroeconomic conditions in the UK and Germany. As a general indicator of the state of the overall economy, year-to-year percentage changes in the real gross domestic product of the two countries are given. Secondly, as indicators for changes in demand in the manufacturing industry, indices for the level of new orders from domestic and foreign customers and for total new orders are displayed.

	Real GDP Year-to-year percentage change	Volume of net new orders in engineering (1990=100)		
		Total	Domestic	Export
1981	-1.3	78	80	76
1982	1.5	73	78	64
1983	3.6	77	81	70
1984	2.5	86	88	82
1985	3.5	86	88	81
1986	4.4	85	87	80
1987	4.8	91	93	85
1988	5.0	97	97	95
1989	2.2	103	103	102
1990	0.4	100	100	100
1991	-2.0	92	89	98
1992	-0.5	95	94	97
1993	2.2	100	99	100
1994	3.8	113	113	112
1995	2.8	111	106	118
1996	2.2	114	105	130

Table 6.4: Macroeconomic Data for the UK
Source: GDP data for 1981 to 1994: OECD 1996a, p. 50
GDP data for 1995-96: Own calculations, based on Datastream data
Data on orders: OECD, supplied by Datastream

The table shows that, after strong growth between 1985 and 1988, the UK saw a deep recession between 1990 and 1992. In particular, it suffered from a serious slump in domestic demand, whereas exports declined less sharply. Since then, the economy has recovered, although it did not show growth figures comparable to those between 1985 and 1988. In particular, domestic demand has been relatively stagnant in comparison with a sharp increase in export orders.

	Real GDP Year to year percentage change	Volume of net new orders in manufacturing (1990=100), West Germany		
		Total	Domestic	Export
1981	0.5	76	76	75
1982	-0.6	71	72	70
1983	2.1	73	75	71
1984	3.0	78	77	80
1985	2.4	83	80	87
1986	2.5	83	82	84
1987	1.7	83	81	85
1988	3.7	89	86	94
1989	3.5	96	93	101
1990	3.2	100	100	100
1991	2.8	101	101	101
1992	2.2	96	97	94
1993	-1.2	89	88	92
1994	2.9	96	93	104
1995	1.8	97	92	105
1996	1.4	97	90	111

Table 6.5: Macroeconomic Data for Germany
Source: GDP Data for 1981 to 1994: OECD 1996a, p. 50; GDP Data for 1995/96: own calculations, based on OECD 1998a, p. 225.
Data on orders: OECD, supplied by Datastream

As can be seen from the data on Germany, the variations in the German business cycle have been far less pronounced than in the UK. The West German economy showed strong growth in 1988/89 which was followed by the increase in domestic demand in 1990 in connection with German unification (Herrigel 1996, p. 178). The effects of the sudden demand growth were felt until 1992. By 1993 the market had reached the state of satiation and the economy experienced the effects of the initially delayed recession. Since then, domestic demand has remained depressed, and the modest increase in total demand is due to higher exports.

The late start of the recession in Germany means that the economic pressures discussed above on West German companies to restructure have affected them 2-3 years later than comparable companies in the UK. During and immediately after unification, West German companies concentrated on exploiting the market that had suddenly arisen and on extending their business to the East, through sales representatives, acquisitions and investments into new establishments. Corporate restructuring started in the wake of the 1993 recession (Herrigel 1996, pp. 193f.), when demand in the UK was already on the increase.

Interest Rates, Costs of Capital, and Investment Opportunities

Blair and Schary (1992, pp. 168ff.) and Winter (1992, pp. 59ff.) put forward the argument that, for a variety of reasons, corporate restructuring is more likely to occur in a climate of high interest rates and low inflation. First, real interest rates represent a measure of capital costs. With high costs of capital, firms will (a) reconsider their investment strategies and make only those investments which promise superior returns; (b) aim at improving efficiency and performance so that their existing assets yield returns that exceed capital costs; (c) liquidate those assets which do not fulfil this criterion. With fewer profitable investment opportunities, firms are also more likely to have excess cash on their balance sheet which, if not paid out to investors through special dividends, share buy-backs and the like (see Stewart III and Glassman 1988a, pp. 89ff.), invites takeover. Winter, following Shleifer and Summers (1988), argues that high real interest rates lead companies to reconsider explicit or implicit promises to invest into intangible assets, such as skills and routines. If companies renege on such promises so as to increase the funds available for pay-outs to investors, a wealth transfer effect takes place. Second, from the perspective of shareholders, interest rates represent the opportunity costs of investing into equity. This means that shareholders under conditions of high real interest rates will press for higher returns on equity than in situations where real interest rates are low. Under greater shareholder pressure, companies are more likely to make changes to their organisation, disgorge free cash flow, and raise efficiency.

In the following two tables, data on nominal and real short- and long-term interest rates are presented. Nominal interest rates are given to allow comparisons with Vitols (1995, p. 8). Following Blair and Schary (1992, p. 170) and Winter (1992, p. 60), real interest rates are calculated by adjusting nominal figures by a three-year centred moving average of the percentage change in the GDP deflator.[26]

	UK		Germany	
Year	Nominal short-term interest rates [1]	Nominal long-term interest rates [3]	Nominal short-term interest rates [2]	Nominal long-term interest rates [3]
1981	15.44	14.74	12.10	10.38
1982	10.62	12.88	8.88	8.95
1983	9.42	10.81	5.78	7.89
1984	9.82	10.69	5.99	7.78
1985	11.76	10.62	5.45	6.87
1986	11.36	9.87	4.63	5.92
1987	8.76	9.47	4.03	5.84
1988	13.15	9.36	4.33	6.10
1989	15.11	9.58	7.12	7.09
1990	13.81	11.08	8.49	8.88
1991	10.77	9.92	9.25	8.63
1992	7.15	9.12	9.52	7.96
1993	5.33	7.87	7.29	6.28
1994	6.37	8.05	5.36	6.67
1995	6.49	8.26	4.53	6.50
1996	6.34	8.10	3.31	5.63
Geometric mean	9.60	9.88	6.23	7.22
Variance[4]	10.04	3.15	5.78	1.77

Table 6.6: Nominal Interest Rates in the UK and in Germany

Notes:
[1] 3-month inter-bank loans. Source: Datastream
[2] 3-month Fibor. Source: Datastream
[3] Government bond yields (average yields to maturity in percent per annum). Source: International Monetary Fund 1997, p. 103.
[4] Variance calculated on the basis of the geometric mean

