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**Determinants of  
Direct Foreign Investment  
in Transition Economies  
in Central and Eastern Europe**

**Klaus Friedrich Ekkehard Meyer**

submitted as PhD Thesis  
to the University of London

London Business School  
September 1996

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# Abstract

This thesis presents an analysis of direct foreign investment (DFI) in the transition economies in Central and Eastern Europe (CEE). It starts with a review of the previously available statistical and qualitative evidence to develop research questions specific to the region. The theoretical literature on DFI in economics and management is reviewed and extended in two directions: analytical frameworks are presented for the internalisation of international business, and for DFI in a process of economic development. On this basis, a questionnaire instrument is developed covering business relationships with five countries in CEE. Using a postal survey, evidence from 269 German and British companies has been collected.

The empirical analysis investigates the investment decision processes of the firms entering the CEE region. Hypotheses derived from general economic theory are tested under the special conditions of economic transition. With respect to entry decisions, the method of empirical analysis is innovative in that multiple decisions are analysed in the same broad data-set of potential investors, and integrated with a three-step decision model. At the first stage, the firms' propensity to be active is examined, and at the second stage their choice between trade, contracts and DFI. The third analysis tests hypotheses for the entry mode and ownership preferences of actual investors. Most of the theoretical hypotheses are confirmed, although there are several notable exceptions.

The study derives implications for both the international business literature and for research and policy in economics of transition. The concluding chapter critically evaluates the transaction cost approach underlying most of this study. The results suggest that more attention should be paid to capabilities of firms to manage an operation, in addition to market failure analysis. The study furthermore provides interesting insights on foreign investment for policy makers within the region.

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# List of Abbreviations

ALB	= Albania
B-Logit	= binary logistic regression model
BG	= Bulgaria
BoP	= Balance of Payments
CEE	= Central and Eastern Europe, including the former Soviet Union
CIS	= Commonwealth of Independent States
CISME	= CIS-Middle Europe Centre (at London Business School)
CMEA	= Council for Mutual Economic Assistance
COC	= Chamber of Commerce
CR	= Czech Republic
Cro	= Croatia
D	= Germany
df	= degrees of freedom
DFI	= Direct Foreign Investment
DM	= Deutsche Mark
EBRD	= European Bank for Reconstruction and Development
EFTA	= European Free Trade Association (as until 1994)
EST	= Estonia
EU	= European Union
Ft.	= Hungarian Forint
GDP	= Gross Domestic Product
GNP	= Gross National Product
H#	= Hypothesis number
HU	= Hungary
I#	= Hypothesis number (interaction effects)
IIA	= Independence of Irrelevant Alternatives
IMF	= International Monetary Fund
JV	= Joint Venture
LAT	= Latvia
LBS	= London Business School
LIT	= Lithuania

LPM	= Linear Probability Model (Regression)
M-Logit	= multinomial logistic regression model
MNE	= Multinational Enterprise
n.a.	= not available / not applicable
NIE	= Newly Industrialised Economies
O-Logit	= ordered logistic regression model
OECD	= Organisation for Economic Cooperation and Development
OENB	= Austrian (Oestereichische) National Bank
OLI	= Ownership - Location - Internalisation
OLS	= Ordinary Least Squares Regression
p.	= page / pages
PL	= Poland
R	= Russia
RO	= Romania
R&D	= Research and Development
SLN	= Slovenia
SME	= Small and Medium Size Enterprise
SU	= Soviet Union
SVK	= Slovakia
TC	= Transaction Costs
TCE	= Transaction Cost Economics
TC(e)	= External Transaction Costs
TC(i)	= Internal Transaction Costs
UK	= United Kingdom of Great Britain and Northern Ireland
UKSIC	= UK Standard Industrial Classification
UN	= United Nations
UNECE	= United Nations Economic Commission for Europe (Geneva)
US	= United State of America
USSIC	= US Standard Industrial Classification
US\$	= United States Dollar
Visegrad Countries	= Czech and Slovak Republic, Hungary and Poland
WOS	= Wholly Owned Subsidiary
YU	= Yugoslavia

Note: for names of Variables see appendix 5.3

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Enrolling in a PhD programme, is like embarking on a long journey. At the start, ambitions are welcomed by the fresh wind of the sea. Yet somewhere along the way, one wonders why we came here. Exploring a new territory can be so rewarding. Yet getting there, getting the right tools at the right place, and understanding this strange country of data can be a very exhausting and lonely experience. Looking back on this journey I see many light and dark days, as optimism and pessimism were sometimes just a few regressions apart.

I remember friends, colleagues and advisors who have helped this expedition to succeed. I would like to thank all of you for your encouragement and advice. Just a few names can be mentioned here in these acknowledgements. First and foremost, this is to my supervisor Saul Estrin who was constantly available for so many questions, and helped focusing this research. From him, I learned to get the essentials out of sometimes rather confusing data sets. His never-ending energy and optimism have been of great encouragement throughout.

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# **Part I**

## **Overview and Research Issues**



# Chapter 1

## Introduction

### 1.1 Motivation

After the fall of the Iron Curtain in 1989, most countries of the former Soviet bloc moved successfully from centrally planned economies and one party governments towards market economies with multiparty parliamentary democracy. This systemic change now appears irreversible as many institutions in both the economic and political spheres have been established that will tend to resist any reversal of this change. However, the progress of transition varies within the region. The Visegrad countries (Czech and Slovak Republics, Hungary and Poland) have generally transformed their political systems, while progress has been slower in South-Eastern Europe. In Russia and other states of the former Soviet Union, the political changes have been more erratic and are still subject to a high degree of political uncertainty. These differences in political reform are reflected in the progress of economic reform and systemic transformation.

In the transition process, Central and Eastern Europe (CEE) opened to Western business in 1989. For fifty years, the region followed a policy of economic autarky. International business occurred mainly in form of barter trade. Direct foreign investment (DFI) was impossible or tightly regulated, except for Yugoslavia. Within a short time, the policy environment changed radically, creating new conditions for international investment. Many

multinational enterprises (MNEs) moved into the CEE region, but apparently at different rates and with different types of local operations and kinds of business activity.

Of the various forms of international business, DFI incites most expectations by policy makers in the region. DFI is a transfer of multiple resources to a host economy and requires a high degree of commitment to operating in the country. From the perspective of politicians and economists in CEE,<sup>1</sup> DFI is often seen as a potential source for knowledge transfer. It could introduce new management and marketing know-how and the latest production technology. Western DFI is hoped to provide urgently needed capital for countries with limited access to international capital markets; to generate cash revenues via privatisation for empty government budgets; and to contribute to the restructuring of industries and upgrading of the ageing capital stock in the region.<sup>2</sup> Entry of Western firms is also expected to foster the change in the economic system, create competition and promote the development of the private sector. It could facilitate exports to Western markets through knowledge of the relevant markets, and access to brand names and distribution networks.

For the business community in Western Europe, the fall of the Iron Curtain brought threats to established business operations, but also potential opportunities for expansion or reorganisation. The region could offer major business opportunities for West-East business because of its untapped 'virgin' markets and low labour costs. Consumers in the region were eager to acquire Western lifestyle and consumer goods that they knew of from years of watching Western television, while being denied access by the rule of the Iron Curtain.

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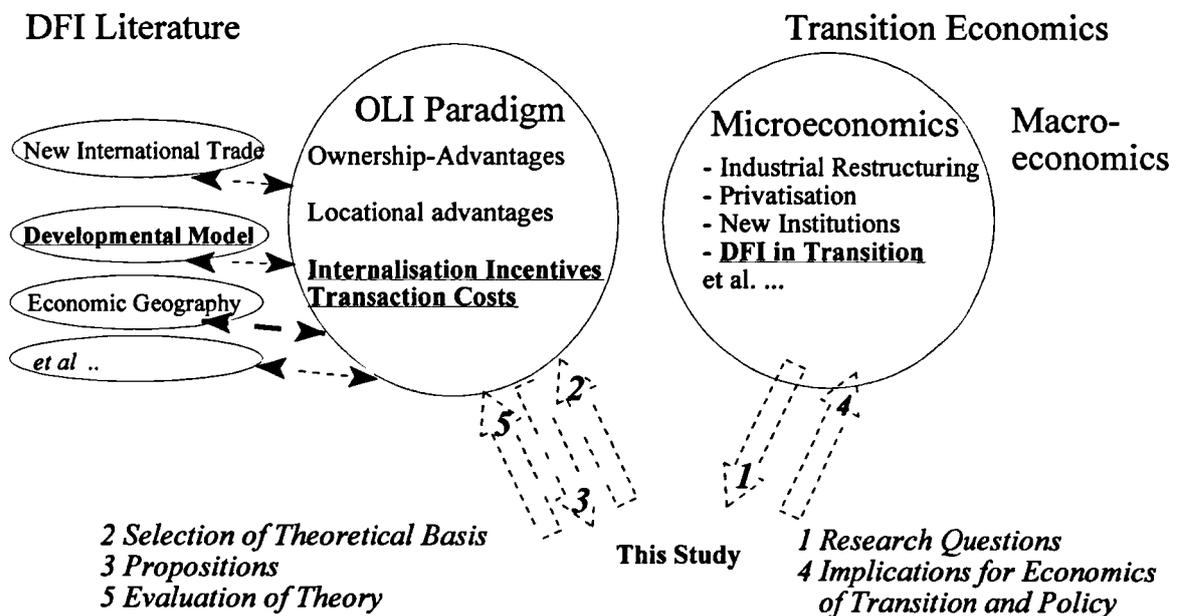
<sup>1</sup> CEE refers to all countries of the former socialist bloc, including Albania, Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia, Croatia, Slovenia and other states in the former Yugoslavia, Estonia, Latvia and Lithuania, Russia, Ukraine, Belarus, Moldova, as well as the Central Asian and Caucasian states of the former Soviet Union. "Visegrad countries" refers to Poland, Hungary, the Czech Republic and Slovakia. Most of the analytical part of the study covers five selected countries; Poland, Hungary, the Czech Republic, Romania and Russia. The general discussion of issues extends to other countries, but focuses on Visegrad countries. The study does not cover DFI in East Germany as its transition process differs substantially from the remainder of the region.

<sup>2</sup> Such expectations were expressed by the joint study of the international financial institutions [IMF *et al.* 1991] as well as a number of research papers, e.g. Dunning [1991], Scott [1992], Csáki [1993], McMillan [1993], Török [1994].

Businesses concerned about their competitiveness in the high-wage countries of Western Europe saw new opportunities to compete with East-Asian manufacturers. The opening of CEE provided unique opportunities for expansion at a time of slow growth of West European economies. On the other hand, Western labour unions became concerned about the relocation of production, and loss of jobs for less skilled blue collar workers.

The outcomes of these diverse expectations are explored, using the evidence in this first major analytical firm-level study on determinants of DFI in CEE. It investigates DFI in the first years of systemic transformation from 1989 to 1994. This was the period of most radical economic and political change in the region, when new political systems were emerging, radical economic stabilisation policies were implemented and the economies took many big steps towards systemic transformation.

Figure 1.1: Analytical Approach



## 1.2 Issues in Economics of Transition

The focus of this research is on the microeconomic determinants of investment during the volatile early years of transition. Its starting points are research questions in the field of

Transition Economics. Special features of the transition economies are explored by applying recent advances in the literature of the Economics of Multinational Enterprises (International Business).<sup>3</sup> The analysis returns implications both for theory in International Business and for research and policy in Transition Economics.

The literature in Transition Economics has advanced with the transition process. It started with the analysis of the initial conditions in CEE and the discussion of the necessary steps of transformation, e.g. in IMF *et al.* [1991], Corbo, Corricelli and Bossak [1991] and Clague and Rausser [1992]. By 1996, the first experiences of the transition have been described and analysed, and summarised in a symposium in the Journal of Economic Perspectives [vol. 10, no. 2] and by the 1996 World Development Report [World Bank 1996]. While early discussion emphasised macro-economic issues of stabilisation and price liberalisation, recent research focused more on microeconomic restructuring and institution building.

The need for microeconomic restructuring was acknowledged early, but only over time was the full scope of the necessary task recognised. The most analysed aspect of microeconomic restructuring was the transfer of ownership from the state to individual private owners [Estrin 1994, Brada 1996]. This is part of a much wider task, as the economic transition requires changes at the level of industries, of firms, of organisational structures within firms and of individual behavioural patterns. By 1996, major progress has been made. Many aspects of a market economy are not yet implemented, but the dynamics of the process of change are moving towards a Western-style economic system [Murrell 1996].

Direct Foreign Investment (DFI) interacts with many aspects of the transition process, and therefore received considerable attention. When this study was conceptualised in 1993/94, little systematic analysis of DFI in transition economies was available. Several papers expressed the expectations of what DFI might contribute to the transition economies. They

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<sup>3</sup> In this study, the terms referring to literature in 'International Business' and the 'Economics of the Multinational Enterprise' are used synonymously. Theoretically these could be distinguished as the latter is taking an economists' view primarily investigating 'how do MNEs behave?' whereas the former takes a business view inquiring 'what makes MNEs successful?'

also discussed the unclear statistical evidence, e.g. for the Soviet Union [Gutman 1992, World Bank 1992] and Hungary [Marton 1993, Csáki 1993]. The first case studies became available, e.g. from Savary [1992] and the first drafts of Estrin et al. [1995]. The motives of DFI in the region have been analysed by survey studies, e.g. Pfohl *et al.* [1992], Gatling [1993] and Genco, Taurelli and Viezzoli [1993]. This work has been advanced in contemporary research reviewed in section 2.4.

This study addresses three issues of concern to transition economists. Firstly, the actual flow of DFI has been disappointing in the first years of transition, but increased remarkably by 1995. Although Hungary already received substantial DFI, South-Eastern Europe and the former Soviet Union received only minimal amounts. The research attempts not only to understand why certain firms choose to invest in the region, but also why many others did not invest. Therefore, the empirical part of the study covers firms with and without direct investment in the region.

The second issue is the interaction of the specific transition environment with the strategies of Western enterprises. This analysis compares activity in CEE (chapter 2) with the patterns posited by the international business literature (chapters 3 and 4). In addition, the variation of MNE activity within the region is explored. The third theme is the comparison of enterprises from two countries that have shown quite different patterns of activity in the region. Firms from neighbouring countries, especially Germany, have been quickest to react to the new opportunities. Conversely, British firms have been surprisingly inactive.

The survey confirms that German firms are more active in the region not only in terms of DFI volume, but also by various criteria on the extent of their business (chapter 5). Patterns of business are generally similar to British firms active in CEE, except that they show more interest in utilising the East-West factor cost differential. A surprising result is that by the number of projects, DFI varies far less among the Visegrad countries than official statistics on DFI capital would suggest. The differences are between Central Europe on the one hand, and Russia and Romania on the other. This may be explained primarily by the slower progress of economic reform and greater distance to the countries of origin. Furthermore, the

data show that most investors have followed market-seeking motives. Labour costs appear, at best, as a complementary motive.

The empirical analysis finds most propositions on determinants of international business confirmed (part III). By and large, business with CEE thus follows the same motivations as business among other countries. However, the study finds common governance variables dominating over intangible assets for activity and internalisation decisions. Management capabilities dominate over the need for complementary inputs as motivation for acquisition.

### **1.3 Issues in Economics of the Multinational Enterprise**

Applying recent development in the literature on DFI and multinational enterprises enables the analysis of research questions of interest to this literature. The theoretical foundation of this study is the Ownership-Location-Internalisation paradigm (OLI) developed by John Dunning [1978, 1993]. Within this broad paradigm, two lines of inquiry are refined and applied: internalisation theory and the developmental model of DFI.