	UK		Germany	
Year	Real Short-term interest rates	Real long-term interest rates	Real short-term interest rates	Real long-term interest rates
1981	2.44	1.74	7.70	5.98
1982	2.52	4.78	4.98	5.05
1983	3.79	5.18	2.58	4.69
1984	4.82	5.69	3.52	5.31
1985	7.36	6.22	3.02	4.44
1986	6.66	5.17	2.20	3.49
1987	3.99	4.70	1.83	3.64
1988	7.12	3.33	2.40	4.17
1989	8.61	3.08	4.72	4.69
1990	7.14	4.41	5.36	5.75
1991	4.94	4.09	5.08	4.46
1992	2.38	4.35	5.19	3.63
1993	2.16	4.70	3.42	2.41
1994	3.87	5.55	2.59	3.90
1995	3.79	5.56	2.70	4.67
1996	2.54	4.30	2.31	4.63
Geometric mean (1981-1996)	4.19	4.38	3.43	4.33
Variance (1981-1986)	4.27	1.20	2.52	0.91
Geometric mean (1986-1996)	4.37	4.41	3.20	4.04
Variance (1986-1996)	4.70	0.59	1.77	0.69

Table 6.7: **Real Interest Rates in the UK and in Germany**
Notes: Real interest rates are calculated as nominal interest rates minus a three-year centred moving average of the GDP deflator (source: International Monetary Fund 1997, pp. 148-149). For 1996, real interest rates are calculated as as nominal interest rates minus the GDP deflator, as data for the 1997 GDP deflator were not available. Notes to table 6.6 apply.

These data show that

- both short- and long-term interest rates are generally higher in the UK than in Germany. This is most evident with respect to nominal interest rates which are, on average, two to three percentage points lower in Germany. This discrepancy is reduced to some extent if inflation, which also has been lower in Germany than in the UK for most of the years concerned, is taken into account. Nevertheless, the finding that interest rates are generally lower in Germany than in the UK holds also true for real interest rates.

- interest rate variability is considerably lower in Germany than in the UK, confirming the result by Vitols (1995, pp. 7-8). This means that German companies enjoy a higher degree of reliability and stability in making their investment decisions, and are less subject to short-term pressures with respect to capital costs.
- With respect to changes *within* countries over time, the years between 1984 and 1991, with the exception of 1987, have been a period of high real short-term interest rates in the UK. Germany has also seen a period of high real short-term interest rates, namely between 1989 and 1992, but this situation (a) was much shorter, (b) started much later, and (c) has taken place on a lower level than in the UK.

In sum, if Blair's and Schary's, and Winter's argument with respect to the link between capital market pressures and interest rates on the one hand and corporate restructuring on the other hand is true – and Geroski and Gregg (1993, pp. 67-68) find that in the UK this has been the case -, then the later start and the lower scale of corporate restructuring activity in Germany may be attributed in part to the differences with respect to interest rates as described above. In this context, it is also important to mention the institutional differences with respect to the relationships between banks as lenders, and companies as borrowers. In a report by Midland Bank (1994, pp. 9-15), the combination of long-term loans and fixed rate lending at reasonable interest rates is described as a key characteristic of the German financial system. This provides much greater financial stability to German companies than is the case in the UK. Schneider-Lenné (1994, p. 286f.) points out that the German 'relationship banking' system provides great stability and reliability for companies, especially in times of financial distress. Drukarczyk and Schmidt (1997, pp. 21 ff.) show that the German legal system, through low-cost bankruptcy provisions, gives greater protection to creditors than the more owner-oriented systems in the Anglo-Saxon countries. This leads to cheaper loans and lower capital costs in Germany, as creditors bear less risk. In sum, the German financial system provides for relatively great financial stability and low capital costs, thereby protecting firms from short-term financial pressures that may induce corporate restructuring.

Young (1997, pp. 42ff.) argues that the emergence of new markets with low wage costs in the Far East and, following the changeover in 1989, in Central and Eastern Europe, have created a wealth of highly profitable investment opportunities for global investors. He calculates that a typical Western enterprise could produce a return on equity (ROE) in the range of 50-80 percent by shifting its production to these regions. Even if some unanticipated costs would lower the effective return on equity and additional risks had to be taken into account, the expected returns would still exceed the comparable rate of companies located in the West considerably. This had increased the opportunity costs of investing into Western corporations. While he sees no absolute shortage of investment capital, he contends that in capital market environments where investors can move their capital freely to far-off locations, Western corporations have to show much higher returns in order to satisfy investor demands. If subjected to capital market pressures, firms will have to take ROE - increasing measures, for example withdrawing capital from sub-optimal projects, and increasing gearing ratios. In sum, Young argues that the combination of two factors, the availability of new high-yield investment opportunities, and the ability of investors to move capital to these locations, has given the owners of equity capital increased leverage over Western corporations to force a higher return on equity through the means of corporate restructuring.

Young (1997, p. 42) also supplies data according to which the returns to equity of German businesses are substantially below the comparable US rate. Carlin and Soskice (1997, p. 60), using aggregate data from Glyn (1996), show that profitability of both the British and the German manufacturing industry is low in comparison to their major competitors.[27]

	1984-88	1989-93
West Germany	24.2	22.0
UK	22.8	20.9
Europe (10 countries)	*29.1*	*28.6*
US	26.6	28.5
OECD (15 countries)	*30.1*	*29.6*

Table 6.8: **Comparative Profitability in Manufacturing (gross profit share in gross value added, in %)**
Source: Glyn (1996), quoted from Carlin and Soskice (1997, p. 60)

Companies can partially compensate for low profitability by offering lower risk than high-yield / high risk investment projects in other countries. Generally speaking,

however, the arrival of new investment opportunities in South-East Asia during the 1980s has made it more difficult for both British and German companies to attract capital. While this has affected British and German industry in a very similar way, the opening of Central and East European countries during the first half of the 1990s has had a much greater impact on German than on British companies. The available evidence shows that by far the majority of foreign direct investments in Poland, the Czech and Slovak Republics, and Hungary came from German investors, whereas the UK played only a minor role in this respect. With respect to foreign direct investment into the Czech and Slovak republics, the OECD (1994a, p. 35) states that "Germany led with 39.9 per cent of the cumulative foreign capital inflows at the end of 1992, followed by the USA (21.1 per cent), France (14.6 per cent), Austria (6.6 per cent) and Belgium (5.8 per cent)". German and Austrian companies engaged in a substantial number of contractual joint ventures in East European countries (see OECD 1997, pp. 107-108). They shifted production into these areas where unit labour costs, as of 1995, were more than 60% lower than in their own countries (see OECD 1997, p. 118). Due to their geographical proximity, transport costs were low, while the institutional settings in the four East European countries named above proved relatively reliable. The progress of the privatisation processes in these countries, the peaceful political settlement between the Czech and the Slovak Republic, and the general renewal of the legislative and economic framework have contributed to the increased confidence into the institutions of the four countries. As a result, the number of FDI projects increased substantially from 1991 to 1994 (see OECD 1997, p. 107).

In sum, it is argued that the availability of investment opportunities in nearby Central and East European countries has affected companies in Germany in a twofold way: First, it became possible to reduce costs in Germany by shifting production eastwards. German companies took advantage of this opportunity through the establishment of new subsidiaries, the acquisition of existing businesses, and the establishment of joint ventures. Second, pressures from investors on German companies increased as the cost gap between the high-cost production base in Germany and the lower-cost locations in East European countries widened, and as investments into these areas proved to be relatively safe. German companies reacted to these pressures by restructuring their organisations. This process has started slowly during the first half of the 1990s, and has increased since. This helps explain the increase in corporate restructuring activity in Germany since about 1993/94.

6.4 Chapter Summary and Conclusion

The focus of this chapter has been on the country-specific reasons for the differences in the timing and the extent of corporate restructuring in the UK and West Germany. In section 6.2, firms were described as a nexus of contractual relationships among various classes of patrons. Furthermore, it was argued that institutional and economic factors determine the balance of power among these various classes of patrons, and that – according to the extant literature which refers mainly to the American context – shareholders have, generally speaking, increased their power relative to other classes of patrons.

In section 6.3, four sets of institutional and economic factors were identified which help explain why corporate restructuring has started earlier and has gone further in the UK than in West Germany. I would argue that, among these four sets of factors, those relating to the corporate governance system – understood in a wide sense to include the institutional and economic aspects of corporate control, as well as the labour relations system – are crucial for the understanding of the cross-national differences in corporate restructuring. This is because in the corporate governance system institutional and economic factors are most closely intertwined. Changes in macroeconomic conditions or particular privatisation activities may have a strong impact on corporate restructuring, but these factors are temporarily more limited than fundamental corporate governance structures. However, it has to be borne in mind that government policies in particular in the UK have significantly altered corporate governance structures, in particular in the area of industrial relations. While such discrete changes can be identified, they are nevertheless embedded in an overall system of corporate governance that ultimately determines the balance of power among the various classes of patrons involved. The power shift towards shareholders, as a result of which companies had to align their organisational structures more closely with shareholders' preferences, has taken place earlier and to a greater extent in the UK than in West Germany.

[1] For example, Fligstein (1991, p. 311) emphasises the role of the existing strategy and structure of organisations in determining organisational changes.
[2] One could also detail *regional* and even *global factors* of relevance to firms, for example the development of advanced information and transportation technologies. However, these factors are at least to some degree industry- or country-specific, and are therefore subsumed under these two categories.
[3] von Tunzelmann (1993, p. 261) applies the argument that institutions shape organisation structures to the development of British firms during the early industrial revolution.
[4] Reve (1990) uses the term 'nexus of contracts', while Williamson (1990, pp. 3-7) prefers the term 'nexus of treaties' as the former term has a stronger legal connotation, whereas he wishes to include informal and private orderings as expressed in the latter term.
[5] See also Mueller (1990, pp. 24f.). The four classes of patrons are related to the four types of markets which, according to Swedberg (1994, p. 256) developed during the industrial revolution and characterise modern society: the labour market, the industrial market, the consumer market, and the financial market.
[6] Hansmann (1996, pp. 35-38) conceives agency costs slightly differently.
[7] For a wider conception of institutions which leaves open the possibility of describing organisations as institutions see Jepperson 1991, pp. 143-163, especially p. 149.
[8] On the stabilising role of institutions see also Soskice et al. 1992, pp. 547-560.
[9] This paragraph adopts Hansmann's rather than North's terminology. It is, however, consistent with North's approach who emphasises the effect of institutions on 'measurement' and 'enforcement costs' (North 1990, Ch. 4).
[10] This paragraph draws on Nickell (1995, pp. 2-5) and Mueller (1986, Ch. 2).
[11] The role of customers can be disregarded here. The main argument of the chapter pertains to the relative power of investors and employees.
[12] 'Mobility' refers to the extent to which factor owners can move their factors to the highest-yield use, so that a factor owner's income equals the opportunity cost of employing the factor in the chosen production.
[13] For a summary of the debate between Shleifer / Summers (1988) and Williamson (1988b) see Martin and Kensinger (1990, Appendix B).
[14] This argument is made with reference to the situation in the United States where labour mobility - under the conditions of a large market with relatively uniform institutional structures - has been traditionally higher than in European countries. One might argue that in Europe other factors (e.g. the development of the single market, and the emergence of English as an increasingly common business language) should have increased rather than decreased labour mobility. Also, high unemployment should have forced employees and job seekers to search for job opportunities on a wider geographical scale, making them more willing to move. In sum, it seems unlikely that Donaldson's argument of a decrease in labour mobility as an explanatory factor for corporate restructuring holds true for the UK and Germany. On the other hand, one could argue that the lack of mobility of German employees, as compared to the situation in the Anglo-Saxon countries, indicates that German employees have not given into corporate restructuring to the same extent as their British counterparts.
[15] The Volkswagen manager Ignacio Lopez has drastically altered the supplier relationships of his company.
[16] It may be pointed out that, at least on the level of company law, the national corporate governance systems in European countries have not been greatly affected as yet by the 'Europeanisation' of economic policy and the event of the Single Market (Lannoo 1998b, pp. 199-203).
[17] With respect to the US, this argument has been put forward forcefully by Rappaport 1986, pp. 7-10.
[18] Jenkinson and Ljungqvist (1996) argue that the acquisition of 'hostile stakes' in Germany substitutes for the Anglo-Saxon market for corporate control (see also Franks and Mayer 1997b, p. 5). They describe two cases from the construction industry in which a bidder had secretly bought into the shares of a target company. In both cases techniques were used which look 'Anglo-Saxon' in kind (white knights, defensive acquisitions, etc.), and the behaviour of the banks was essential for the outcome of the takeover attempts. While they claim that the two cases do not represent isolated instances, it is unclear how widespread the acquisition of hostile stakes in Germany is. Also, it is doubtful as to whether the acquisition of hostile stakes presents the same threat to incumbent management as an outright takeover attempt. Evidence on the post-acquisition strategy of hostile stakes acquirers is lacking as well. The least that can be said is that the acquisition of hostile stakes is a long process, which can hardly be used to exert immediate pressure on management to restructure.
[19] See Hirschman (1970, especially Chs. 1-3) on the distinction between 'exit' and 'voice' mechanisms.

[20] In contrast to the US, where the Employee Retirement Income Security Act requires pension funds to exercise their voting rights (Lannoo 1998a, pp. 18ff.), in the UK "compulsory voting by pension funds was excluded from the 1995 Pensions Act" (Gaved 1998, p. 40). However, various organisations (e.g. the Association of British Insurers and the National Association of Pension Funds) have exhorted their members to engage more actively in corporate governance. Gaved (1998, pp. 36-38) and the OECD (1998b, pp. 137-139) report that they do so primarily through informal mechanisms.

[21] It may be pointed out that a variety of forces are pushing the German system into a more stock market-based direction. First, in order to secure access to capital market funds in future, since 1993 some German companies (Daimler, Veba, Hoechst, SGL Carbon) have sought listing at the New York Stock Exchange, which puts them under greater observation of international investors. Second, some companies (e.g. Hoechst, Veba [see Hartmann 1996 and 1997a-d]) have started to publicise a move towards greater shareholder value orientation (Loehr 1996, pp. 15-17), in some cases (e.g. Daimler) using the less exclusive German term *wertorientierte Unternehmensführung*. Third, in line with the EU's Second Company Law Directive, share buy-backs (which so far were not permitted under German law) of up to 10% of capital will be allowed from 1999 onwards (Vitols and Woolcock 1997, p. 12). Several companies (e.g. BASF, Metallgesellschaft) have announced that they will make use of this opportunity.