The internalisation literature draws ultimately on the work by Ronald Coase [1937]. Richard Caves [1971], Peter Buckley and Mark Casson [1976] and others have advanced its application to multinational enterprises in the 1970s. Recent work has broadened the concepts of internalisation incentives, considering for instance transfer of tacit knowledge [Kogut and Zander 1993], information economics, and trust [Casson 1995]. In this study, a comprehensive model of transaction cost economics is presented for the international context by means of a synthesis of recent contributions in the field. It focuses on the tradeoff between internal and external transaction costs. Postulated determinants of transaction costs relate to characteristics of the products, asset specificity and information content, as well as environmental characteristics of contract uncertainty and the likelihood of opportunism.

Recent advances in the theory of MNEs have not been matched by comprehensive empirical studies on determinants of DFI activity and entry modes. The empirical work of the thesis tests aspects of the internalisation theory expanding work on investment versus licensing decisions [e.g. Davidson and McFetridge 1985] and on JV versus full ownership [e.g.

Gatignon and Anderson 1988, and Hennart 1991a]. The analysis moreover considers entry mode decisions regarding the choice between greenfield and acquisition entry. This follows lines of inquiry by Kogut and Singh [1988] and Hennart and Park [1993].

The results emphasise the nature of firms' capabilities as determinants of international business, their impact on the internalisation of this business and on entry modes. Most economics literature models the functioning of markets as a determinant of the expansion of multinational business and foreign investment. The theoretical work of this study suggests that characteristics of the firm should be an equally important component of the model. The empirical analysis confirms this view.

Complementing this work, a developmental model is created based on research on DFI in East Asia, e.g. Ozawa [1992], Kojima and Ozawa [1984] and Markusen [1991]. The model also incorporates aspects of the development cycle [Dunning 1986, Narula 1995]. It explains DFI as a function of environmental characteristics in the home and host economy, subject to barriers to relocation. If push factors of structural change in an advanced economy combine with pull factors from attractive locations in less advanced economies, then the model posits that factor-cost oriented DFI would emerge. The model describes a special case within the OLI paradigm.

The empirical evidence for the application of this approach to CEE is however weak. As predicted, the study detects slow growth as an incentive for DFI in CEE. Yet market-orientation dominates over factor-cost seeking investment, which contrasts with patterns frequently reported for DFI within East-Asia.

#### **1.4 Structure and Methods of Analysis**

The structure of this study is as follows: Part I gives an overview of the issues and outlines the research questions. Part II develops the theoretical basis for the empirical analysis in part III. Part IV concludes. The methods of scientific inquiry change for each stage of the analysis.

Since this research is covering a new and under-researched area, the basic facts on the local environment and on recent trends in DFI are summarised first. Chapter two provides a synopsis of the CEE business environment, DFI data and contemporary research. The research method at this stage is best characterised as a review of mixed sources but especially statistical data. Despite the poor quality of available statistical data it is possible to outline the main trends of DFI since 1989 for host and home countries as well as investment characteristics.<sup>4</sup>

The second part of this thesis develops the theoretical foundations for the empirical analysis. The multitude of analytical and empirical approaches by economists on determinants of DFI are reviewed in chapter three, with a special appendix for the developmental model. The transaction costs approach is selected as analytical framework, and extended in chapter four. This presents theory of the middle range to guide the empirical inquiry on the research questions of this study. The application in the empirical investigation provides insights that are hoped to advance the underlying theory.

Part three contains an empirical analysis of the determinants of international business in CEE (figure 1.2). Prior and contemporary research on DFI in CEE concentrated on actual investment projects and neglected firms which decided not to become involved. However, decisions over involvement or non-involvement in a country are part of the decision process. Therefore, a broad base population has been selected for this analysis. The database for this study was developed with a questionnaire survey of a stratified random sample of German and British manufacturing enterprises. It contains information on the nature of the business relationships of 269 participating firms with CEE as well as company specific data. Chapter five outlines the methodology of the survey and provides some summary results.

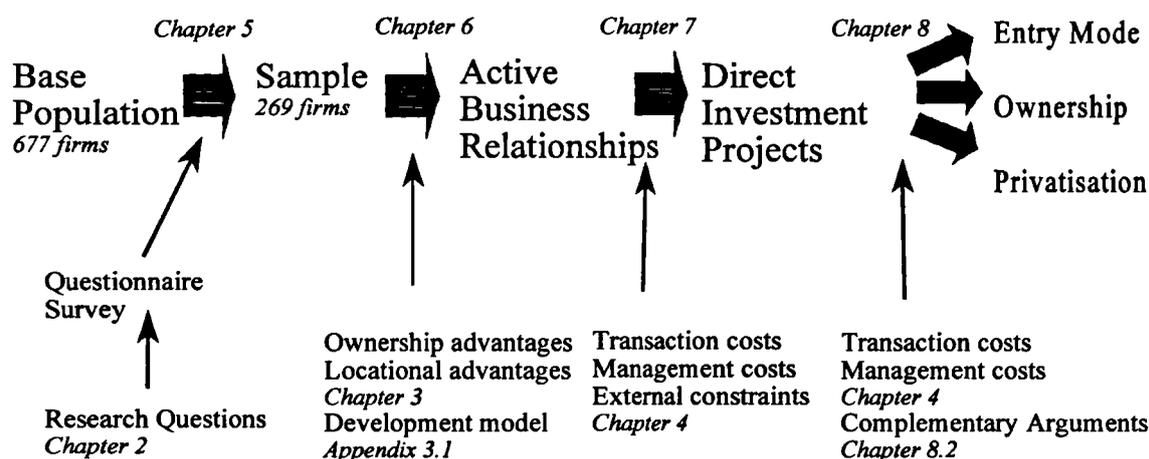
The empirical analysis covers three tests related by one decision tree model. Firstly, a firm would decide whether to engage in business with the region, then whether to invest directly, and finally the details of their investment project Using Dunning's OLI terminology,

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<sup>4</sup> The database is updated from Meyer 1994 and 1995

ownership and locational advantages would be decisive at the first stage, while internalisation incentives apply at the second stage and aspects of the third stage.

Figure 1.2 Structure of the Empirical Analysis



In chapter six, the differences between active and inactive firms are analysed. Hypotheses are tested on the determinants of firms' propensity to be active in one or multiple countries of the region, using Probit and ordered Probit regression analysis. The incidence of business activity, and the count of countries with whom business relationships exist are explored. Firms with ownership advantages that can profitably be combined with the locational advantages in CEE are predicted to be more active. Evidence is found in favour of all four groups of proposed variables: intangible assets, common governance, barriers to growth and proximity. Common governance variables receive the strongest support: large, internationally experienced and undiversified firms are most active. Also, slow growing firms and German companies are more active, particularly in Visegrad countries.

In chapter seven, active firms are further investigated to distinguish investors from firms with trade or contractual relationships. Ordered and multinomial Logit models are regressed and compared as alternatives. Internalisation incentives are expected to increase the propensity

of choosing DFI versus trade and contractual arrangements. Hypotheses are derived from the transaction cost model. The empirical results show that economies of common governance are the prime determinants of a firm's propensity to invest. This effect dominates over variables derived from traditional transaction cost proxies. Furthermore, contracts are found to be a distinct mode of market entry. They are used even by high technology firms presumed to be most sensitive to market failure.

In chapter eight, DFI projects are analysed with respect to the foreign share in equity ownership and mode of entry. Logit models are applied to analyse the preference for full versus joint ownership, and the choice of entry mode between greenfield, acquisition and joint-ventures (JVs), and JV-acquisition. As in chapters six and seven, most hypotheses derived from general theories of DFI receive empirical support. Firms sensitive to market failure prefer full ownership while institutional constraints lead to a higher proportion of JV in Russia and Romania. The nature of core capabilities explains preferences for greenfield entry by technology intensive and non-food consumer good manufacturers. Surprisingly, acquisitions and JVs are not preferred in industries where speed of entry is presumed to be important. The effects of international experience and proximity are shown to be theoretically ambiguous. The empirical evidence suggests that the dominant effect is that inexperienced and distant investors prefer JVs as a mode of learning and risk sharing.

A complementary test finds that by and large the same firms are participating in the privatisation process as are entering by acquisition or JV-acquisition. Two differences in the pattern emerge: German firms with international experience are more likely to acquire privatised firms while technology intensive firms abstain.

The fourth and final part of this thesis is the concluding chapter. This presents an interpretation of the research findings and their limitations. Policy implications and suggestions for further research are discussed for both Transition Economics and the International Business literature.

## **Chapter 2**

# **Direct Foreign Investment in Central and Eastern Europe: The Issues**

### **2.1 The Transition Economies since 1989**

This chapter describes how the transition environment affects foreign firms wishing to engage in business in the region, and how East-West business has developed since 1989. By way of introduction, this first section gives a brief synopsis of the tasks of economic reform and macroeconomic developments. The following section summarises the microeconomic structures of the transition economies that are relevant to potential foreign investors. The third section discusses recent trends in DFI in the region. Some groundwork is laid by assessing the quality of data on the subject, and then the main trends of DFI are discussed by destination and source countries, and by sectoral pattern. Section four summarises research analysing various aspects of DFI in CEE, mostly contemporary to this study. The fifth section concludes by setting the directions for this research project.

In 1990, the CEE region required economic reforms of an unprecedented scale. Since the economies had deteriorated during the last years of the central-planning regime, not only the

introduction of free markets but also economic stabilisation and industrial restructuring became imperative. The discussion on economic reform involved three central issues: stabilisation, liberalisation and privatisation [Corbo, Corricelli and Bossak 1991]. The initial economic conditions varied across the region, especially with respect to macroeconomic stability and the degree of state control over the economy.

Macroeconomic instability has been a major problem in most countries, with the notable exception of Czechoslovakia and Romania. The combination of a large monetary overhang and external debt required a radical stabilisation program at the beginning of transition [Fischer and Gelb 1991]. These were mostly successful, such that by 1994 the Visegrad countries had achieved reasonably low inflation rates, though still above OECD standards (see table 2.1). Business in Russia was, on the other hand, still suffering from high inflation [Fischer, Sahay and Végh 1996].

Price liberalisation was considered a cornerstone of transition because prices determined by the interplay of supply and demand are the essence of a market economy. However, setting prices free led to a jump in the inflation rate. In some countries, this was a one-off adjustment, while elsewhere it undermined the stabilisation policy, especially in the former Soviet Union. Also, a lack of institutional structures inhibited the functioning of the price mechanism, especially in labour, housing and capital markets. Nevertheless, price liberalisation has generally been judged a success and has improved allocation, primarily for consumer goods [Portes 1993].

Despite the success of stabilisation and liberalisation policies, the region experienced an unprecedented drop in industrial output. The debate on the causes of the output drop is still open, and circulates around the issues of overly tight stabilisation policy and credit crunch [Calvo and Corricelli 1993], fall in aggregate demand, elimination of negative value added, measurement errors, abrupt opening to Western competition and lack of microeconomic reform [Murrell 1992, Nuti and Portes 1993]. International trade collapsed after the break up of the mutual trade regime of the socialist countries, the CMEA. This contributed to the output drop because countries were highly interdependent. Some countries, especially the

Visegrad countries, have been very successful in reorienting their trade to the West.

Poland was the first country to return to positive economic growth, followed by most Central European countries, though until 1995 not Russia (table 2.1). The medium term macroeconomic growth perspective is generally seen positively. The Economist Intelligence Unit [1996] predicts economic growth for the region, including Russia, of, on average, 4.6% for the years 1995 to 2000. Growth is expected to be even higher in several Central European countries, albeit few expect this growth to reach East Asian orders of magnitude.

## **2.2 The CEE Business Environment**

Six aspects of the economic environment in the transition countries are of particular interest to international business partners: the process of economic restructuring, large scale privatisation, an evolving institutional framework, the reorientation of international trade, virgin markets, and low labour costs.

### **2.2.1 Microeconomic Transition and Industrial Restructuring**

The centrally planned economies of CEE differed from Western market economies in a number of ways. The central planning system implied not only a different mode of resource allocation, but also many structural differences at the industry and enterprise level [see, e.g. Ellman 1989, Gregory and Stuart 1988, Estrin 1993]. Some important microeconomic features of the system were:

- Central coordination was used for all economic activity, in particular for factor allocation. The a central plan and production targets rather than markets and prices were used as coordination mechanisms.
- The state formally owned virtually all production facilities, with the exception of agriculture in Poland and some small businesses in Hungary.
- Manufacturing was overdeveloped, especially heavy machinery, at the expense of consumer goods and service industries, due to industrialisation led development policy and lack of mechanisms for structural change. This also led to the continued existence of firms creating negative value added, if world market prices had been applied [Hare and Hughes

1992, Hughes and Hare 1992].

- Most production operations were large scale with a high degree of vertical integration created with the objective of utilising economies of scale and simplifying planning, but inappropriate for creating domestic competition.
- The fulfilment of the central plan dominated all other objectives at the enterprise level due to the nature of incentives set with the plan. This led to production of large volumes of standardised low quality products independently of consumer demand. Moreover, externalities of any kind were disregarded which led to serious environmental contamination especially in the mining and the chemical industries.
- Few incentives encouraged innovation and technological progress. Neither existed mechanisms to improve factor allocation in the central plan in response to technological progress. Acquisition of technology was furthermore constrained by export restrictions. By 1989, the capital stock and production technologies were very dated.
- No effective mechanisms ensured undistorted collection and transmission of information on many important economic indicators, such as value, productivity, demand, capacity or impact of innovation.
- The role of management in the central plan system was primarily to execute orders received through the plan. In a strictly hierarchical system, there was no role for leadership in a Western sense, and risk taking entrepreneurial activity.
- Enterprises were not subject to binding financial constraints. Even after the onset of transition the government would provide finance for firms in need, a phenomenon known as 'soft budget constraints' [Kornai 1986].
- Enterprises employed far more people than necessary to achieve their output because managers had incentives to hoard labour as a resource, and overemployment provided a convenient means of preventing open unemployment. Employment relationships were effectively based on life time fixed employment, and enterprises provided many social needs of both current and retired employees.
- International trade was highly regulated by specific external trade units, often using barter trade due to lack of prices, and mostly limited to the CMEA area.

The task of microeconomic restructuring is to convert CEE industries to the conditions of a

market economy.<sup>5</sup> There is a lively discussion about details of the institutional framework. Some authors advocate the Anglo-Saxon example of free capitalism (or its idealised image in the minds of American trained economists), others a German-Austrian style of social market economy. Even a 'third way' as advocated by some representatives from within the region. However, a widespread consensus exists that the new economic order should be market led. Thus, the structural differences need to be resolved. While macroeconomic reforms could often be implemented in a big-bang style, the microeconomic reform and institution building is a more time-consuming process.

Foreign investors are implicitly or explicitly expected to contribute to this transition process. It offers interesting opportunities arising from early mover advantages or opportunities in the privatisation process. Yet it also implies a forest of tripwires from bureaucrats not used to negotiating with foreigners, managers not used to making decisions and take responsibility, and employees not used to having supplies for a whole days work. Investors have to be aware that post-acquisition investments in organisational restructuring and technological upgrading an acquired local firm may well exceed the price originally paid for the enterprise [Hunya 1992].

### **2.2.2 Privatisation**

A major, if not the main, task of microeconomic restructuring is the transfer of enterprises from state-ownership to private ownership. The objectives of privatisation are both economic and political [Estrin 1991, 1994a].<sup>6</sup> The economic motives are primarily increasing efficiency of production through private ownership. Neoclassical theory shows efficient equilibria independent of ownership if only the markets are competitive. However, several economic considerations suggest that private ownership would improve efficiency.

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<sup>5</sup>On the tasks and experiences of industrial restructuring see Ernst, Alexeev and Marer [1996] and Commander, Fan and Schaffer [1996].

<sup>6</sup> On objectives and options for privatisation also see Lipton and Sachs [1991], Tirole [1991], Borensztein and Kumar [1991] and Welfens and Jasinski [1994]. Froot [1993] discussed auctions to sell state property to foreign investors.

Principal-agent conflicts can emerge between the government as owners and the managers of enterprises. Managers could follow their own objectives other than maximising profits. This could be particularly harmful in enterprises where major restructuring is required such as reduction of over-employment, or need to upgrade the power of finance, accounting and marketing departments. Privatisation should ensure that managers are subject to market discipline, which is generally equated to control by outside owners [Frydman and Rapaczynski 1993]. A different argument for private ownership arises from Schumpeterian views of competition where permanent innovation with the rise and fall of entrepreneurs is the driving of economic growth. Also, the Austrian School would stress that only a claim to the residual surplus creates optimal incentives to managers.

The privatisation in CEE differs from Western experiences [see Yarrow and Vickers 1988] by the scope of the task, by the absence of efficient capital markets, and the lack of private domestic savings that could be invested in a privatisation. Therefore, a number of alternative routes of privatisation have been discussed. The basic choices concern methods and envisaged future owners. The main methods are sale and free distribution. Owners are distinguished as insiders, the population at large, former owners, and outside investors [Estrin 1994a]. The tradeoffs in designing a privatisation scheme include fairness of distribution, creating effective corporate governance, government revenues, and speed. Rapid privatisation was considered desirable to limit the time of 'drifting' and to make the transition process irreversible in view of potential reversal of political power.

Mass privatisation has been promoted as an opportunity to redistribute the wealth of the economy to its citizens in a 'fair' way as first proposed by Lewandowski and Szomberg [1989]. To create effective corporate governance, investment funds could play an important intermediate role [Frydman and Rapaczynski 1993]. For foreign investors, such schemes offer opportunities to acquire local firms only after the privatisation process is completed. Privatisation through sale to foreigners can be faster than distribution schemes and generates revenues for the government budget [Dunning and Rojec 1993, Roland *et al.* 1994]. However it is often less popular as it does not create widespread local ownership, and due to information asymmetries firms may be sold below market value.

The actual privatisation process was often a mix of many methods, subjected to the political forces in each country.<sup>7</sup> The interplay of political forces and interest groups determined the methods of privatisation, and its timing. Economic efficiency arguments and social fairness were secondary [Batt 1994]. Small firms, such as shops, usually were privatised first using direct sales or auctions. Privatisation of large enterprises was more complex.

In the Czech Republic, a voucher scheme was instituted in which investment funds took an unanticipated dominant role by accumulating vouchers from individuals [Singer and Svejnar 1994, Takla 1994].<sup>8</sup> In Hungary, early privatisation often took the form of spontaneous privatisation in that insiders took control of enterprises. Large scale privatisation involved many enterprise sales to foreign investors. The state property agency may or may not have retained a minority share. By 1995, Hungary moved on to privatising telecommunications and other network operating companies [Canning and Hare 1996]. The focus on privatisation through foreign investment was copied to some extent by Estonia. In Poland, large privatisation has been delayed due to political conflicts and eventually will concentrate on a voucher scheme that gives investment funds a central role. In Russia, a mass privatisation was carried out in 1994, which however created a high degree of insider ownership, or at least insider control [Boyko, Shleifer and Vishny 1995, Earle, Estrin and Leshchenko 1996].

For foreign investors, this diverse privatisation process offers opportunities as well as obstacles. Through privatisation-acquisition, investors can acquire instant market shares with local brand names and distribution networks. Although the technology and existing capital stock were mostly of minor value, there are important exceptions such as R&D teams. Very peculiar systems of corporate governance emerged before and, in many cases, after the privatisation. This makes any negotiations more complex because many parties are involved in the process. Privatisation agencies follow a variety of objectives including employment and investment guarantees, preference for JVs along with revenue maximisation. Managers of the local firms take an active role in the negotiations with their own objectives [Rojec and

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<sup>7</sup> The actual privatisation processes are reviewed in Estrin [1994] and Brada [1996].

<sup>8</sup> Various concepts for mass privatisation and their advantages over other forms of privatisation are discussed by Bolton and Roland [1992], Frydman and Rapaczynski [1993] and Nuti [1994].

Jermakowicz 1995]. Additionally, lack of experience and unclear responsibilities of the Eastern partner makes negotiations more tedious. Some investors may have found opportunities to take advantage of inexperienced negotiators. Successful privatisation and economic turnaround would depend on the level of politisation and intensity of organisational politicking, on the effectiveness of new corporate governance, and the availability of new resources [Antal 1995].

After the central plan system broke down, state-owned enterprises found themselves in a quasi market environment with government agencies as nominal owners. At this stage, managers had extensive control over the enterprise. State agencies did not have the means and incentives to create effective systems of corporate governance. Workers' councils attained considerable influence over management, de facto or de jure, especially in Poland. A common fear was that managers and workers would follow short-term objectives and thus decapitalise firms for the own benefit [e.g. Török 1993]. The actual evidence does not support this view. Although there are cases of 'asset stripping' and 'self-privatisation', most studies find evidence of changes of firm behaviour towards economic restructuring prior to privatisation.<sup>9</sup> Outputs and inputs have been adjusted to demand and supply conditions; trade was reoriented to new markets, exposure to bad debt was reduced, and labour and management costs were kept under control. The adjustment of state-owned or privatised firms took primarily the form of cost cutting rather than output expansion [Estrin, Schaffer and Singh 1993].<sup>10</sup> Apparently, the new competitive environment, hard budget constraints and managers desire to qualify for the new post-privatisation job-market created sufficient incentives [Estrin, Gelb and Singh 1995, Brada 1996]. Problems persisted in the areas of innovation and marketing as relevant managerial capabilities were scarce.

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<sup>9</sup> see any of the survey studies sponsored by sceptical observers at the World Bank: Pinto, Belka and Krajewski [1993], Estrin et al. [1994], Fan and Schaffer [1994], Brada, Singh and Török [1994], Estrin, Gelb and Singh [1995], Pinto and van Wijnbergen [1994], Earle and Estrin [1996], and Earle, Estrin and Leshchenko [1996].

<sup>10</sup> Existing management with mostly engineering background may be less qualified for developing new marketing strategies or entrepreneurial expansion. The emphasis by restructuring advisors on increasing productivity (rather than creating growth opportunities with given human capital) also makes it all but surprising that the state-owned and privatised firms are in aggregate not growing yet.

Even after privatisation, corporate governance systems are incomplete and their future is uncertain. The privatisation process created various kinds of new ownership patterns in the region. In very few cases, Anglo Saxon style corporate governance emerged with the majority of shares traded on the stock exchange and dominant owners taking control. Investment funds play an important role as effective owners of enterprises, be it by default (Czech Republic) or by construction (Poland). Government agencies retained a minority share in many enterprises to be privatised later. In Poland, workers also obtain minority shares. Especially in Russia, most firms are effectively insider owned after the privatisation [Estrin and Earle 1995, Mygind 1996]. Investors need to consider the ownership structure of their partners, and different incentives facing management under such ownership arrangements.

While the former state owned enterprises are gradually reforming, most of the economic growth after the transitional recession comes through newly established firms. This pattern has been described particularly in Poland [Gomulka 1994, Borish and Noël 1996]. It seems to resemble the development in China where the state sector has been stagnating while township-owned enterprises and the new private sector are flourishing [Sachs and Woo 1994]. As a matter of political intention, no privatisation of state property occurred in China, but the state sector is slowly crowded out. In Poland, the slow privatisation arose by default as the economic framework was liberalised but large state owned companies were not (yet) transferred to the private sector. The most dynamic parts of the economy are the new enterprises without the burden of an inheritance from a state-owned predecessor firm. In Russia, a similar trend can be observed, although the independent private sector is starting from a much smaller base [Richter and Schaffer 1996]. For foreign investors, these young growing firms may provide more interesting partners. They have more flexible organisational structures and may be both eager and capable suppliers, distributors, or even JV-partners.

The interesting question for this research is whether differences of the privatisation process across countries affects the volume and characteristics of incoming DFI. It seems that more investors were attracted to Hungary, because of the high priority given to foreign investment in the privatisation process. This may also affect the mode of entry and equity ownership.

The privatisation may open opportunities for acquisition replacing greenfield, and induce investors to accept JV ownership.

### **2.2.3 Institutional Framework**

Under the central planning regime, the economies of CEE were following a policy of autarky that closed them to multinational business activities. However as early as 1971 (Romania) and 1972 (Hungary) countries began to introduce joint-venture laws that permitted DFI [Gutman 1993]. This did not lead to large investment inflows, as legal permission alone was insufficient to create attractive business environments. The legal and economic environment of a planned economy could not incorporate a privately owned and independently managed foreign firm [McMillan 1992]. Even when this systemic conflict was overcome, substantial resources and time had to be invested to set up a foreign venture. Foreign investment law was complex, the general legislative framework was unsuitable, and local authorities were inexperienced in dealing with potential investors. Of particular concern were the issues of profit repatriation, protection against expropriation, obtaining property rights, protection of intellectual property, contract enforcement and the hiring and firing of workers [see Gray and Jarosz 1993].

Countries removed restrictions on foreign ownership and allowed majority ownership starting with Hungary in 1988. Investment picked up only after this and other obstacles were removed and a market friendly environment was created [McMillan 1992, UNIDO 1992]. An important step has been the move from a discretionary bureaucratic approach to a rules oriented system of regulation of DFI. This was accomplished by most countries by 1991 when new foreign investment laws were established [UNIDO 1992, EBRD 1994]. In the Visegrad countries, DFI is now fairly unregulated, apart from registration requirements, and some sectors closed to DFI [EBRD 1994]. In Russia, however, obstacles persist in the laws regulating DFI, including de facto constraints on ownership [McMillan 1994]. These institutional constraints reduce the number of investors and those investing have to adapt to the regulatory environment. This implies less investment in wholly owned affiliates and, if acquisition of real estate is constrained, less greenfield projects.

However, not only DFI regulation affects DFI, but also a weak general political, institutional and legal framework. Political instability is a major issue in most countries of the former Soviet Union. Central European countries appear committed to the transition path despite the election of reform communist parties to power in several countries. Reform of the legal system made substantial progress in all countries with again the Visegrad countries leading over the former Soviet Union. Most countries carried out fiscal reforms including the introduction of value-added tax and the overhaul of corporate and personal income tax systems. Nevertheless, some serious deficiencies in legal structures and law enforcement remain. Murrell [1996, p.34] summarises the current situation:

"... the quality of laws is quite low, in many cases lacking internal consistency and completeness. More over, these laws are often a facade without foundation. Missing are the appropriate structured agencies, effective courts, the customary practice of enforcing private rights, the professionals, the scholarly and judicial opinion, and the web of ancillary institutions that give substance to written law. In the large majority of countries, especially in the former USSR, it will take a generation, or more, for the legal system to buttress capitalism in the manner imagined by the drafters of the many new laws. Although these laws are beginning to affect behaviour, they are presently of no more than marginal significance."

It remains to be added that crime and corruption are increasing, notably with the rise of the Russian mafia, establishing a rule least promising to foreign business.

#### **2.2.4 International Trade**

Prior to 1989, the countries of CEE traded mainly within their regional trading block, the CMEA (table 2.1). All transition economies suffered from the collapse of these traditional trade links with the collapse of the CMEA and the Soviet Union. Between 1989 and 1992, some CEE countries reoriented their external trade to new markets and new sources.

The new international trade regime in Central Europe is overshadowed by rapid opening in line with the 'Europe-Agreements' with the EU [see Nuti 1994, Baldwin 1994]. They aim at implementing a free trade area (except agriculture) in two successive five-year stages. The agreements require abolition of most tariffs, and the adaptation of the regulatory frame to EU rules. This reduces opportunities for protected import substituting type investment behind protecting tariff walls, although there are exceptions. The agreements would theoretically offer easy access to EU markets and thus should attract export-oriented investments.<sup>11</sup>

On the other hand, the EU itself is undergoing a structural adjustment process in which overcapacities in agriculture, textiles, steel and chemicals are gradually reduced in a highly regulated fashion. As the countries of CEE have overcapacities in the same industries, they would become part of this exercise of capacity reduction if they were members of the union. This serves to justify that these sectors have not been liberalised in line with other industries as part of the Europe Agreements.<sup>12</sup> Hence, in sectors where CEE may currently have comparative advantages, EU protectionism may prevent them from taking advantage, and thus discourages export-oriented DFI. It is however an open question whether CEE could gain long-term competitiveness in the sectors where it currently has overcapacities [Nuti 1994].

CEE countries have a strong export performance in OECD markets, and Western Europe in particular. Yet the extent to which they have succeeded in trade reorientation varies. While former Czechoslovakia increased its trade with OECD countries at an average annual rate of about 20% over 1988-93, the Romanian grew at a modest 2% per year in the same period. In the former Soviet Union the main concern is the re-establishment of many trade links interrupted by the break of the SU and the common currency. Differences in trade performance are related to the progress in economic transition [Kaminski, Wang and Winters

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<sup>11</sup> Baldwin [1994] pointed out that the hub-and-spoke nature of these agreements tends to work against location of production within the region. Acocella [1995] shows how the subsequent removal of trade barriers affects the flows of trade and investment.

<sup>12</sup> Rollo and Smith [1993] argue that this argument is not justified as the adjustments required by Western industry and agriculture are within the range of normal economic adjustment processes.

1996]. The growth of East-West trade overcomes the distortions of the previous trade patterns. International trade now approaches the 'natural patterns' described by gravity models.

### **2.2.5 Virgin Markets**

Two features make the markets in CEE particularly attractive [Estrin and Hughes 1997]. Firstly, the economies of CEE did not have access to many consumer goods that have been readily available to consumers at similar levels of *per capita* income in other parts of the world. This catch-up demand unleashed immediately after trade liberalisation. The high esteem for Western goods at the time of opening had developed through Western media penetration. It was sustained through effective advertising and brand building in the newly liberalised local media. For consumer durables and fast moving consumer good manufacturers, this opened growth opportunities for firms whose established markets in the West were saturated.

Secondly, the Visegrad countries reached high economic growth, and the region has the potential to achieve sustainable high growth rates with growing markets for several years to come. Recent economic forecasts predict high growth rates for several years as CEE narrows the gap with Western Europe as result of liberalisation, stabilisation, and prospective integration into the EU market.

West European firms discover new opportunities for expansion. Firstly, firms facing barriers to growth in their present markets due to saturation or intense competition can move onto a new growth path. Secondly, multinationals in oligopolistic industries may be induced to invest by considering their strategic position *vis-à-vis* their global competitors. Dominated firms may see new markets as an opportunity to gain competitive advantages, while global leaders wish to prevent such challenges and the emergence of new competitors from within the region. MNEs established in both Western and Eastern Europe may have superior opportunities to exploit price discrimination, product differentiation or vertical integration opportunities [Estrin and Hughes 1997]. In industries with major network externalities, such as consultancy and financial services, presence in the region may be necessary for global

competitiveness.

Thus the question of entry becomes a 'how' and 'when' rather than 'whether'. Firstly movers may enjoy long-term benefits from brand recognition or access to distribution channels, preferenced relations with local suppliers and contacts to governments. They may even be able to influence the local regulatory environment in their favour. Early entry has been observed for many MNE in industries with oligopolistic structures [Martón 1993, Kogut 1996, Estrin and Hughes 1997]. On the other hand, firstly movers may create spillovers in favour of followers. They improve local bureaucrats understanding of the needs of MNE and invest in training and promotions. These positive spill-overs favour of second movers.

### **2.2.6 Low Labour Costs**

Under distinct economic systems, the industrial structure of the economies in Eastern and Western Europe developed apart, despite geographic proximity. While the socialist countries focused on scale intensive, heavy industries, Western Europe moved on to knowledge intensive industries and services. This resulted in a large gap of real wages as Central and East European (CEE) industry was using outdated technology. Wages were additionally kept low by politically imposed constraints that emphasised equality over incentives. When the Iron Curtain fell, there were two widespread expectations:

- Higher wages in the West would attract cheap labour from the East and lead to massive economic migration.
- Low wages in the East would motivate Western businesses to relocate their production lines, and thus to move jobs from the West to the East.