[22] Representation committees (*Sprecherausschüsse*) for employees with supervisory and managerial tasks (*leitende Angestellte*) are omitted from the following discussion, as the legal remit of representation committees pertains primarily to cases of individual justice (see para 31-32 of the Representation Committee Act [*Sprecherausschußgesetz*]).

[23] It may also be pointed out that, according to article 222 of the EU treaty (European Union 1995, p. 384), the national governments (not the EU) have the exclusive domain over issues of public ownership.

[24] Data on privatisation activities in the UK are contained in Curwen and Hartley [4]1997, pp. 484f.; on Germany see Owen Smith 1994, p. 473, Tofaute 1994, pp. 100-102, and Bundesministerium der Finanzen 1996, pp. 46-55.

[25] Morgan (1996, p. 89) compares the UK economy during the 1980s and the 1990s, finding that "employment has become more variable and more highly correlated with changes in output".

[26] Blair and Schary use the *GNP* deflator for inflation adjustment, but comparable and time-consistent data on this measure of inflation were not available for the UK and Germany. Using the *GDP* deflator does not make any material difference.

[27] For data taking into account all industries see Curwen ([4]1997, p. 76), confirming the above analysis.

7. Review and Conclusion

In this chapter, the research questions set out in section 1.1 are revisited, facilitating an evaluation of the research undertaken in the context of this study. Section 7.2 focuses on wider research issues that go beyond the initial aims of the investigation, outlining directions of future research. Section 7.3 concludes the study. A summary of the results is not presented at this point as all of the chapters contain synopses of the main findings.

7.1 The Research Questions Revisited

This study has pursued three interrelated aims; these are discussed in turn:

(1) The first aim was '*to set out a framework which makes it possible to analyse the structure of firms as a coherent whole and to identify the crucial dimensions of firm structure*'. This aim was deemed important as most definitions of corporate restructuring (section 1.2) are haphazard in that they focus on particular restructuring techniques, aspects or events, rather than to be based on a more complete understanding of corporate structure. In chapter 2, the various dimensions of the structure of firms are developed from two perspectives. First, in the historical perspective, increases in particular dimensions of the boundaries of firms (e.g. diversification), as well as the emergence of complex administrative hierarchies, are analysed as a result of the pursuit of corporate growth strategies, facilitated by the development of mass production technologies, the establishment of large distribution networks, and so on. In the transaction cost economic framework, it is argued that various modes of organising economic activities have differential efficiency properties, and that in reasonably stringent selection environments more efficient organisation forms will outperform less efficient ones. Therefore, firms have to make strategic choices as to *whether* and *how* to integrate *which* activities (i.e. their boundaries) and how to administer their operations (i.e. their internal organisation). Both perspectives, which complement each other, help identify the key variables that have to be taken into account when analysing the structure of firms.

This satisfies the objective set out above. Nevertheless, further work is required on the theory of the firm, and in particular on issues of internal organisation. While key variables of internal structure have been identified, the relationships between these variables need to be explored more fully. Also, the analysis has been confined to macro-organisational variables, whereas important micro-organisational aspects have been left aside. Further work that would apply the efficiency perspective of transaction cost economics to the micro-structure of firms is needed to complement this study.

(2) The second aim was '*to analyse and compare corporate restructuring trends and developments in non-financial companies in the UK and West Germany between the mid-1980s and the mid-1990s*, using the concepts developed before'. This objective was addressed in chapters 3 to 5, where distinct methodologies were used to analyse primary and secondary information compiled by the author. It should be pointed out that the various pieces of evidence, as summarised in sections 3.5, 4.4, and 5.6, are not only consistent with each other, but, when considered together, provide a sense of the *overall direction* of the development of large non-financial companies in the two countries. For example, the general tendency has been towards less diversified and less complex administrative structures. At the same time, many companies have been trying to expand and integrate their chosen core activities, often on an international scale.

A limitation of the study derives from the fact that the *operationalisation* of some of the variables concerning the structure of firms is still underdeveloped. This has become apparent for example in chapter 4, which contains a quantitative analysis of changes in diversification in British and German companies. It was emphasised in section 4.2 that various diversification measures relate to different aspects of diversification, without however capturing the phenomenon under consideration in its entirety. These difficulties are even greater in the case of aspects of firm structure that reflect different industry backgrounds (e.g. vertical integration), and in the case of the internal organisation of firms. The within-sector comparison of two cases in chapter 5 illustrates the changes with respect to the boundaries and the internal organisation of the two companies in some detail, yet specific comparisons with firms in other industries would be more difficult. The issue of the appropriate operationalisation of the theoretical concepts developed in chapter 2 requires further investigation.

On an empirical level, the work begun in this thesis could be continued in many directions. To name but a few, information on restructuring in other European economies would be highly desirable, as would be an extension of the time frame and an inclusion of a larger number of companies in both quantitative and qualitative follow-up studies. Also, given the decline in the proportion of GDP generated by the manufacturing industry, a particular focus on the service sector, including financial service companies, would be a precondition for a more general assessment of the institutional structure of production in the Western economies. It is clear, however, that these suggestions are beyond the scope of this study.

(3) The third research objective was '*to provide a partial interpretation of the cross-national differences in corporate restructuring*'. Chapter 6 responded to this aim. Two limitations of the approach taken therein should be pointed out:

First, on a theoretical level, the approach taken in chapter 6 - which focuses on the country-specific economic and institutional environment - should be supplemented by models that conceive corporate restructuring in the context of firm- and industry-level factors. Industrial organisation theory has made great advances in explaining, for example, vertical integration or diversification strategies in the context of market structure. These theories should be surveyed and viewed in conjunction with the argument put forward in chapter 6, according to which changes in corporate structure reflect country-specific institutional and economic settings. A deeper understanding of corporate restructuring would be facilitated if approaches from different disciplinary traditions were taken to complement each other.

Second, the approach developed so far provides a *post-hoc* interpretation of some observed phenomena (which is, however, more than an *ad-hoc* explanation as it is firmly based on the theoretical framework of institutional economics). This could be developed further into a fully-fledged theory from which *predictions* about changes in corporate structure under different institutional and economic conditions could be derived. Empirical tests of such a theory are conceivable primarily on the firm level, whereas tests on the country level would prove more difficult. Responding to the above research objective, in chapter 6 an *interpretation* of the cross-national differences in corporate restructuring observed before was supplied, but deriving specific predictions about the structural adjustment of firms under changing environmental conditions, and testing such predictions, awaits further research.