Economic migration has been constraint by political and language barriers that migrants would face in the West. It has however contributed to the rapid pace of German unification, as both barriers did not apply inside Germany.

The relocation of production, was seen as a great potential for the transition economies and also a threat to current employment and high levels of social security in Western Europe.

Economic theory of location suggests that substantial DFI would enter Eastern Europe in search of lower labour costs [Ozawa 1992, Acocella 1995, Arva 1994, Borsos 1995]. Production processes using medium level technical skills would be moved to CEE, with DFI facilitating the enhancement of efficiency in the local production. A comparison of CEE with East Asia led to similar suggestions [Meyer 1996, UN 1995 chap V]. The region should have strong comparative advantages for intermediate level technical skills as the level of education in the region is relatively high. Factor-cost advantages may also arise from low costs of some still subsidized raw materials, especially in Russia. Unit labour costs rose considerably in CEE but are still far below West European, especially German, levels. Economic policy strengthened this advantage by effective undervaluation of the exchange rate and incomes policy such as constraints on wage increases, e.g. the Polish wage increase tax.

However, productivity is often low despite a qualified workforce. Technical skills are not matched by managerial skills, nor entrepreneurial culture and willingness to take business risks. Although rapid improvements are reported, finding a local partner with the necessary business skills may still be difficult. Further costs arise from weak infrastructure, especially the road network and telecommunications, from an outdated capital stock, social costs, and the regulatory environment. Investors may also be concerned about the viability of the East-West wage gap. Especially projects with long time horizons would be inhibited by uncertainty surrounding future labour costs.

**Table 2.1: Selected Indicators of CEE Business Environments**

	<i>Czech R.</i>	<i>Hungary</i>	<i>Poland</i>	<i>Russia</i>	<i>Romania</i>
<i>Demand Indicators</i>					
GDP <i>per capita</i> in US\$	3,500	3,979	2,412	n.a.	1,324
GDP growth	2.6%	2.0%	5.0%	-15%	3.4%
- " - OECD forecast (1996)	5.0%	3.0%	5.0%	2.5%	4.5%
Population, million	10.3	10.3	38.6	148.2	22.7
<i>Labour Costs</i>					
Gross monthly wages, (in US\$)	240	317	241	96	n.a.
Unit labour costs (change of 1994 over 1991)	61%	27%	30%	n.a.	-29%
<i>Technological Capacities</i>					
Secondary school	88.5%	81.4%	82.0%	71.7%	75.5%
Industry share in GDP	39.3%	25.9%	37.8%	n.a.	41.0%
<i>Progress in Transition</i>					
Legal reform	++++	++++	++++	++	++
Banking reform	+++	+++	+++	++	+++
private sector in GDP 1989	11.2	29.0	28.6	5.3	12.8
private sector in GDP 1994	56.3	55.6 <sup>(1993)</sup>	56.0	25.0	35.0
Main mode of privatisation	voucher	direct sale	mixed	voucher	delayed
<i>International Trade</i>					
Association Agreements with the EU	1992	1992	1992	none	1993
Intra-regional trade 1987 <sup>a</sup>	54.1%	50.0%	47.0%	n.a.	28.4%
Intra-regional trade 1994 <sup>a</sup>	32.9%	23.1%	15.6%	n.a.	18.6%
<i>Risk Indicators</i>					
Inflation	10.0%	21.2%	29.5%	203%	61.7%
Euromoney ranking <sup>b</sup>	39	46	73	136	77

source: EBRD [1995] except where shown. Data refer to 1994 unless otherwise shown.

<sup>a</sup> share of exports to CMEA/transition economies in total exports [source UNECE]

<sup>b</sup> credit rating assigned to the countries in September 1994.

## **2.3 Macro Trends of Direct Foreign Investment**

This section reviews and interprets available information to obtain an overview of actual DFI in CEE since the beginning of the transition. To do this, it is firstly necessary to assess to the quality of available statistical information.

### **2.3.1 Foreign Investment Data**

#### **The Quality of Statistical Information**

DFI is defined as a flow of investment in form of real capital or human capital into another country with the intention of influencing the policy of the foreign firm.<sup>13</sup> Economically, DFI is a mechanism to transfer a bundle of resources, including capital as well as technology and human capital across national borders while keeping it under the control of the parent company. In practise, the definitions of this bundle may differ for different purposes and limit themselves to equity as it is better measurable. The control over the foreign business unit distinguishes DFI from portfolio-investment.<sup>14</sup>

For other research questions, the stock of DFI as the foreign controlled business units in a country are the relevant unit of analysis. This reflects the fact that DFI creates international production [Dunning 1988] that is value adding activities in different countries under the common governance of one firm called transnational or multinational enterprise (MNE). Thus, two concepts are referred to as DFI: The foreign owned capital stock of companies with a controlling foreign stake in their equity, and the cross-border flow of capital to and from such foreign controlled enterprises.

The *flow* of DFI is measured for the balance of payment (BoP) statistics collected by Central

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<sup>13</sup> The control aspect becomes less clear in the definition used by the IMF in its balance of payments manual and thus relevant for the collection of statistical data: the IMF defines DFI as "investment that is made to acquire a lasting interest in an enterprise in an economy other than that of the investor." This implicitly recognizes that data on actual control are difficult to obtain.

<sup>14</sup> Some authors from within the region prefer the term 'strategic investor' over direct foreign investor. They wish to emphasise that the investor takes a long-term interest in the firm. The usual definition for DFI does include the 'long-term' aspect, though the term does not make that explicit. Nevertheless, the terms are for practical purposes identical.

Banks and the IMF. These data are generally reported on a net basis, i.e. discounting 'outflow receipts', that is disinvestments. This can, in special cases, lead to a seemingly 'wrong' sign. BoP data are based on recorded transactions and cover transfers of capital in form of equity, reinvested earning as well as short- and long-term loans. They do not capture in kind contributions such as technology transfer. The limitations in the data collection are apparent since the recorded DFI outflows worldwide exceeded the corresponding recorded inflows in 1992 by US\$ 21 billion (12% of outflows). The IMF 'Balance of Payments Manual' and OECD guidelines should theoretically ensure that data are collected worldwide in a comparable way. However, national statistical offices use diverse technical definitions of DFI, and different survey or reporting systems to obtain data from enterprises [OECD 1993, OENB 1994].

The flow of DFI can also be approximated by data on 'registered DFI' which are available for most economies in transition, for example in the database of the UNECE [latest in UN 1995, UNECE 1996]. These data are collected during the approval and registration of foreign investment projects by investment promotion agencies or administrations in countries with restricted or regulated capital inflow regimes. For cross country comparisons, these sources are however of limited use, because:

- Registration requirements vary. In the Czech Republic and Hungary, DFI is registered *after* the payment of the statutory capital and with the cash inflow as recorded for the BoP. The Polish Investment Agency uses a wide definition of DFI. In Romania, DFI is registered prior to being set up [Hunya 1992].
- The valuation of in kind contributions, especially knowledge transfers, is unavoidably arbitrary.
- Reported DFI capital may refer to foreign equity contribution, total equity, or include equity and loan capital.
- Data may be distorted by incentives to register as a JV to enjoy tax advantages or access to convertible currency, for which there is substantial anecdotal evidence, e.g. in Russia and Romania.
- Some statistics cover JVs only, omitting wholly foreign owned ventures.

The *stock* of inward and outward DFI is ideally measured by a survey of all relevant enterprises. A mandatory reporting system on existing foreign capital stock provides the most comprehensive overview. It captures theoretically all DFI that an analyst would like to include. In Germany and Austria, Central Banks publish regularly such survey data. However, this cannot fully cover small businesses and, while BoP data become available within weeks, survey based data are only published with time-lags of more than 15 months. The Hungarian Statistical Office has a useful data base of all enterprises from their tax office, which seems to meet most wishes, but might be discontinued as privacy limits the permitted use of tax office data [Lane 1994].

The stock of DFI is not equal to cumulative flow because of revaluation effects. Reinvested profits should be included in flow data according to IMF guidelines, in practise however they are often not.<sup>15</sup> Nevertheless, the stock of DFI is often approximated by cumulative BoP flows, by cumulative registration data, or by data on 'committed DFI'. The latter usually rest on company announcements that reflect their investment intentions, and thus are not useful for academic research.

Working with DFI data, several potential biases have to be considered: BoP statistics suffer from incomplete coverage and focus on capital transfers only, which tends to underestimate actual DFI, particularly inflows. Statistics on 'committed DFI' or journalistic sources tend to overstate actual investment. Registration data can have biases in either direction depending on their timing and coverage of registration requirements: registration generally precedes the implementation, sometimes even the payment of the investors' contribution such that they reflect more potential rather than actual investment.<sup>16</sup> On the other hand, registration data are collected on registration only, which implies that:

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<sup>15</sup> No reinvested profits have been reported by CEE countries in IMF statistics, and thus in table 2.4, except for Poland (1994: US\$ 382 million) and Estonia (1994: US\$ 43 million).

<sup>16</sup> The number of operational JVs is thus smaller than the number of registered DFI, at some stage it has been reported that only 20% of JVs in Russia are actually operational.

- the cumulative total of registered DFI flows disregards any changes to existing projects, discontinuations as well as increases in capital invested, and
- investments that are not required to register are therefore not covered. For instance, Hungarian registration data are collected only for newly founded firms, and thus do not capture JVs with an existing Hungarian partner [Lane 1994].

As a rule of the thumb, registration data tend to overstate DFI if a country is a recently emerging investment location, if implementation lags are long, and if obstacles such as bureaucracy or political instability induce potential investors to abandon projects after their registration. However, if investment in a mature host country is not regulated by formal approval procedures, these data capture only a fraction of actual DFI. Also, in the region reviewed here, statistical offices and data collection systems have only recently been established and still have problems obtaining satisfactory coverage of the private sector.

Hence, great caution and consideration of the method of data collection are necessary in interpreting DFI data and in aggregating data from different sources. Compared with other sources, BoP statistics are generally the most reliable and consistent source of data for cross country analysis - despite their incomplete coverage.<sup>17</sup> Fortunately the discrepancies between data from different sources are diminishing over time as reporting practises improve.

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<sup>17</sup> Brewer [1994] concludes diplomatically, that for each purpose a different data set may be the most suitable, and combined they may best reflect actual DFI.

**Table 2.2: Various Measures of DFI in Hungary**

	<i>DFI Stock in Hungary</i>			<i>Flow of DFI into Hungary</i>				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1974	2	...	...	...	...	...	...	...
1980	6	...	...	...	...	...	...	...
1984	27	...	...	...	...	...	...	...
1986	62	...	...	17	...	...	...	...
1988	227	188	14	104	97	...	...	14
1989	1357	504	229	1130	1123	...	316	215
1990	5693	1475	583	3814	4343	...	970	354
1991	9117	2838	2045	5642	3424	733	1363	1462
1992	17182	5087	3524	4101	8065	543	2248	1479
1993	20999	6144	5776	4286	3817	502	1057	2350
1994	23557	7530	6920	4431	2558	290	1386	1144
1995	...	...	10300	3720	...	262	...	3400
1996	...	...	...	1874 <sup>June</sup>	...	150 <sup>June</sup>	...	...

(1) Number of foreign owned firms recorded by the tax Office

(2) Foreign capital paid in, firms recorded by the tax office, in million US\$

(3) Cumulative inflow of DFI recorded in the balance of payments, see (8), in million US\$

(4) Number of newly registered DFI firms

(5) Increase of foreign owned firms by number, change in (1)

(6) Foreign capital paid in, newly registered firms, in million US\$

(7) Increase of foreign owned firms by capital, in million US\$, change in (2)

(8) Balance of Payments, in million US\$

sources: Hungarian Statistical Office, Lane [1994], IMF

## **DFI Data in Hungary**

Before discussing the general pattern of DFI in the region, this section reviews the performance of Hungary to illustrate the data quality issues. DFI inflow to Hungary is reported by several different data sources that, however, show a similar general trend [Lane 1994]: DFI inflows soared in the early years of economic transformation and continued to increase at a more modest pace in 1992 and 1993.

Table 2.3 summarizes the inflow of DFI as reported by different data sets. The number of DFI firms is reported by registration and tax office data which give quite different impressions of the DFI inflow in the years 1991 and 1992 (col. 4 & 5). Presumably many newly registered firms in 1991 failed to report to the tax authorities in that year but did so in 1992 [Lane 1994].<sup>18</sup> As the registration data do not cover DFI into existing firms, the 4,000 plus new firms reported annually should be the lower bound of new DFI. By the end of 1993, some 21,000 enterprises with foreign equity filed tax documents (col. 1).

DFI capital inflow as reported by the BoP data reached US\$ 2.3 million for 1993 (col. 8) after a temporary fall in 1994. The total stock of foreign capital is reported by the UNECE [1996] as US\$ 10.0 billion in 1995, which presumably refers to tax office and registration data. The cumulative total of BoP inflows reached US\$ 10.3 billion. This is closing a gap between the data sources. In previous years, BoP-data may have under-reported by about 30% due to contributions in kind rather than through the banking system.

Foreign capital contributions reported by the registration data are far lower than the BoP data, with only US\$ 0.3 billion of new investment in Hungary in 1994. This continues a decline in real terms over previous years. DFI now occurs increasingly by taking over existing enterprises or by increasing capital contributions in existing JVs or subsidiaries. Registration data are however the only ones available disaggregated by sector and are therefore the basis for discussion later. Data provided by the UNECE [1996] match none of these statistics, not

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<sup>18</sup> This can be due to incomplete coverage by the tax office adopting to a new taxation system or because a large number of firms was not operational in December 1991 - and the same time lag was shorter in 1992.

even earlier data from the same source [e.g. UN 1994]. Therefore, only a very short time series could be developed from UNECE data (table 2.4, lower part).

### **2.3.2. Volume of Investment**

#### **Countries of Destination in CEE**

The annual inflow to the transition economies outside the former Soviet Union (SU) increased to some US\$ 5 billion in 1993. It fell back slightly in 1994 but increased even further to more than US\$ 9 billion in 1995. The stock of DFI in the region has reached US\$ 22 to 25 billion by 1995 - estimated from the cumulative total of flows. These are quite remarkable investment flows, comparable to other emerging market regions. The Economist Intelligence Unit [1996] forecasts a stock of US\$ 64 billion by the year 2000.<sup>19</sup>

Yet in the early years of transition, the inflow of investment capital was below expectations. CEE attracted, in aggregate, much less DFI than emerging markets in East Asia or Latin America: DFI flows to developing countries increased continually from US\$ 12 billion in 1986 to US\$ 70 billion in 1993 by BoP definitions. However, this DFI is distributed very unequally as a few very dynamic economies in East Asia (China, Singapore and Malaysia) and countries with major liberalization and privatisation programmes in Latin America (Argentina and Mexico) are taking the largest shares [Meyer 1996]. Table 2.4 reports the DFI inflow on a country by country basis and table 2.5 adjusts them to the size of the economy reporting DFI per capita and as a percentage of GDP.

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<sup>19</sup> The forecast is based on a regression across 84 developed and developing countries. A more complex but less insightful prediction by Markowski and Jackson [1994] places Poland in a middle position among emerging markets. Döhrns' [1996] model predicts that German DFI to the region alone should reach DM 1.2 to 2.1 billion.

**Table 2.3: DFI Inflows to Central and Eastern Europe, by Host Countries**  
in million US\$

a)	<i>Balance of Payments Data</i>								<i>cumulative</i>
	1988	1989	1990	1991	1992	1993	1994	1995	1988-95
Albania	...	...	...	-1	20	58	53	70	201
Bulgaria	...	...	4	56	42	55	105	86 <sup>c</sup>	348
Croatia	...	...	...	...	...	74	98	81	...
Czech Rep <sup>a</sup>	...	171	120	511	983	654	878	2,568	5,885
Hungary	14	215	354	1462	1479	2350	1144	3,400 <sup>d</sup>	10,414
Poland	15	11	89	291	678	1715	1875	2,500 <sup>d</sup>	7,174
Romania	...	...	112	40	77	94	340	417	1080
Slovakia <sup>a</sup>	...	86	53	82	72	199	203	188	885
Slovenia	...	...	...	41	111	113	84	150	499
<i>Subtotal</i>	...	483	732	1977	3462	5312	4780	9,450	26,500 <sup>f</sup>
Estonia	...	...	...	...	82	162	214	205 <sup>c</sup>	663
Latvia	...	...	...	...	29	45	214	162 <sup>c(Sept)</sup>	450
Lithuania	...	...	...	...	10	30	31	31 <sup>(Sept)</sup>	102
Belarus	...	...	...	...	7	10	6	5 <sup>c</sup>	...
Kazakhstan	...	...	...	...	100	165	125	...	...
Moldova	...	...	...	...	17	14	16	64 <sup>c</sup>	...
Russia	...	...	...	-100 <sup>b</sup>	700	700	637	2,017	...
Tajikistan	...	...	...	...	9	12	...	...	...
Ukraine	...	...	...	...	170	200	159	267	...
Uzbekistan	...	...	...	...	40	45	43	...	...
<b>b)</b>	<b>Registration Data</b> (change of stock over previous year) <sup>e</sup>								<b>Stock</b>
	1988	1989	1990	1991	1992	1993	1994	1995 (Jan-Jun)	1. July 1995
Bulgaria	...	...	...	<u>18</u>	58	193	199	47	514
Czech R.	...	...	...	<u>595</u>	1003	568	862	403	3,431
Hungary	...	...	...	<u>3137</u>	2365	2840	1566	82	9,990
Poland	...	...	...	<u>480</u>	1165	898	1032	336	3,910
Romania	...	...	...	<u>226</u>	290	136	637	117	1,406
Slovakia	...	...	...	...	<u>231</u>	135	186	33	585
Estonia	...	...	...	...	<u>59</u>	163	220	82	524
Latvia	...	...	...	...	<u>33</u>	41	220	86	380
Lithuania	...	...	...	<u>34</u>	40	118	50	11	253
Russia	...	...	...	...	...	<u>2433</u>	914	460	3,808

Sources: BoP data: IMF (IFS, Economic Reviews) except where shown; registration data: UNECE [1996]. Notes: <sup>a</sup> separation of Czech and Slovak Republic based on PlanEcon, <sup>b</sup> net DFI [World Bank 1993], <sup>c</sup> source UNECE [1996a], <sup>d</sup> source EIU, <sup>e</sup> underlined data refer to DFI stock, <sup>f</sup> estimate.

**Table 2.4: DFI inflows per capita and as Ratio over of GDP**

	<i>DFI per capita, in US\$</i>				<i>DFI over GDP ratio, in %</i>			
	<i>1992</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>	<i>1992</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>
Albania	6	17	16	21	2.9	8.4	7.7	10.1
Bulgaria	5	6	12	10	0.4	0.5	1.0	0.8
Czech Republic	95	63	85	249	3.1	2.1	2.8	8.1
Hungary	145	230	112	333	3.9	6.2	3.0	8.9
Poland	18	45	49	65	0.8	2.0	2.2	2.9
Romania	3	4	15	18	0.3	0.4	1.3	1.6
Slovakia	14	38	38	35	0.7	1.8	1.8	1.7
Slovenia	58	60	44	79	1.1	1.1	0.8	1.5
Estonia	51	101	134	128	1.6	3.2	4.3	4.1
Latvia	11	17	82	85	0.6	1.0	4.7	4.8
Lithuania	7	16	8	11	0.6	1.4	0.7	0.9
Russia	5	5	6	14	0.2	0.2	0.2	0.5
Ukraine	4	4	4	5	0.2	0.2	0.2	0.3
Kazakhstan	6	9	7	n.a.	0.3	0.5	0.4	n.a.

source: DFI data from table 2.4, population and GDP from World Development Report using data for 1992 were used for all years.

The advance was clearly led by *Hungary* receiving almost half of all DFI into the region until 1993. She regained its lead in 1995 with US\$ 3.4 billion after being second to Poland in 1994. The leading position is illuminated by the '*per capita*' and '*over GDP*' ratios, which are among the highest in the world. Among emerging markets, only Singapore (US\$ 1791), Hong Kong (US\$ 345) and Malaysia (US\$ 263) surpassed Hungary's US\$ 230 in 1993. She is established among the top 10 recipients of DFI outside the OECD, in volume comparable to the emerging markets of Brazil, Taiwan or Indonesia.

*Czechoslovakia* recorded the first investments in 1990, and became the second largest recipient of DFI in the region in 1992. The number of JVs reached almost 6000 and US\$ 1.1 billion DFI inflow were recorded in the BoP. After the divorce in January 1993, the Czech Republic suffered a setback but soon recovered. After the voucher privatisation programme has been completed, new opportunities for foreign investors emerged. The inflow accelerated to US\$ 2.5 billion in 1995 including US\$ 1.3 billion in the telecom privatisation. Slovakia

reported almost US\$ 200 million annually which translates to above average DFI/GDP ratios.

*Poland* received some US\$ 10 million of DFI annually throughout the 1980s, mainly investment by Polish expatriates, restricted in size and regulated by a special law [Gutman 1993]. Although Poland is a much larger economy, is successful in macroeconomic stabilization, and has been the firstly country to overcome the recession, it came only third as recipient of DFI until 1992 - and only sixth in per capita terms. Only in 1993, investors finally moved into Poland on large scale and its inflows grew more than threefold to US\$ 1.9 billion in 1993 and US\$ 2.5 billion in 1995.<sup>20</sup>

What may explain the differences among the three leading countries? Existing business relationships favoured Hungary at early stages of the transition. A small private sector had business contacts and a reputation for entrepreneurship. Thus, it was to be expected that Hungary would take an early lead in attracting foreign business. Surprisingly, this relatively small country continues her lead even seven years into the transition. Market size does not explain much of the early DFI, as this would suggest that Russia and Poland should be the leaders. The level of income and, thus, demand for more sophisticated goods appears to be important.

Hungary, Poland and the Czech Republic also opened their stock exchanges to foreign investors. These 'emerging markets' attracted considerable portfolio investment. In 1993, the IMF BoP data for the firstly time report portfolio investment for Hungary and the Czech Republic. Hungary received an impressive US\$ 3.9 billion in 1993 and 2.5 billion in 1994. In the Czech Republic, the portfolio investment inflow jumped from quasi-nothing to more than US\$ 1.8 billion in 1993, but reached only US\$ 890 million in 1994.

The countries of South-Central Europe show a very disappointing performance in attracting DFI. Inflows were less than US\$ 7 per capita or 0.5% of GDP in both *Bulgaria* and *Romania*

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<sup>20</sup> Data on DFI are available from the National Bank of Poland in BoP statistics earlier than the IMF figures referred to in the main text, but they use a far narrower definition of DFI reporting only 117, 284, 580 and 542 million US\$ for 1991 to 1994 respectively. Using these data, the EBRD [1994, 1995] reports far less DFI in Poland than other sources.

until 1993. Romania surprised by the number of registered JVs reporting 29,115 by the end of 1993. However, registered capital is only US\$ 755 million - still twice the cumulated BoP inflow. Thus, most ventures were tiny. The discrepancy is mainly due to the early registration of investors, long before starting operations. DFI rose substantially in 1994 and 1995 with Korean Daewoo accounting for a major share. Investment in *Albania* was small, but she is a small economy with a very low income level. The Albanian DFI/GDP ratio is, if confidence can be placed in the data, second only to Singapore among emerging markets.

*Yugoslavia* attracted investors for the last two decades, reaching a cumulative total of US\$ 3 billion by 1991. The largest inflow was recorded in 1990 with US\$ 1.4 billion, of which 21.5% went to *Slovenia* [UN 1992]. However, due to the civil war DFI projects in the former Yugoslavia have been discontinued bringing down the capital stock invested. Recent DFI inflows concentrated on Slovenia where, by the end of 1993, 3300 enterprises were recorded with foreign investment of US\$ 1,2 billion. However, the registration data for Slovenia far exceed recent balance of payment data, which show some US\$ 100 million annually. Still, making Slovenia the third most successful recipient of DFI in per capita terms in early years.<sup>21</sup>

DFI into the then *Soviet Union* started to increase after its legal permission in 1987 and reached an early peak earlier than Central Europe at US\$ 640 million of DFI inflow in 1989, which fell in 1991 to US\$ 480 million [estimates in World Bank 1992]. The Baltic States emerged as the most successful recipients of DFI, led by *Estonia* that received US\$ 168 million of DFI in 1993. Since these countries are small, the per capital DFI flow of US\$ 134 in Estonia was second to no one in the region in 1994. *Latvia* and *Lithuania* increased their DFI inflows in 1994, with Latvia receiving the highest inflow as share in GDP.

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<sup>21</sup> The probable reasons for this seemingly contradictory evidence between BoP and registration data are: (a) Slovenia received large inflows of DFI in 1990 and 1991 according to the registration data, a time for which no BoP data are available. In 1992 and 1993, the amount of capital in newly registered JVs declined from US\$ 340 million (1991) to US\$ 165 and 141 million [PlanEcon report 14.3.94]. (b) The DFI data include 175 investments in 'contractual joint-ventures' [see Rojec and Svetlicic 1993], which by narrower definitions are not DFI as the investor does not acquire equity.

For the *Commonwealth of Independent States* (CIS), comprehensive data are not available. The main destination was Russia accounting for 72.8% of capital investment in the former Soviet Union (SU) until 1990. Belarus come second with 7.7% (World Bank 1992, table 7). For 1992, following registration data, the IMF reports an (estimated) inflow of US\$ 700 million to Russia. The World Bank [1992] reports a *net* flow of US\$ 200 million, which accounts for substantial outward DFI as a means of capital flight. The actual inflow is likely about US\$ 400 million, a figure provided by Goskomstat for 1993 [e.g. Russian Academy 1994].<sup>22</sup> The IMF Economic Review reported US\$ 700 to 900 for 1992 to 1994. Also Kazakhstan and Ukraine received substantial DFI, but other CIS countries still lack major investment flows. The annual DFI inflow in the early 1990s to the CIS thus is in the range of US\$ 0.5 to 1 billion annually, and may be below its 1989 peak.<sup>23</sup>

The poor performance of the CIS is confirmed by Western outflow data. In fact, the reported *outflow* of DFI to the former SU was negative for several countries for individual years (table 2.5, note f). For instance, German stock of DFI by the end of 1992 fell to less than half its 1991 level. This suggests that on large scale investors withdrew investment funds, although accounting or revaluation effects may have contributed to this effect.<sup>24</sup>

Within the countries, more than half of all investment projects are usually located in or around the capital. Poland may be the only exception from this rule due to a more decentralised economic structure. Other regions of interest to investors are close to Western borders, gateway coastal regions, natural resource rich regions and the industrial South in the

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<sup>22</sup> Bradshaw [1995] reviews a different source of recent registration data.

<sup>23</sup> The then Soviet Union and Yugoslavia attracted more DFI before 1990 relative to Hungary or Poland. Therefore Western outward DFI stock statistics report a higher share for the Soviet Union and Yugoslavia than recent flow statistics [Meyer 1994].

<sup>24</sup> There is a discrepancy between the German BoP statistics, reporting a large withdrawal in 1991, and the stock statistics, suggesting a withdrawal in 1992. The employment in German firms in the former Soviet Union actually increased in 1992, suggesting that economic activity in local currency may have increased and the reduction of reported capital investment *may* be due to reported losses, exchange-rate effects, or write-off of risky but operational investment. Another peculiarity of German-Soviet DFI data is that in 1993, according to German BoP data, FDI *from* the former Soviet Union into German grew to DM 383 million, which far exceeds the stock of DM 250 million German FDI reported in the Soviet Union at its peak in 1991.

case of Poland [Svetlicic 1994a, Bradshaw 1995, 1996, Quaisser 1995, Hosková 1995].

### **Countries of Origin**

Where does the investment come from? The most striking country pattern of early DFI data is proximity. Table 2.5 shows the outflow of DFI to CEE from selected European and North American countries. Besides the statistics obtained directly from national statistical offices, the table contains data published by the OECD. The two kinds of sources frequently have minor differences as apparently different exchange rates have been used. With few exceptions (Netherlands 1992, France 1992, US 1993), the data suggest the same general trends. From several host country sources, based on their respective DFI registrations, table 2.7 of leading investors has been assembled. Germany and Austria emerge as the main investors by invested capital in CEE, and even more so if the number of projects is considered.

A special development can be observed for *Austria*, as she became a major source of DFI in the region and CEE became the major destination for its investors. Austrian DFI stock in CEE increased from virtually nothing to more than US\$ 2 billion in 1993 (table 2.5). The country distribution of Austrian outward DFI stock reflects the special relationship with Hungary, which accounted for 20.0% of worldwide outward DFI stock, and 70.3% of DFI stock in CEE [data: OECD]. On the other hand, Austria was of major importance for all its direct neighbours, accounting for more than 20% of their DFI inflow by number of projects [Hochreiter 1993, Hunya 1996].

Austria has a special relationship with the region based on personal ties and historical links. Many Austrian enterprises have a competitive advantage based on their superior knowledge of their neighbours, existing business contacts and expatriates from the region living in Austria [Bellak 1995]. The special role is strengthened by multinational enterprises locating their regional headquarters in Vienna, which may formally undertake their DFI in, say, Hungary. Vienna offers an attractive geographic location to supply local markets and coordinate activities in Central Europe while offering a superior infrastructure and cultural environment.

**Table 2.5: DFI in Central and Eastern Europe, by Countries of Origin**

**a) From National Statistics, in million US\$, BoP recorded DFI**

	<i>Stock of DFI</i>	<i>Flow of DFI (net)</i>					
	<i>1994</i>	<i>1990</i>	<i>1991</i>	<i>1992</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>
Austria	1,118 <sup>(1992)</sup>	296 <sup>a</sup>	387 <sup>a</sup>	373 <sup>a</sup>	...	...	...
Belgium/Lux.	...	52	295	65	336	127	...
Canada	127 <sup>(1992)</sup>	9	2	72	1	...	...
Denmark	...	2	9	15	41	55	...
Finland	173	18	26	39	48	67	105
France	...	36	189	167	...	...	...
Germany	5,224	155	726	1,020	1,435	1,913	2,975
Italy	198 <sup>(1992)</sup>	...	94	106	...	...	...
Netherlands <sup>b</sup>	464 <sup>(1993)</sup>	12	156	433	259	390	1,261
Sweden	...	31	17	17	80	60 <sup>f</sup>	...
United Kingdom	659	5	24 <sup>f</sup>	124	86	522	...
USA	716 <sup>(1991)</sup>	...	282	482	1,503	750	...

**b) From OECD statistics, in million US\$, BoP recorded DFI**

	<i>Stock of DFI</i>		<i>Flow of DFI (net)</i>				<i>Share (1)</i>	
	<i>1993</i>	<i>share (1)</i>	<i>1990</i>	<i>1991</i>	<i>1992</i>	<i>1993</i>	<i>1992</i>	<i>1993</i>
Austria	2,265	28.5%	369	505	446	522	22.7%	35.6%
Belgium/Lux.	...	...	35	288	41 <sup>f</sup>	308	0.4%	7.4%
Denmark	...	...	1	10	16	52	0.8%	4.2%
Finland	...	...	...	...	37	36 <sup>f</sup>	...	2.1%
France	360 <sup>(1992)</sup>	0.3%	49	245	401	...	2.1%	...
Germany	2,198	1.6%	191	837 <sup>f</sup>	1,137	1,448	5.8%	9.4%
Italy	704	0.9%	47	36	97	433	1.6%	6.0%
Netherlands	279 <sup>(1992)</sup>	0.2%	7	178	648	594	4.6%	5.4%
Spain	...	...	...	8	3	9	0.3%	0.3%
Sweden	...	...	14	17	25	70	2.6%	4.6%
Switzerland	466	0.5%	14	46	105	79 <sup>f</sup>	1.9%	1.2%
Turkey	...	...	3	0	30	79	31.6%	59.4%
UK	138	0.07%	5	27	272 <sup>f</sup>	92 <sup>s</sup>	1.5%	0.4%
USA	1,327	0.3%	...	272	491	869	1.1%	1.5%
sum <sup>d</sup>	...	...	792	2,702	3,760	4,718	--	--
total CEE <sup>d</sup>	...	...	1,500	2,600	4,500	6,500	2.4% <sup>e</sup>	3.1% <sup>e</sup>

(1) = DFI flow to CEE as share in all outward DFI stock/flow *from this country*.