Despite the limitations outlined above, the study has satisfied the research objectives set out in chapter 1. On an empirical level, it has described and analysed novel information on recent corporate restructuring trends in large non-financial companies in the UK and West Germany. On a theoretical level, it has made contributions to the understanding of firm structure, and to the institutional and economic background in which corporate restructuring has taken place in the two countries.

7.2 Directions of Future Research

In this section, issues beyond the initial scope of the study are considered, and directions of future research outlined.

7.2.1 Identifying the Importance of Firm-, Industry- and Country-Level Factors

In this thesis, firm-, industry-, and country-level determinants of corporate restructuring have been distinguished, with the emphasis on the third set of factors. The three empirical chapters, in particular chs. 4 (e.g. section 4.3.2.3) and 5, suggest that both firm- and country-level factors have a significant influence on the extent and the timing of corporate restructuring. While the importance of industry-level pressures is less clear, the findings suggest that these factors on their own (above all, increased competition in an industry) cannot be interpreted as 'predictors' of changes in the structure of firms. As the multiplicity of strategic routes taken in the chemical industry even within the same country suggests[1], firms have ample scope to address the challenges posed by competitors, and thereby to *shape* (rather than to submit to) the strength of competition. In addition, the argument put forward in the thesis has been that corporate structures (and managerial restructuring decisions) do not emerge in a vacuum, but reflect underlying country-specific institutional and economic conditions.

To illuminate these issues further, the importance of firm-, industry-, and country-level factors in determining the structure of firms should be subjected to careful

testing. A substantive investigation into this issue is particularly important on the background of the ongoing debate in the economic and managerial literature about whether industry-level or firm-level factors (i.e. strategy and structure) determine corporate performance. The paradigmatic assumption out of which most of industrial organisation theory has worked has been that industry-level factors are of paramount importance, and Schmalensee (1985) finds empirical support for this assumption.[2] As a managerial correlate, Porter (1985, Ch. 1) conceives strategy primarily as a process by which firms choose industries with attractive profitability characteristics or, within a given industry, aim at 'positioning' themselves to avoid the pressure of competition.[3] Aiming at greater operating efficiency is despised on the grounds that such a 'strategy' would be open to imitation (Porter 1996 pp. 61ff.). Against this view, Rumelt (1991) finds that firm performance is primarily accounted for by firm-level (i.e. mostly business unit) factors, with industry effects being of little importance. Strong results are also obtained by Hansen and Wernerfelt (1989, pp. 404ff.) who find that organisational variables account for 35.6% of inter-firm variance in profitability, as compared to a set of economic factors including industry attractiveness, with a combined explanatory power of only 14.1%. Following from these and other findings, Baden-Fuller and Stopford (1992, Ch. 2) argue that a firm's strategy is paramount in determining its performance, even in adverse competitive environments.

A careful testing of firm-, industry- and country-level effects in the context of corporate restructuring would help illuminate this debate in the following way:

(a) It would help to widen the agenda which, until now, has been focused on any immediate performance effects, leaving aside the issue of *how* any industry (or other) factors would influence corporate performance. By introducing corporate structure, and structural changes, as managerial choice variables, such testing could clarify how firms can address environmental pressures in a strategic way.

(b) If firm characteristics turn out to be important determinants of restructuring decisions, this would suggest that firms, in making their strategies, cannot simply react to the expectation of superior profit potentials in an industry, but that they should ask what *they can bring* to the industry. 'Strategy', then, is built upon a thorough analysis of a company's capabilities (and may *include* a choice of an

industry), but the sum of industry choices cannot seriously be regarded as a company's strategy.

(c) If country-specifics are confirmed to be of importance in cross-national investigations such as the current one, this would demonstrate that companies do not make strategic and organisational decisions in a vacuum, but that they are tied back to their institutional and economic environment. It would also provide some assurance to policy makers in that it would indicate that, despite some signs of 'convergence' of corporate strategies and structures across countries (see section 7.2.5 below), country-level policies still matter.

The empirical material presented in this thesis would lend itself to two types of tests for the importance of firm-, industry-, and country-level factors in corporate restructuring:

(a) The data sets used in ch. 4 can be used for *econometric tests* on the determinants of changes in diversification. Following Rumelt's (1991) methodological approach, such tests should aim at apportioning the variance of changes in diversification across firms to firm-, industry- and country-level factors. This can be achieved by using ANOVA (analysis of variance) and ANOCOVA (analysis of covariance) techniques. ANOVA is an analytical model, which decomposes the variance in a dependent variable into the variance in a number of independent variables, the variance in any interaction terms (e.g. industry-country interactions, of potentially significant value for the purpose of the current investigation), and the residual variance. In contrast to regression analysis, ANOVA is not a predictive technique in that it does not aim at establishing 'causal' relationships, but it has significant analytical power through its ability to attribute the variance in any phenomenon under investigation to the variances in other factors.

(b) Further within-industry case studies involving two or more firms from Germany and the UK should be conducted. This would help establish whether the observation made in ch. 5, that firms within comparable environments address the same competitive challenges in different ways (or at least at different points in time), can be confirmed for a larger number of cases. Comparative case studies of this kind would also help identify country-specific institutional and economic factors that were the subject of ch. 6 in an even more precise manner. 'Holding *ex ante* industry factors constant' would focus the attention of the observer on the way in which firms re-

shape their industries through their competitive policies, while at the same time responding to the economic and institutional environment in which they are located.

7.2.2 Defining Institutional Forces that Facilitate or Oppose Change

The purpose of the final section of this thesis has been to identify institutional and economic factors that help explain differences in the extent and, in particular, the timing of corporate restructuring in the UK and West Germany. The evidence of the empirical chapters had been that corporate restructuring has started earlier and has been taken further in the former country than in the latter. Many of the institutional and economic settings described for the British context are found to have favoured early changes in the structure of companies: The active market for corporate control, the substantially increased degree of discretion of management with respect to industrial relations and human resources management, the retreat of the State from public ownership of industry, to mention but a few factors. In contrast, the German institutional environment was found (a) to have been relatively stable over the period of consideration, and (b) to have opposed and delayed corporate restructuring decisions. This finding, however, is a descriptive account of the state of affairs, and should not prematurely be turned into a normative verdict about German institutional and industrial structures. Some of the data presented in Ch. 6 also imply that the German system provides for a degree of stability that can

(a) facilitate the speedy *implementation* of restructuring decisions, once they are taken, because of the relatively great consensus orientation of the various participants. This would, for example, concern the support of works councils for the implementation of policies that they have agreed to. One could also develop the argument that the German system of vocational training which emphasises multi-skilling and flexibility enhances the possibility of re-deploying workers across different productions in the case of changes in corporate strategies and structures;

(b) reduce, in some cases, the accumulation of weaknesses in the structure of firms which would then require a complete turnaround, at which many corporate restructurings are aimed. For example, low and stable interest rates in Germany (tables 6.6-6.7) have allowed German companies to undertake long-term

investments into R&D and capital equipment, which may help them withstand competitive crises better than their UK counterparts.

It is not the point of the present discussion to draw an overall conclusion about the comparative advantages and disadvantages of the German versus the British institutional and economic system in general. From the above it is clear, however, that opposing forces exist that, on the one hand, facilitate, and on the other, hinder or delay changes, and that a more elaborate analysis of these forces would be desirable.

In order to identify and test these conflicting forces more concisely, two research strategies can be taken:

→ First, a series of comparative case studies *within* countries and, preferably, *within* industries (e.g. Hoechst – Bayer – BASF; Glaxo Wellcome – Zeneca; etc.) could be conducted. The industry background, as well as the country-specific institutional and economic background, would thereby held constant. An analysis of the different strategies taken by companies under the same background conditions would make it possible to draw conclusions about the type of changes favoured or delayed by a particular institutional environment.

→ Second, it is possible to conduct econometric studies on the impact of institutional factors on economic outcomes. For example, Freeman and Pelletier (1990) run time-series regressions that estimate the effect of changes in industrial relations legislation (and of other factors) on union density from 1945 to 1986. Using a similar research strategy, one could investigate the effect of clearly identifiable changes in institutional structures on particular classes of corporate restructuring events or combined indices of corporate restructuring activity. Such studies are problematic in that they require long and consistent time-series data, which are not normally available. Also, they often fail to 'disentangle' conflicting aspects of the same underlying forces (as has been argued above with respect to the German institutional system). However, they are useful in that they show that changes in institutional settings make a quantifiable differences for economic actors such as firms.

Overall, more detailed studies about the properties and the effects of the British and German institutional system would be highly desirable.

7.2.3 The Issue of Performance Measurement

The focus of the thesis has not been on the performance *effects* of corporate restructuring. However, corporate performance was mentioned briefly in the context of the discussion of superior investment opportunities abroad as potential drivers of corporate restructuring in West Germany and the UK respectively (section 6.3.4; pp. 294ff.). The argument put forward there is that the arrival of investment opportunities with attractive risk-return properties in Southeast Asia, Central Europe and elsewhere during the 1980s and 1990s has made it harder for British and German companies to attract capital, thereby forcing them to re-evaluate their activities so as to optimise their use of funds, minimise costs and reduce slack. Therefore, corporate performance is hypothesised to have an impact on managerial choices regarding corporate strategy and structure, as performance outcomes provide an incentive structure for the various classes of patrons to the firm, as described in sections 6.2.1-6.2.2. In order to support this argument, data by Glyn (1996) on comparative profitability (defined as gross profit shares in gross value added) in manufacturing was presented in table 6.8.

In future research, a variety of carefully selected measures should be used in a complementary way in order to test the hypothesised effect of performance on the choice of corporate strategies and structures. A single measure of corporate performance (e.g. a 'bottom line' measure such as the one used in table 6.8) is bound to be inadequate, as different performance measures fulfil different purposes and reflect the interests of different classes of patrons. Coates et al. (1996, pp. 34-38) provide evidence that companies in the UK report on markedly different performance criteria than German companies, with the former making "much greater use of the EPS measure and stock market indices" (ibid., p. 34), while German companies are more likely to use accounting-based performance ratios. This reflects the difference with respect to the importance of the stock market for the financing of corporate activity in the two countries, as indicated in section 6.3.1.

For the purposes of academic research, simultaneous use of the following three types of performance measures should be made:

(a) Financial measures of performance based on accounting data, market valuation data, or a combination of these two:

Accounting rates of return (ARRs) relate accounting profits, i.e. the difference between revenues and expenses (calculated before or after tax), to the net book value of assets.[4] The calculation of ARRs is based on the data published in companies' statutory reports. Therefore, both the nominators and the denominators of ARRs are open to biases from a variety of sources, of which cross-national differences in accounting practices (e.g. with respect to the treatment of reserves, depreciation rules, etc.) is a serious one in the context of comparisons across countries (but see also Brealey and Myers [5]1996, pp. 305-313 for a discussion of the general deficiencies of ARRs, even within countries).

An alternative to the use of ARRs is to use measures based on the market value of the firm. In this vein, some economists (Lindenberg and Ross 1981, Wernerfelt and Montgomery 1988) have argued in favour of using Tobin's *q*, which is defined as the ratio of the market value to the replacement costs of a firm's assets. A principal advantage of this measure is that it takes into account the riskiness of a firm's investments which – under standard assumptions about capital market conditions – is included in the market valuation. Nevertheless, the denominator of Tobin's *q* is affected by cross-national differences in depreciation practices. It should also be taken into account that a lower proportion of the 100 largest companies in Germany is quoted on the stock market than is the case in the UK, so that market valuations are not always obtainable.

(b) Sales- and marketing-based measures: *Market share* and *sales volume growth* can be used as an alternative to accounting-based measures of performance. The principal advantage of these measures is that sales data are hardly influenced by differences in accounting practices across countries. The measures also provide a good sense of a company's development over time (e.g. from a small to a big 'player' in an industry, or vice versa). On the other hand, sales-based measures on their own are not sufficient indicators of performance as they neglect the costs at which the sales were achieved (e.g. even companies with large sales and market shares can incur losses).

(c) Productivity measures: These relate the input of one or several production factors to the output of the goods produced or services provided. Thereby, productivity measures relate to the efficiency or speed with which input factors are converted into outputs. They are often used for comparisons between plants or firms within the same production (e.g. Broadberry 1997). Their use for comparisons across

sectors, however, is limited as this would necessitate a translation of the input and output measures into monetary values, resulting in valuation problems.

In an ideal research setting, several performance measures should be used in a complementary way in order to yield an accurate picture of the competitive position of firms.

7.2.4 The Impact of Global Competition and Its Interaction with Country-Specific Factors

In particular chapter 6 in this thesis has focused on the way in which institutional and economic factors specific to the UK and West Germany have shaped corporate restructuring in the two countries. However, these two economies themselves have been exposed to competitive shifts through the impact of globalisation. Under this broad term, a number of significant developments are comprised which include

- the massive growth in Foreign Direct Investment (FDI) in particular since the middle of the 1980s, with FDI flows growing "three times faster than trade flows" (Wade 1996, p. 63);
- the further spread of multinational corporations (MNCs) and of international corporate arrangements (e.g. joint ventures, sourcing agreements, etc.);
- the continued growth in international trade;
- the globalisation of finance, including an immense increase in international lending and in equities and derivatives trading;
- the increasing international spread of technologies (as indicated by international patenting activities, etc.);
- a more limited increase in international labour market mobility.

These developments give rise to two questions:

(a) First, to what extent can the results presented in the empirical chapters of the thesis be interpreted as a result of the underlying global phenomena sketched above?

(b) Second, how can the interaction between the pressures of globalisation and the country-specific factors outlined in ch. 6 be conceptualised? Have the institutional environments of the two countries concerned enabled companies to respond

effectively to the pressure of global competition, or are they rather designed to shelter them, thereby delaying any necessary adjustments?