**Table 2.6: Cross Country Pattern of DFI Flows***Ranking of Source Countries: Who is most important investor in which CEE country?*

Origin	ALB	BG	Cro	CR	HU	PL	RO	SLN	SVK	EST	LAT	LIT	R
Germany	4	1	1	1	2	2	2	1	2	7	2	2	3
Italy	1	...	4	...	9	3	3	3	8	...	10	...	2
France	5	...	...	3	6	4	4	4	5	...	...	...	6
Netherl.	...	2	...	...	4	5	6	...	7	...	...	...	...
Belgium	...	4	...	4	10	10	...	...	...	...	...	...	...
UK	...	5	...	...	7	8	7	...	...	6	9	7	10
Ireland	...	...	...	...	...	...	...	...	...	5	...	9	...
Denmark	...	...	...	11	...	...	...	...	...	9	...	...	...
Greece	2	...	...	...	...	...	...	...	...	...	...	...	...
Austria	3	6	2	5	1	9	...	2	1	8	...	5	4
Switzerl.	...	3	3	...	8	6	10	5	11	...	...	8	7
Sweden	...	...	...	...	...	7	...	...	6	2	5	1	5
Finland	...	...	...	...	...	...	...	...	...	1	11	...	8
USA	...	...	...	2	3	1	5	...	4	4	3	3	1
Canada	...	...	...	...	...	12	...	...	10	...	8	...	...
Japan	...	...	...	...	11	...	...	...	...	...	...	...	12
S. Korea	...	...	...	...	...	...	1	...	9	...	...	...	...
British Virgin Isl.	...	...	...	...	...	...	...	...	...	...	...	10	...
Turkey	...	...	...	...	...	...	8	...	...	...	...	...	...
BG	...	...	...	...	...	...	...	...	...	...	...	...	11
CR	...	...	...	-	...	...	...	...	3	...	...	...	...
PL	...	...	...	...	...	-	...	...	...	...	4	6	...
YU	...	...	-	...	...	...	...	-	...	...	...	...	9
Russia	...	...	...	...	5*	...	...	...	...	3	1	4	-
Ukraine	...	...	...	...	...	...	...	...	...	...	6	11	-
Belarus	...	...	...	...	...	...	...	...	...	...	7	...	-
Other	...	...	Australia 12	...	...	...	...	...	...	...	Estonia 12	Latvia 12	...

**Interpretation of table 2.6:** ranks refer to the relative importance of source countries in the host country, e.g. in the Czech Republic Germany is the most important investor, USA second, France third etc up to twelve ranks. Abbreviations and notes:

ALB = Albania: cumulative flow 1990-1993 [Germany Ministry of Economics]

BG = Bulgaria: cumulative flow 1990 [Germany Ministry of Economics]

Cro = Croatia: registered DFI, 1990 -8 1994 [Presseschau Ostwirtschaft]

CR = Czech Republic: cumulative flow 1989 to 1993 [Czech National Bank].

HU = Hungary: DFI stock registered end 1992 [Hungarian CSO]. \* Russia refers to CIS.

PL = Poland: registered stock of DFI of more than US\$ 500,000, September 1994 [PAIZ].

RO = Romania: registered DFI stock end of 1995 [RO Development Agency].

SLN = Slovenia: registered DFI stock end 1993 [Slovene National Bank].

SVK = Slovakia: registered DFI June 1994 [Ministry of the Economy].

EST = Estonia: registered DFI, July 1995 [Estonian Investment Agency (<http://www.vm.ee/eia/>)]

LAT = Latvia: registered DFI, June 1992 [World Bank].

LIT = registered DFI, 1.1.1995 [UNECE 1996].

R = Russia: registered DFI, end of 1991 [World Bank].

**Notes to table 2.5:** <sup>a</sup> calculated as change in stock, <sup>b</sup> excludes smaller host countries for which data are not available individually, <sup>c</sup> 1993, <sup>d</sup> The sum refers to the available data only, the total is estimated from table 2.3, <sup>e</sup> approximate share in worldwide DFI net flow reduced by net withdrawal from Russia/ Soviet Union, <sup>f</sup> net flow reduced by net withdrawal from Poland.

**Sources to table 2.5:** OENB (Sandra Riesinger), Banque Nationale Belgique, Statistics Canada, Hansen [1996], Bank of Finland, Boudier-Beseeba [1993], Deutsche Bundesbank, Banca d'Italia, De Nederlandse Bank, Office for National Statistics UK, US Chamber of Commerce. OECD [Direct Foreign Investment Yearbook 1995].

*Germany* was the firstly or second most important investor in all Central European countries (table 2.6) by number and statutory capital. It reports the largest DFI outflow to the region with almost 3 billion US\$ in 1995 (table 2.5).<sup>25</sup> The total inflow to the region including the former SU was about US\$ 6.5 billion in 1993 and 1994, of which Germany accounted for 22% to 29%. German DFI-flows to the transition economies continued a modest growth even in 1993, when worldwide DFI outflow from Germany almost halved to DM 19.3 billion from its 1991 level of DM 40 billion. In 1995 DFI to CEE accelerated to new record levels. The relative importance of CEE as an investment location for German firms was 4.7% in 1995, in

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<sup>25</sup> The common practice of reporting DFI data in US\$ does not reflect the trends appropriately for intra-European investment. For instance, the DM appreciated against the dollar 1989 until 1992, and depreciated in 1993. German DFI flows to CEE increased 1993 by 11% as measured in DM, but only 5% in US\$ terms.

1993 it was even 9.4%.

The strongest *UK* positions arise from telecommunication projects in the Baltics and oil exploration in Russia. In line with the proximity pattern, the relative importance of CEE as an investment location decreases with geographic distance: Only 0.7% of the British outward DFI were invested in the region in 1992. However, this may also due to longer implementation lags in the energy sector, a traditionally important activity of British investors. Latest figures for 1994 report a marked increase of DFI to the region.

Table 2.7 reports additional information for the two countries considered in this study, Germany and the UK. German investment in the region focuses on Hungary, but the Czech Republic has almost equalised by German inward stock by 1994. British investors still have their main position in Hungary, relatively more investment in Bulgaria and Romania, and weaker positions in the Czech and Slovak Republics. The differences reflect pattern of psychic proximity.

**Table 2.7: Regional Distribution of German and UK DFI within CEE**

*Stock of DFI at the end of 1994, in million US\$ and in %*

	<i>BG</i>	<i>CR</i>	<i>HU</i>	<i>PL</i>	<i>RO</i>	<i>R</i>	<i>SVK</i>	<i>Other<sup>a</sup></i>	<i>Total</i>
German DFI	24 <i>0.5</i>	1,788 <i>34.2</i>	1,803 <i>34.5</i>	731 <i>13.7</i>	54 <i>1.0</i>	165 <i>3.2</i>	312 <i>6.0</i>	364 <i>7.0</i>	5,224 <i>100%</i>
British DFI	41 <i>6.2</i>	86 <i>13.0</i>	370 <i>56.2</i>	94 <i>14.2</i>	17 <i>2.6</i>	45 <i>6.9</i>	0 <i>n.a.</i>	4 <i>0.9</i>	659 <i>100%</i>
Total <sup>b</sup>	262 <i>1.2</i>	3,317 <i>19.5</i>	7,014 <i>41.3</i>	4,674 <i>27.5</i>	663 <i>3.9</i>	n.a.	695 <i>4.1</i>	n.a.	22,000 <sup>c</sup> <i>100%</i>

<sup>a</sup>= mainly former Yugoslavia, <sup>b</sup> = cumulative flow of DFI recorded in BoP statistics, <sup>c</sup> = estimate.  
Sources: Deutsche Bundesbank, Office for National Statistic, table 2.3.

The proximity pattern also appears for small countries, e.g. comparing the performance of the former EFTA countries: while Austria and Switzerland are important in Central Europe, the Nordic countries are prominent in the Baltic states (table 2.6). Proximity also strengthens special relationships including Finns in Estonia [Borsos 1995], or Swedes in Poland and the

Baltics. Italy and France have a relatively stronger presence in South-East Europe. Turkey emerged as a notable investor for the firstly time, primarily in the former Soviet Union and around the Black Sea. Proximity is generally more evident in the number of projects than in the capital contributions, because it is more important for small businesses than for large MNE. Firms from neighbouring countries also were particularly active in the privatisation process [Lane 1994]. However, the pattern of neighbouring countries accounting for most investment is diminishing over time. Recent data report less dominance of investment from EU and EFTA countries [Sels 1996, OECD 1994].

*USA* and *Canadian* investors are more evenly spread across the region and thus have a relatively more important role in the states of the CIS. The USA have been catching up. Using registration data, it appears that US and Germany are neck on neck [Csáki 1993, Szanyi 1994, Hughes 1995, Estrin, Todd and Hughes 1996]. They have a very strong position in Poland where more than 30% of capital is of American origin. However, source country data, especially from the OECD, suggest that Germany is far ahead [table 2.5, Sels 1996, Lane 1995a]. Also data on operational DFI suggest that the US have implemented less investment [Quaisser 1995]. US investments tend to be by large firms in large projects with majority ownership [Lane 1995a].

Investors from Asian countries are rare in the transition economies. *Japanese* investment is minor, but increased in 1993. The notable exception is the US\$ 70 million project by Suzuki in Hungary [Tóth 1993]. *Koreans* probably have overtaken the Japanese with major projects in the automotive industry in Romania and Poland.<sup>26</sup> None of the newly industrialized countries of the South-East Asian region is present with significant capital which may be due to their small business dominated corporate structure. The low representation of Asian investors in the region is quite significant considering their dominant role in the surge of worldwide DFI in the late 1980s.

While increasingly attracting multinational businesses, also outward DFI from the countries

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<sup>26</sup> The Korean investment has raised considerable interest in the business press, especially the projects by Daewoo [e.g. Economist 27.1.1996, Financial Times 18.8.1995, 10.2.1996].

of the region is expanding. Under the socialist system, 'multinationals from the second world' [McMillan 1987] played only a minor role in mainly trade related activities. The current investment outflow is small compared with the inflow but indicative of a new role that business from these countries will play in the world economy. Some investors are emerging within the region, such as Poles and Hungarians who can play an important role as intermediaries in the states of the CIS, e.g. in Austrian-Hungarian-Soviet joint ventures [Csáki 1993a, UN 1995]. Czech investors became the main source of DFI in Slovakia after the split of January 1993, accounting for 32% of that years flow and 11% of DFI stock in Slovakia at the end of that year. Russians are emerging investors in other countries of the former SU, which includes the reclassification of enterprises in the aftermath of the break-up of the USSR. Motivations underlying this trend are very diverse: (i) firms wish to reestablish business interrupted by new borders, (ii) firm facing rising factor costs wish to relocate to reduce production costs, (iii) individuals moving their capital to politically more stable environments, or (iv) firms wishing to establish a local presence to enhance sales - just as Western firms do.

### **Sectors of Investment**

The fullest information on characteristics of DFI is the distribution across sectors of industry from registration data, despite their incomplete coverage and unrecorded changes over time in business activities. Comparability is further constrained by the use of different industrial classification schemes. Over time, these data show considerable volatility as a single large project can dominate the data of any particular year. Table 2.8 provides a cross country comparison of general industrial pattern. The main features are a strong position of manufacturing, a growing role of services that attracted many small projects, and a minor role of agriculture and mining activities.

*Manufacturing* received the major share of DFI capital across all countries, beyond its share in the host countries GDP or worldwide DFI flows - in Poland and Russia even more than two thirds of DFI capital. Traditional industries of machinery and chemicals were the most attractive industries, in particular in the early DFI in Hungary. Sels [1996] argues that DFI is not in traditional sectors of DFI such as scale and resource intensive industries, but in industries that are both advertising and research intensive. In particular, the automobile industry has established itself in Hungary (e.g. Audi, Opel, Suzuki, Ford), Czech Republic (VW-Skoda and many suppliers) and Poland (Fiat, Daewoo). The paper industry appears to be particular active in Poland. Despite the obvious factor cost advantages there is no clear

trend to typical low cost manufacturing industries such as textiles or electronics.

**Table 2.8: DFI by Sector of Investment**

*in % of total DFI*

	<i>Destination Countries</i>					<i>Countries of Origin</i>		
	<i>CR</i>	<i>HU</i>	<i>PL</i>	<i>R</i>	<i>RO</i>	<i>A</i>	<i>D<sup>a</sup></i>	<i>UK<sup>b</sup></i>
Food, beverage & tobacco	9.3	16.3	18.3	2.6	32.6	1.0	...	50
Light Industry	...	6.0	2.7	1.3	...	5.0	...	1
Chemical Industry	5.7	6.5	10.0	19.3	1.4	5.0	4.5	10
Metals	...	3.1	4.0	2.3	...	...	...	2
Engineering	27.5	13.2	6.8	24.1	26.5	13.0	36.8	9
Other Manufacturing	...	4.8	22.3	15.9	...	27.4	16.8	13
Manufacturing, total	...	49.9	64.1	65.5	...	...	58.1	76
Construction	12.7	4.7	3.3	8.5	17.6	11.7	...	...
Utilities	...	...	...	...	...	0.4	...	7
Trade	...	...	...	...	...	8.4	9.1	9
Transport & Communication	...	8.2	4.1	3.2	...	...	...	1
Financial Services	...	...	...	...	...	20.0	6.5	1
Other Services	16.4	35.5	28.2	28.0	...	...	...	...
Non reported "other"	...	..	...	...	...	7.1	21.2 <sup>c</sup>	-1

Notes: East European sources refer to registration data end of 1994 [UNECE 1996a]. West European data refer to Central Bank statistics on DFI: Austria (A) stock 1991, Germany (D): stock 1994, UK stock 1993. Sources: Austrian National Bank, Deutsche Bundesbank, Office for National Statistics. a = German data include China, b = UK data were to generously rounded to provide more precise percentage figures, c = mainly investment in holding companies.

The food, beverage and tobacco processing industry received surprisingly high shares of investment, reaching 30% in Hungary 1992. This includes many Western investors in confectionary (Nestlé, Cadbury), alcoholic beverages, soft-drinks (Coca-Cola & Pepsi), coffee, tobacco, and other branded goods, but few in basic foods products such as meat or milk [Kiss 1995]. Böckenhoff and Möller [1993] found DFI in the food sector in Hungary focusing on concentrated industries, where acquisition gives "comparably easy access to a significant market share and high barriers to entry ... will deter new entrants". Also, industries

that require less interaction with local suppliers were shown to be more attractive to foreign investors. The attraction of the food and beverage sector does not emerge in Russia.

The *construction sector* attracted 12.7% of DFI in the Czech Republic, but far smaller shares in other countries, which might reflect different classifications. *Utilities* attracted substantial investment due to the privatisation of large sales of electric utilities in Hungary.

The *service sector*, underdeveloped under the previous socialist system, has been leading throughout the region by number of DFI projects.<sup>27</sup> It received almost three out of four projects in Hungary. Within services, trade was the most important service in most countries, measured by number of projects, by share of foreign firms in total enterprise population [Meyer 1994], or by capital investment. This includes sales related activities by Western industry as well as wholesale and retail investments. Some other service activities attracted large capital inflows in particular years: in Hungary 1993, a few large projects increased the proportions of the transport and the post and telecom sectors to 23.1% and 13.8% respectively of all capital. In response to deregulation and privatisation also the financial sector and real estate received large amounts of capital. The main explanation for the major change in this pattern is a shift in the privatisation policy: major industries had been privatised, and remaining manufacturing firms could be successfully privatised by sales to domestic investors.