In order to test the effect of global competition in a comprehensive manner, it would be useful to distinguish two groups of companies:

→ Firms in those industries in which competition has become particularly 'global', in that a major proportion of their competitors operate primarily outside of West Germany and the UK respectively. This would be the case, for example, for the automobile and the chemical industries, i.e. industries producing tradable goods in which the number of competitors from other countries and regions has increased dramatically since the beginning of the 1980s.

→ Firms that still compete within boundaries that, broadly speaking, coincide with the territories of their home country (e.g. utilities).

A systematic comparison of corporate restructuring trends between the two groups, using for example the findings of the questionnaire survey, should then reveal whether the companies in the two groups have responded differently to the distinct competitive pressures (and opportunities) which they have been exposed to. A further breakdown by home country would also reveal whether companies in the UK and West Germany have responded differently to the pressure of globalisation. On that basis, conclusions could be drawn about both, the impact of global competition on corporate strategy and structure, and its 'interaction' with institutional and economic factors specific to particular countries.

7.2.5 Refining the Convergence Debate

While the interpretative approach in Ch. 6 of this thesis has focused on the cross-national differences in the timing and the extent of corporate restructuring, it should be emphasised that the basic empirical finding has been one of *similarity*, rather than *difference* between the UK and West Germany. In both countries, a corporate restructuring wave has taken place since the middle of the 1980s (although this has started earlier in the UK than in West Germany). Moreover, the direction of the restructuring wave in the two countries has been similar in many respects. Companies have generally decreased the number of managerial layers in their operating

businesses, they have engaged increasingly in 'hybrid modes of organisation' such as joint ventures and strategic alliances, and they have made substantial use of outsourcing and contracting out, to mention but a few indicators of this restructuring activity.

This finding of a basic similarity between the directions of British and German companies should give rise to the question whether a wider 'convergence' among the structure of large enterprises is underway in the industrialised countries. Is it still meaningful to distinguish between 'British and 'German' companies, thereby identifying them on the basis of country in which they are registered? Or are the large multinational companies becoming increasingly stateless and footloose, with their strategies and structures conforming to the pressures of global competition rather than to the institutional idiosyncrasies of their home countries?

These issues have ramifications beyond the corporate sector. If corporate structures and policies were found to converge across countries, then the ability of states to shape corporate activity (e.g. through taxation, regulations, industrial relations provisions, etc.) beyond common minimum standards would diminish. In the extreme case, the convergence of business structures across countries, driven by the need to respond to the pressure of global competition, would force the convergence of hitherto 'national' policies and institutional structures themselves.

This neo-liberal claim that the forces of global capitalism would lead to a convergence of institutions across countries and ultimately to the erosion of nation states is by no means new. Norman Angell made the argument of the increasing interdependence of countries, which reduced the power of states to impose rules unilaterally, already in *The Great Illusion* (1933 [[1]1908], Ch. 4). Other proponents of the convergence hypothesis include Charles Kindleberger (1969) and Harry Johnson (1975).

On the other hand, many recent authors including Boyer (1996), Wade (1996) and Dore (1996b) caution that "reports of the death of the national economy are greatly exaggerated" (Wade 1996, p. 60). First, they doubt that the increasing internationalisation of the world economy through trade, foreign direct investment, greater interconnectedness of capital markets and so on would result in a convergence of corporate structures across countries. Second, even if they did, these authors argue that national institutional settings would not necessarily be driven to common

minimum levels, as institutions were not created by efficiency considerations, but on political grounds (a point also made by North 1990, chs. 9 and 11).
Further detail on the convergence debate cannot be given at this point. Moreover, the arguments raised in this debate are difficult to test, as this would require long-term historical data on a host of issues, which are hard to obtain. Nevertheless, it is clear that the results of the thesis are relevant to the debate in that they provide directly comparable information about the development of corporate structures in two important industrialised countries. Further enquiries into the impact of globalisation on the sustainability of national institutional systems are therefore highly desirable.

7.3 Conclusion

The study may conclude on a wider note. The underlying motivation of the author in investigating corporate restructuring among large non-financial companies in the UK and West Germany has been to gain a clearer view of the *recent development of economic organisation in general.* While the observations presented in this study may be interpreted in a variety of ways, they seem to lend support to two broad hypotheses:

First, the general tendency of firms at least in the UK has been to substitute greater specialisation and internationalisation of operations for their earlier diversification and vertical integration. Underlying this development have been a variety of pressures, most importantly increased competition from the product and capital markets. These pressures have forced companies to specialise in those businesses where their specific capabilities add most value, so that they can withstand competition in these fields. At the same time, investments in such capabilities favour an increased internationalisation of operations if they are applicable across markets, here understood in a geographical sense. On the other hand, companies withdraw from those businesses, or from those activities in the vertical chain of production, in which other firms can add more value.
Obviously, these simplifying generalisations do not fit every single case. Also, it is by no means clear the de-diversification and vertical disintegration are the only possible responses to increased competition. Examples such as the German conglomerate Mannesmann which only recently diversified successfully from its earlier base in steel

tubes and engineering into telecommunications suggest that alternative strategies can be viable when managed carefully. Nevertheless, the development described above seem to have helped several large manufacturing companies in the UK during the 1990s to regain some of their strengths that had been lost during the post-war period, albeit at the price of becoming specialist players in niche markets.

Second, the growth of 'managerial capitalism' which after WW II seemed to have supplanted the model of 'personal capitalism' by which Chandler (1990, part III), rightly or not, had characterised the British economy since the industrial revolution, seems to have come to a halt. As argued above, since the mid-1980s companies in the UK appear to have adopted strategies that diverge markedly from their earlier objectives of diversification and the growth of corporate hierarchies. While Jensen's (1996 [[1]1989]) prediction of the 'eclipse of the public corporation' was too narrowly confined to a particular legal type of company, the underlying notion that managerial control over corporate cash flows has been curbed by an active capital market has proved well-founded. In addition, increased international competition in more open product markets has added to the pressure on companies to organise their operations efficiently, and to reduce those parts of their administrative structures that add least value. The eventual shape of 'global institutional capitalism', and the problems inherent in it, are far from clear. However, the point to be emphasised here is that *the corporate restructuring that has been evidenced in the UK since the mid-1980s has been indicative of underlying shifts with respect to the interests that dominate the operation of companies.*

Clearly, these hypotheses go beyond the scope of the study, but they provide the wider context in which corporate restructuring has been studied here. In view of the marked changes in the structure of large non-financial companies in the UK and West Germany since the mid-1980s, a deeper understanding of both the *causes* and the *consequences of corporate restructuring* is urgently needed.

[1] I allude here to the German chemical sector, with Hoechst following in many respects the 'Anglo-Saxon' example of the likes of ICI and Monsanto, while most notably BASF, but also Bayer, have

adhered to their traditional strategies of portfolio diversification and vertical integration, with no less success than Hoechst.

[2] Wernerfelt and Montgomery (1988) also find that industry effects are of major importance in determining firm performance, but they still detect a minor firm-level (namely a 'focus') effect, whereas Schmalensee's (1985, p. 349) results do not concede any firm-level effects.

[3] See Rumelt et al. 1994, p. 23.

[4] This is the definition of the 'Return on Investment' (ROI) measure; other ARRs which suffer from some or all of the deficiencies as ROI include the 'Return on Assets' (ROA) and the 'Return on Capital Employed' (ROCE) measures.

8.1 Appendix: The Questionnaire

FINANCIAL TIMES

THE FT SURVEY INTO THE STRUCTURE OF LARGE BRITISH AND GERMAN COMPANIES

conducted in collaboration with the

Centre for Economic Performance
and the
Interdisciplinary Institute of Management
at the
London School of Economics

Could you please fill in your name and telephone/fax number. Any information provided will be treated with utmost confidentiality.

Name: _____

Tel.: _____

Fax: _____

Company: _____

_____

_____

Please send your reply to: Sir Geoffrey Owen, Centre for Economic Performance, London School of Economics, Houghton Street, GB-London WC2A 2AE

CHANGES IN THE CORPORATE STRUCTURE

In this section we would like to ask you some questions regarding the structure of the company. The first six questions in this section relate to the businesses your company is engaged in, and to the relationship with other companies.

DIVERSIFICATION

1.) It is widely held that during the 1980s companies have become less diversified and have concentrated on 'core activities' which they know best. Do you feel that this is the case regarding your company? – Please tick one box in the right-hand column of the following table:

Yes, we have reduced diversity substantially	
We have reduced diversity somewhat	
Diversity has stayed about the same	
We have increased diversity somewhat	
We have increased diversity substantially	

OUTSOURCING

2.a) Has your company since 1986 pursued a strategy of outsourcing and contracting out, i.e. substituting supply relationships with external suppliers for the production of goods and services that had been carried out 'in house' previously? Please tick one box.

Yes, to a significant extent ☐ Rarely ☐

Yes, somewhat ☐ Not at all ☐

2.b) If you have pursued outsourcing since 1986, has this policy included IT services?

Yes, it has included IT services ☐ No, it did not include IT services ☐

MBO's

3.) Has your company since 1986 had management buyouts of any parts of its operation?

Yes ☐ No ☐ If yes, how many? ☐

ACQUISITIONS

4.) Has the size of the organisation over the last 10 years been significantly altered by large-scale mergers or demergers, acquisitions or divestments? – Tick as many boxes as you feel appropriate

	Size has been increasing due to		Size has been decreasing due to	
Mergers	☐		Demergers	☐
Acquisitions	☐		Divestments	☐

M&A STRATEGY

5.a) If you have engaged in large-scale mergers and acquisitions, has your strategy been to merge with/acquire companies which until then

(1) were your suppliers or customers ("vertical" mergers/acquisitions)	
(2) were competing in the same line of business ("horizontal" mergers/acquisitions)	
(3) were pursuing a business unrelated to what you were doing (unrelated mergers/acquisitions)	

(Please tick one or more boxes as appropriate)

5.b) Has your M&A activity been mainly geared towards

(1) domestic mergers/acquisitions	
(2) overseas mergers/acquisitions	
(3) roughly equal weight between domestic and non-domestic mergers/acquisitions	

(Please tick one box only)

JOINT VENTURES

6.a) Have you engaged since 1986 in a policy of joint ventures and strategic alliances with other companies? – Please tick one of the boxes

Yes, we strongly pursued joint ventures/strategic alliances ☐

We considered joint ventures/strategies alliances as options, but we did not pursue them strongly ☐

We did not pursue joint ventures/strategic alliances ☐

b) Can you tell us how many joint ventures/strategic alliances you have engaged in?

number ☐ not known ☐

c) Can you also please tell us what percentage of your sales is now represented by joint ventures (an approximation will suffice) ☐ %

MANAGERIAL LAYERS

7.) For the following question, please consider the main operating business of your company (if you have several that you regard as crucial, take the largest one in terms of turnover). We would like to know whether the number of layers of management from the top to the bottom in your main operating business has changed over the last decade. Can you please give the number of managerial layers that you recognised at the following points in time:

1986 ☐ 1991 ☐ 1996 ☐

ADMINISTRATIVE COSTS

8.) This question relates to the share of administrative costs of total labour costs in your company.

How has the **ratio** $\frac{\textit{administrative cost}}{\textit{total labour cost}}$ changed over time (i.e. since 1986)?

Increase ☐ Decrease ☐ No change ☐

CHANGES IN THE STRUCTURE OF THE HEAD OFFICE

We would like to gain a better understanding of the structure of the corporate *head office* of your company, and its development over time.

SPAN OF CONTROL

1.) The following question relates to the span of control of top management. In this context, 'span of control' means the number of heads of operating businesses (whether they are called divisions or groups or something similar) who report directly to the head office.

Could you please give us, for the following three points in time, the number of heads of operating businesses who report directly to the head office?

1986 ☐ 1991 ☐ 1996 ☐

AUTONOMY

2.) We are interested in whether line managers now have greater autonomy from the head office in financial matters than they had in earlier years. Has the discretion of the operating businesses of your company in financial decisions (control of cash, capital expenditure, etc.) increased or decreased since 1986?

financial discretion has increased	☐	financial discretion has not changed substantially	☐	financial discretion has decreased	☐

R & D

3.a) If you devote significant sums to research and development, is this activity conducted mainly at the centre of the company or in the operating businesses?

in the operating businesses	equal balance	at the centre of the company	does not apply
☐	☐	☐	☐

b) Has there been a significant change in the organisation of R&D in your company over the past ten years?

shift towards more decentralisation of R&D	
shift towards more centralisation of R&D	
no change	

HEAD OFFICE

4.a) Please give the total number of employees in the corporate head office of your company at the following three points in time, completing each box if possible:

1986 ☐ 1991 ☐ 1996 ☐

4.b) How many of these are or were in managerial and executive positions?

1986 ☐ 1991 ☐ 1996 ☐

FUNCTIONS

5.) How many of the managers and executives in the head office today (question 4) are active primarily in each of the following functions?

Function	Number (in 1996)	Changes 1986-1996 (please tick one column)		
		Increase	Decrease	No Change
Accounting, Finance and Control including Treasury				
Taxation				
Information Technology				
Strategy development Devising an overall strategy for the company				
Legal				
Marketing Developing market strategies for the company				
Investor relationships Building up and maintaining relationships with investors of capital (shareholders, banks etc.)				
Public relations Representing the company to the wider public				
Human Resources and Industrial Relations				
Other (please specify)				

If you have copies of organisation charts for your company at hand, we would be very grateful if you could send them to us. Diagrams refering to both 1996 and to previous years would be of utmost help to our investigation.

Please feel free to elaborate on any issue of the structure and structural change of your company that is worth mentioning.

We would like to thank you again for your co-operation. If you would like a free copy of the report summarising the results of the survey please tick the box below.

☐

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