Western data on the sectoral distribution show the same emphasis on industry. They naturally reflect the strength of any country in industries with national comparative advantages. Some industries are more sensitive than others to proximity and thus come particularly from neighbouring countries. A particular concentration can be observed for the British food, drinks and tobacco industry, almost exclusively in Hungary. Investment by German automobile industry into the region jumped in 1991 from a negligible amount to 37.5% of all investment in the region, due to the VW investment in the (then) CSFR. This is much higher than the general share of the automobile industry in German outward DFI of 5.8%. Comparing the sectoral structure of German DFI stock in CEE to worldwide German DFI, the manufacturing

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<sup>27</sup> For the then Soviet Union, 1991 data of operational JVs also report (by number of projects) a strong concentration on services [World Bank 1992, Bayou 1992].

sector receives a much higher share (58% over 39.3%) and the financial sector takes a far lower share (less than 6.5% compared with 22%).

## 2.4. Contemporary Research in the Emerging Field

Soon after DFI was legally permitted in the region, research activities flourished in economics and business disciplines. This condensed summary of the literature shows in which direction research has developed in the five years since it emerged with the fall of the Iron Curtain.

### 2.4.1. Survey studies

The research of DFI in CEE started with several studies that interpreted the data on DFI flows, discussing issues such as host countries, source countries, sectoral structure, JV versus fully owned affiliates, and greenfield versus acquisition or privatisation entry. Also, the evolution of the legal framework received much attention at this stage [e.g. Gray and Jarosz 1993]. Many early studies reviewed the experience and potential of a particular country, see table 2.8.<sup>28</sup>

**Table 2.8: Country Studies**

<i>Country</i>	<i>Studies</i>
<i>Hungary</i>	Inotai 1992, Marton 1993, Csáki 1993, 1993a, Török 1994, Hamar 1994, Szanyi 1994, 1995, Arva 1994, Lane 1994, Wang 1995, Hunya 1996
<i>Czechoslovakia</i>	Bakal 1992, Hosková 1992, Drábek 1993
<i>Poland</i>	Bochniarz, Jermakowicz 1993, Brezinski 1994, Jermakowicz 1994, Witkowska 1994, Bilsen and Lagae 1995, Quaisser 1995, Hany 1995
<i>Slovenia</i>	Rojec and Svetlicic 1993, Rojec, Jasovic and Kusar 1994
<i>Baltics</i>	Hyvärinen and Borsos 1994, Borsos and Erkkilä 1995
<i>Slovakia</i>	Hosková 1995
<i>Bulgaria</i>	Gradev and Bobeva 1995, Bobeva and Bozhkov 1996
<i>Romania</i>	Radulescu 1996
<i>Soviet Union, CIS &amp; Russia</i>	Gutman 1992, Adjubei 1993, Bayou 1992, Samonis 1992, World Bank 1992, McMillan 1993b, 1994, Bradshaw 1995, 1996, Keller and Knigge 1995, Andreff and Andreff 1996, Polonsky and Clark 1996

<sup>28</sup> I am not aware of survey studies on other CEE countries. For China see Chan, Chang and Zhang [1995], Zhan [1993], Wang [1995] or UN [1995]. For Vietnam see Dodsworth *et al.* [1996], and for a comparison see Freeman [1994].

The research merged in a few cross country comparisons and generalisations discussing the same issues in broader context.<sup>29</sup> Recent, comprehensive and concise surveys are EBRD [1994 chap.9], Meyer [1995] and UN [1995 chap. 2]. The main patterns found in the survey studies have been described in the previous section.

#### **2.4.2. Determinants of Investment**

Theoretical work has pointed out the importance of factor cost advantages [Ozawa 1992, Arva 1994, Acocella 1995], as has a comparison of CEE with East Asia [Urban 1992, Meyer 1996, Agarwal *et al.* 1995a, UN 1995 chap V].<sup>30</sup> DFI was expected to utilize lower factor cost in the CEE region and invest in export oriented production facilities. Eastern Europe and the CIS still have very low labour costs compared with Western Europe although higher than some locations in South-East Asia. Current economic policy strengthens this advantage by effective undervaluation of the exchange rate and incomes policy.<sup>31</sup> On the other hand, productivity is substantially lower than in Western Europe, due to weak transport and communication linkages. Nevertheless, the region should have strong comparative advantages for intermediate level technical skills as the level of education in the region is relatively high. Factor cost advantages may also arise from low cost of some still subsidized raw materials, especially in Russia.

However, there is almost undisputed evidence that markets are the main attraction of the region. Even most of the country specific early studies recognise that. The evidence is clearest in the large number of surveys conducted among Western firms with investments in CEE and

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<sup>29</sup> This includes papers by UN [1992, 1994], McMillan [1992], Dobosiewicz [1992], Gutman [1993], Michalak [1993], Hood and Young [1994], Schmidt [1994], Svetlicic [1994a] and edited books by Artisien, Rojec and Svetlicic [1993], Buckley and Ghauri [1994], Zloch [1995], Artisien-Maksimenko and Adjubei [1996], and Artisien-Makisimienko and Rojec [1996].

<sup>30</sup> The experiences of DFI in CEE have not been related to experiences in other developing markets, nor has been made use of the literature on DFI in developing countries that evolved over the past 20 years [e.g. Lall and Streeten 1977, Enos 1989, Lall 1991, 1996]. The failure to link these streams of research may have contributed to naive expectation as to the role of DFI in CEE. Thus there is a need for comparative analysis across emerging market regions.

<sup>31</sup> Whether or not such a low wage policy is a sensible strategy for catching up with Western Europe is debatable [see Rodrik 1994, Gabrisch 1994].

among JVs within the region [McMillan 1991, NERA 1991, Collins and Rodrik 1992, Pfohl *et al.* 1992, Dörrenberger 1992, Gatling 1993, Genco and Taurelli and Viezzoli 1993, Lyles 1993, Wang 1993, Wimmer and Wesnitzer 1993, Benito and Welch 1994, Hoesch and Lehmann 1994, EBRD 1994, OECD 1994, Möllering *et al.* 1994, Engelhard and Eckert 1994, Duvvuri *et al.* 1995, Sharma 1995, 1995a, Ali and Mirza 1996]. For instance, in the OECD study, of 162 interviewees, 71 gave "access to large domestic markets" as their prime reason for attractiveness of the partner country, followed by "market share" (42), "market potential" (18), "low cost of production" (15), and "source of raw materials" (11) [OECD 1994, table 4]. The attraction of the markets arises from the catch up demand to Western levels of consumption and the expectation of sustaining economic growth [Estrin and Hughes 1997].

There are some cases of small firms following solely a low cost motivated DFI strategy. Relocation of production has been observed in textiles, clothing, furniture or musical instruments [e.g. Savary 1992, Borsos 1995, Estrin and Hughes 1997] especially for intermediate rather than final products [Estrin and Richet 1996]. An interesting outlier suggests that almost as many Italian firms were interested in low labour costs as in markets [Mutinelli 1994, also Mariotti 1994, Mutinelli and Piscitello 1995]. Other evidence suggests that the factor cost argument is more important for small firms and for firms from the directly neighbouring countries Germany [Dresdner Bank 1993, Möllering *et al.* 1994, Duvvuri *et al.* 1995, Estrin and Hughes 1997], Austria and Italy [Szanyi 1994]. Also, German firms often use outward-processing contracts to utilise the cost differential [Naujoks and Schmidt 1994].

Investors often follow foothold strategies that would give them entry to a market, but delay commitment of substantive amounts of capital investment [McMillan 1991, EBRD 1994]. This provides them with opportunities to learn about the local environment and prepare for upcoming opportunities. Learning and positioning were important motivations at very early stages in Hungary [Marton 1993] and in the Soviet Union [Samonis 1992, Fey 1995].

Correspondingly, market size and expected growth are the most important determinants of DFI, along with political and economic stability [all survey studies, and Schmidt 1995]. The competitive nature of the industry often influences the pattern of investment. Firstly movers

may enjoy long-term benefits from brand recognition or access to distribution channels that led to the early entry of multinational corporations in industries of worldwide oligopolistic structures [Marton 1993, Kogut 1996, Estrin and Hughes 1997]. The less competitive local markets, the easier enterprises could be privatised by sale to foreigners especially in the food sector [Böckenhoff and Möller 1993, Kiss 1995]. In some cases, suppliers of services or intermediate goods followed their customer, e.g. in the banking sector [Scott-Green 1996] or the automotive industry [Holmes 1993, Harwitt 1993, UN 1995 p. 106]. On the other hand, firstly movers invest in training and promotions that reduce entry costs for followers. These second mover advantages can, theoretically, lead to a "waiting game" where oligopolists wait for the rival to break the market [Sels 1996, Konings 1996].<sup>32</sup>

The main reported obstacles are the high risks associated with an uncertain political and legal environment and a volatile economy; changes in relative prices in the liberalisation process; uncertainty on the value of property rights; and, export market access, particularly to the European Union. Cost advantages are diminished by low productivity, lack of telecommunication and transportation infrastructure, and bureaucracy [all survey studies cited above, EBRD 1994, Sadowska-Cieslak 1995]. In addition, McMillan [1991] and Meyer [1995b] point out that foreign investment is inhibited because investors cannot find suitable local partners and suppliers able to provide inputs and services at the required level of quality. A possible response is vertical integration as in the infamous case of McDonalds in Moscow [Samonis 1992, 1995].

### **2.4.3 Ownership and Mode of Entry**

During the socialist regime, the economies in CEE were following a policy of autarky that closed them to multinational business activities. When DFI was firstly permitted in 1971 (Romania) and 1972 (Hungary) investment was constraint many regulations, including a

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<sup>32</sup> An unusual approach to test for the determinants of DFI was taken by Lang and Ofek [1993]. They found that the announcement effect of US projects in the region till 1991 increased the share price of the investing company on average by 1%, which is far higher than found in comparable studies for other joint-venture announcements. It was found that this effect was largest for firms with large intangible assets, proxied by Tobin's q. They suggest that for such companies there is particularly large market potential. In a similar study covering the period 1984-1988, Picou and Cheney [1992] did not find such unusual valuation effects.

requirement of JV-ownership [Gutman 1993]. Before 1989, generally no majority foreign owned operations were permitted. Thus, for many early investors, a JV was the only feasible mode to establish a local operation [Gatling 1993, OECD 1994, Hood and Young 1994, Hunya 1996]. Since then, regulations have been relaxed in many small steps. By 1992, DFI was fairly unregulated in Hungary, Poland and Czechoslovakia, and in most other countries soon afterwards [Dobosiewicz 1992, EBRD 1994]. In Russia, many regulations were still in place by the time of this study in 1994/95 [McMillan 1994].

Thus, the share of JV used to be high, especially in manufacturing. In service sectors, such as banking, greenfield operations and JV-acquisition are dominant [Scott-Green 1996]. However, there has been a massive shift towards fully owned affiliates, both by new investors and old investors increasing their equity share. Recent surveys report a higher share of WOS than earlier studies [Möllering *et al.* 1994, Duvvuri *et al.* 1995, Sharma 1995a]. JVs established earlier may or may not have been converted in wholly owned affiliates.

A trend towards greenfield projects can be observed in manufacturing as entry mode recently with differences across host countries [Svetlicic 1994a, Rojec and Jermakowicz 1995]. The Johanson-Vahlne model of increasing involvement in the internationalisation process receives support, but many firms move in very quickly even establishing WOS in their firstly activity [Engelhard and Eckert 1993, 1994, Ali and Mirza 1996]. A form of entry peculiar to the region has been called 'brownfield': investors acquire a local firm but replace the existing physical capital stock almost completely, retaining only intangible assets such as brand names or the workforce [Estrin and Hughes 1997].

The choice between JVs, acquisition and greenfield projects is related to industry specific factors: such as labour intensity, concentration, supplier and distribution networks and restructuring costs [Dunning and Rojec 1993, OECD 1994, Rojec, Jasowicz and Kusar 1994, Duvvuri *et al.* 1995, Schmidt 1995]. In the transition countries, acquisition generally implies participation in the privatisation process.

Entry modes differ across industrial sectors [Lane 1994] and host countries [Gatling 1993,

OECD 1994]. Countries of origin differences emerge between firms based in close proximity, such as German, Austrian or Dutch firms and those further away, especially British and US American firms [e.g. Estrin and Hughes 1997]. Sharma [1995] and van Dam *et al.* [1996] stress the importance of risk aversion of American investors choosing low control modes. Non-equity forms have been used as a mode of entry at the times of restrictive DFI regimes. Recent surveys show that licensing and franchising are actively used in East-West business, sometimes in combination with equity investments [OECD 1994, Möllering *et al.* 1994]. Subcontracting is particularly popular with German firms [Naujoks and Schmidt 1994, Hoey 1996]. A new form of contractual arrangement is the build-operate-transfer contract that is an opportunity for infrastructure project finance [Cosgreve-Sacks 1996].

#### **2.4.4 Management**

Strategies reported by investors are mostly country specific except for non-European investors [Gatling 1993, OECD 1994]. For many American MNE present in West European markets, CEE is just another market which they integrate in their worldwide or European product manufacturing and branding strategies [Holmes 1993]. Hungary in particular may be chosen as a regional centre [Szanyi 1994]. Some companies also appear to invest in the region in view of the EU market, particularly American investors [Collins and Rodrik 1991, NERA 1991] and recently Koreans. DFI in Eastern Europe may also ease strategies of price discrimination or product differentiation, or prevent competitors to follow such strategies [Estrin and Hughes 1997]. Bridgewater, McKieran and Wensley [1995] distinguish entry strategies as firstly-mover, option-taker, deal-maker, and client-follower.

DFI in CEE is part of the global strategy of MNE. As such it has been analysed in case studies [Estrin and Hughes 1997, Sander 1995, Mirow 1996]. If DFI is market oriented, strategic interactions within oligopolistic industries play an important role. For instance, the 'strategic game' between potential entrants would depend on relative advantages of firstly-mover and second-mover strategies [Sels 1996]. Also, the interaction with local competitors and the host government could be seen in terms of strategic games. As each JV is part of the investors' global strategy, parent objective can take precedence over local objectives at the displeasure of local stakeholders.

The performance of foreign investment projects has been analysed, firstly, based on enterprise level statistics by Hamar [1994], Lane [1994, 1995] Kubista [1995], Papanek [1995], and Hunya [1996]. These studies compare for instance joint-ventures with domestically owned firm. Foreign owned firms are found to be more export and import oriented, and produce less labour intensive than local firms. The results for profitability are inconsistent. Interestingly, performance of JVs and fully foreign owned firms appears to differ with respect to their profitability and their export performance [Lane 1995, Kubista 1995].

More detailed understanding of the determinants of joint-venture success is obtained by interview surveys of both domestic and foreign partners of a JV. Such survey studies have been conducted e.g. in Hungary [Lyles and Baird 1994, Meschi 1996], Russia [Fey 1995, 1995a, 1996, Thornton 1997] and Kazakhstan [Charman 1996, 1996a, Szymanski 1996]. The success of a JV depends mainly on issues such as the compatibility of the objectives of the parents, and establishment of mutual trust while avoiding of dominant control by either partner. International business experience of the local partner is important, as is the Western partner's management training. In Russia, reputation effects and self-enforcing contracts are important to overcome the weaknesses of the institutional framework [Thornton 1997]. However, wholly owned operations are judged to perform better in investors own assessment [Lyles 1993, Möllering *et al.* 1994].

Management research has analysed many related issues that shall not be reviewed here in detail. In addition to analyses of the business environment [Paliwoda 1995, Dyker 1996, Springer 1995] and teaching cases [Fogel 1995], many specific questions have been addressed:

- changing relationships with local partners over time [Salmi and Möller 1994],
- use of networks in internationalisation and entry processes [Bridgewater, McKieran and Wensley 1995]
- joint-venture negotiations [Antal 1995, van Zouweren *et al.* 1996],
- marketing strategies [special edition of Journal of Marketing 1993, Holmes 1993]
- marketing environment in CEE [Cox and Hooley 1995]

- training of local staff, role of expatriate managers [Child and Markoczy 1993],
- compensation of local managers [Puffer and Shekshina 1996].

#### **2.4.5 Impact on the Transition Process**

DFI contributes to the transition and development of CEE economies through several microeconomic and institutional effects besides the macroeconomic effects [McMillan 1993, Estrin and Hughes 1997]. Initially the need for additional foreign capital for the economic restructuring was emphasised [IMF *et al.* 1991, Scott 1992, Knirsch 1994]. Formal modelling approaches to potential macroeconomic effects are Abel and Bonin [1992] and Welfens [1992]. Except for Hungary [Hamar 1993, Csáki 1993], the inflow of capital was low in the early years of transition when they were needed capital most. Continued large DFI inflows enables servicing of the large external debt in Hungary [Hamar 1994, Hunya 1996]. For other countries, concerns were raised that the inflow of too much foreign capital, of which DFI is a major component, contributes to monetary expansion and thus inflationary pressures [Nuti 1995] or encourage increasing consumption rather than investment [Calvo, Sahay and Vegh 1995].

Foreign owned firms export more than domestic firms, but also import a larger share of their inputs. Especially at an early stage the net impact on host countries in CEE was negative because of a) a large number of marketing and sales only projects, b) import of capital goods to establish local production facilities c) lack of local suppliers which are developed only over time. Lakatos and Papanek [1995] suggest that MNE emphasise integration of acquired firms into their global network over maintenance and growth of local supplier relations. On the other hand, they make an important contribution to increasing diversifying and upgrading international trade through access to advanced technologies and international markets [Naujoks and Schmidt 1995].

Data on exports by foreign affiliates are frequently available and show that foreign affiliates export a larger share of their production than do local firms [e.g. Quaisser 1995, Svetlicic 1994a]. However, data on import are rarely published in a comparable format such that the net-effect on the trade balance is difficult to assess. The UN takes the very optimistic view that

"beginning with 1993 DFI contribution to the trade balance of most CEE countries has been positive" [UN 1995, p. 112]. In Hungary, JVs as a group ran a trade deficit half the size of Hungary's total trade deficit [Hamar 1993, 1994, 1995, Hunya 1996]. With the largest DFI stock, Hungary had the largest trade deficit in the region in the firstly half of the 1990s. For Slovakia, a positive net effect on the trade balance has been reported for the firstly half of 1995 after negative effects in 1994 [Hosková 1995].<sup>33</sup> Hoekman and Djankov [1996] show that DFI is highly correlated with the growth of vertical intra-industry trade between CEE and the EU.

Direct effects on employment tend to be small as DFI contributes more to output and capital formation than to employment [Papanek 1995, Borsos 1995, Hunya 1996] and privatisation related DFI often requires layoffs of a large number of employees [UN 1995, Wang 1995].

A general consensus suggests that the most important contribution is the transfer of know-how of various kinds. This includes technological know-how as well as managerial, organisational, financial and marketing know-how [McMillan 1993, Murrell 1992a, Siotis *et al.* 1994, Kogut 1996, Svetlicic 1994a, Quaisser 1995]. Casson [1994] emphasised the transfer of cultural values of entrepreneurial behaviour. Thornton [1997] found US investor guaranteeing quality control, and through their reputation, enabling international market access. With such intangible transfers DFI contributes to enterprise restructuring in acquired firms and any markets in which it engages.

Evidence suggests that investors invest heavily in training their local workforce, and even local suppliers [e.g. Pfohl 1992, Sereghyová 1995, Estrin and Richet 1996, Thornton 1997]. In many cases, e.g. in the automobile industry, the technology implemented in CEE is world leading standard [Harwitt 1993, Estrin and Hughes 1997]. The importance of technology transfer arises from the view that imported technological know-how enhances human capital and thus productivity [Bhagvati 1985, Ozawa 1992, Svetlicic and Rojec 1994]. Ultimately,

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<sup>33</sup> Wang [1995] empirically tests the impact of aggregate DFI on national economic growth and international trade using regression analysis common in the development economic literature. Using a Harrod-Domar type model, he finds no significant impact on growth in Hungary. The impact on exports is negative and on import mostly insignificant.

this is hoped to contribute to the development of indigenous innovative capabilities [Cantwell 1993]. An important aspect of technology transfer is its diffusion beyond the foreign affiliate, via forward and backward linkages [Svetlicic 1994, Woodward *et al.* 1995] or movement of employees. DFI is only one mode to acquire modern technology, using contractual arrangements would be an alternative [Urban 1992, Radice 1995a]. Dunning [1993a] predicts that CEE would choose a mix of both strategies, which he labelled 'developing country' and 'reconstruction' model. Arva [1994] argues that technology transfer and capital inflow through DFI could induce a take-off for economic development.

Whether DFI actually contributes to the development of indigenous technological capabilities is questioned by some authors [Dunning and Rojec 1993, Sugden and Thomas 1993]. MNE usually centralise R&D activities and thus have been seen to reduce R&D in their locally acquired companies [Sereghyová 1995a, Papanek 1995, Lamande 1994]. Expectations by Russian research institutes that their foreign JV partner would help develop access to Western markets have frequently been disappointed [Fey 1995]. On a positive note, foreign owned firms report higher R&D spending than domestic firms in Hungary [Hunya 1996].

Estrin and Earle [1993] classify the main tasks of economic transition at the enterprise level as (a) depoliticisation, i.e. breaking the link between governments and firms, b) restructuring the organisation, c) restructuring employment and other inputs, and d) social criterions. Foreign acquisitions are superior over domestic ownership, state or private, by the first two criteria due to the foreign investors' corporate culture and know how. The restructuring of employment would be more rigorous under foreign control than under insider control, which evolved in many CEE countries. However foreign investors avoid enterprises in need of major labour shedding. Also they tend to be less sensitive to social sensitivities in the host economy [Estrin and Hughes 1997]. Foreign owned firms have restructured more actively than domestically owned firms [UN 1995, p. 113] because a) they integrate affiliates in the networks, b) have better knowledge on the goals and means of restructuring, and c) have immediately effective governance.

DFI also contributes to increased competition through entry, linkages and example, and to

institution building through establishment of Western practice and lobbying [McMillan 1993, Kogut 1996, Radice 1993, 1995, 1995a]. Negative effects may arise for instance if foreign firms negotiate protection for their locally produced goods [Witkowska 1994, EBRD 1994, Svetlicic 1994a], by crowding out local competitors [Nachum 1995, 1995a], by involvement concentrated industries [Vissi 1995] or in sectors with highly distorted economic incentives [Booth and Record 1995].

A different contribution is the signalling effect of DFI on the credibility of reform. This is important because of the influence that self-fulfilling expectations can have on the success of transition [Siotis *et al.* 1994] and second wave foreign investors [Gál 1993].

Some studies discussed the impact on other countries. Countries potentially competing for DFI fear a loss of DFI inflow as a result of a changing preference of European investors. For Spain [Guál 1994] and for developing countries overall [Agarwal, Gubitz and Nunnenkamp 1995, Agarwal 1995] this concern has been rejected because most DFI in CEE, as well as Spain, is market oriented. Also, the concern that DFI would lead to job losses in adjacent West European regions was rejected for Bavaria [Hoesch and Lehmann 1994] and Finland [Borsos 1995]. However, new opportunities in Eastern Europe will affect the industrial restructuring differently in different countries of the European Union [Hughes 1995].

#### **2.4.6 Policy Issues**

To attract DFI, the most important aspects of government policy are not DFI specific measures but commitment to systemic transformation and the general economic policy to ensure macroeconomic stability, infrastructure development and the establishment of a market oriented legal framework [e.g. Agarwal *et al.* 1995a, Borsos and Erkkilä 1995].<sup>34</sup> Macroeconomic stability made major progress in most countries, as did the improvement of the infrastructure although starting from a low basis.

Several papers discuss policy that should be adopted *vis-à-vis* the foreign investors. If the

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<sup>34</sup> Dmochowski [1995] argues that investors favourable 'perception' of economic conditions is more important than actual facts and would explain Hungary's lead.

objective is to achieve particular goals of technology transfer or competition, then the authors argue in favour of an active policy [Brabant 1993, Dunning and Rojec 1993, Cantwell 1993, Guerrieri 1995, Hunya 1996]. However, regulation should allow MNE to experiment and to introduce new ideas of corporate governance [Kogut 1996]. Incentives such as tax incentives are generally rejected as costly and ineffective [e.g. Siotis *et al.* 1994, Agarwal *et al.* 1995a]. There are doubts whether or not CEE institutions can follow a flexible industrial policy with similar successes as in East Asia [Radice 1995a]. Also, an active competition policy similar to the practice in the West is recommended [Estrin and Cave 1993, Kogut 1996, Siotis *et al.* 1994, Radice 1995a]

The privatisation process has been a major determinant of the pattern of DFI. According to the UN 60% of DFI in the region was attracted by the privatisation with a declining trend over time [UN 1995, p. 18].<sup>35</sup> A substantial literature discusses theoretical aspects of privatisation, the optimal policy to be chosen, and country experiences [see section 2.2.3]. Privatisation through sale to foreigners is an option that contributes to speed of transition, government revenues, but also has some drawbacks [Dunning and Rojec 1993, Rojec, Jasovic and Kusar 1994]. The experiences of the privatisation process are far more complex than any theory suggested [Estrin 1994]. The process of "foreign privatisation" has been studied using a case method [Rojec, Jasovic and Kusar 1994, Estrin *et al.* 1995, Estrin and Richet 1996, Sereghyová 1993].

Some disagreement emerged about the desirable degree of openness of the trade regime. On the one hand, infant industry may require temporary protection [e.g. Dunning and Rojec 1993]. On the other hand, distortions could be exploited by MNEs in their favour [e.g. Siotis *et al.* 1994]. The openness of the trade regime is an important part of the transition process,

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<sup>35</sup> The role of privatisation in attracting DFI can be inferred from data of the privatisation agencies and by lists of the largest investment projects. In 1990, 95% of the revenues of the Hungarian state property agency came from foreign investors, but the share declined to 80% in 1991 and 42% in the first five months of 1993. The total investment in privatisation as of October 1993 was 138 billion Ft. [Lane 1994], which is more than a third of the total DFI as measured by the b.o.p. data. The Financial Times [17.11.93] Top 50 for Hungary includes 27 privatisations, 11 greenfield projects, 6 JVs, 3 investment funds, 1 share placement, and 1 concession. For Poland, it is reported that 63% of FDI are linked to privatisation [see Svetlicic 1994a].

especially for price liberalisation, and to induce import competition and increase credibility of the reforms. The trade policy of CEE in the early 1990's is mainly determined by the Europe Agreements (section 2.2.4).

Special Economic Zones have been declared with little success in Russia due to their unclear regulatory arrangements [Kuznetsov 1995]. UNCTC [1991a] and Agarwal *et al.* [1995a] suggest them as a policy option. Ahrens and Meyer-Baudeck [1995] find no convincing arguments for them except in Russia. However, some major investors in Hungary have duty-free-zone status that exempts them from tariffs [Hunya 1996].

## **2.5 Directions for this Research**

The literature synopsis shows that the patterns of DFI have been established in broad terms. Therefore this study focuses on determinants of investment decisions and characteristics of DFI projects. The following three core research questions have motivated this research:

- Why was DFI so low in most countries until about 1994?
- How does the special environment of CEE influence volume and characteristics of DFI?
- How does the pattern of activity differ between German and British firms?

The first question is concerned with the economic determinants of direct investment. The aim is to understand not only why companies engage in the region, but also why many others do not invest. Therefore, the empirical part of the study covers firms with and without DFI in the region, and focuses on their decisions to become involved in various forms of West-East business, including DFI.

The second question relates to the interaction of the local environment with the strategies of foreign businesses. The analysis focuses on observed patterns of activity with respect to similarities and differences in pattern described in the international business literature. It includes more specific questions such as the relative importance of market and factor cost related investment motivations, and their evolution over time. Is DFI driven by market attraction or by factor costs? What determines investors' choice of DFI over other forms of

international business? Why do investors frequently choose JV entry? Who is entering via acquisition of local firms? Who participates in the privatisation process?

A special feature of this study is the comparison of enterprises from two countries of origin that have different pattern of activity in the region.<sup>36</sup> Three main lines of argument suggest that German firms would be more active: (1) they have had closer relationships with the region throughout the past decades, and often established direct contacts through acquisitions in former East Germany. (2) They are geographically closer which reduces transportation costs and thus eases exports and subcontracting, and (3) they face higher labour costs due to real appreciation of the Deutschmark and high social costs that make production relocation a more attractive option.

The second part of the thesis reviews theoretical and empirical research on DFI in other parts of the world. From this work, propositions will be developed for factors expected to determine DFI in CEE. The empirical analysis in part III will investigate whether or not these determinants also drive DFI in CEE - and how the special environment affects DFI.

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<sup>36</sup> Contemporary research considering home country differences is Estrin and Hughes [1997], Ali and Mirza [1996] and van Dam *et al.* [1996].

**Part II**

**The Theory**

**of**

**Direct Foreign Investment**



## Chapter 3

# Theories of Direct Foreign Investment: A Review of the Literature

### 3.1. Introduction

A comprehensive review of the literature on direct foreign investment (DFI) becomes invariably a *tour d'horizon* of the International Business field. Disciplines from Economics and Finance to Strategic Management, Marketing and Organisational Behaviour have contributed to the present understanding of DFI. No common unifying theory has emerged. However, many researchers use John Dunning's OLI paradigm, or theoretical approaches that fit into this general framework.

This review focuses on determinants of DFI.<sup>37</sup> It discusses DFI at different levels of aggregation, including aggregate flows of DFI as recorded in balance of payments, industry and firm level analysis and individual decisions makers in the firm. Early research analysed DFI as a financial flow. As researchers recognised the specific characteristics of direct, rather than portfolio, investment, they focused on three issues: the location of production, the

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<sup>37</sup> Recent related surveys of the theory of DFI in a mainly microeconomic context are Dunning [1993, chapter 4] and Stehn [1992]. Stehn presents the multitude of different approaches explaining the flow of DFI as well as discussions of the eclectic paradigm. Pitelis and Sugden [1991] is a collection of papers on current issues related to the theory of the multinational firm, of which Cantwell [1991] is a comprehensive discussion of the state of the art. Markusen [1995] reviews the modern international trade literature related to DFI. Also see Lizondo [1991] and Meyer and Rühmann [1993]. Agarwal [1980] surveys earlier theoretical and empirical literature.

sources of firm-specific advantages, and the reasons to integrate different business units into one firm.

The OLI framework incorporates these three issues. It is today the most common analytical tool for the determinants of DFI, and is adopted in this study. The framework is limited in its ability to explain dynamic processes. Therefore, this review pays special attention to recent advances of economic theory addressing the dynamics of DFI. Dynamic models focus on particular types or aspects of DFI and thus are less general than the OLI paradigm. The most familiar dynamic approach is that of the internationalisation process models based on the work of the Uppsala school in the 1970s. Recent advances include the rediscovery of economic geography in the work of Paul Krugman and Michael Porter, the integration of MNE into models of international trade by James Markusen, Elhanan Helpman and, again, Paul Krugman, as well as the game-theoretic analysis by the Leuven school. Chapter 4.3 examines another dynamic approach to DFI, the developmental model. It relates economic development of a country and the characteristics of DFI outflows.

**Table 3.1: Theories of Direct Foreign Investment**

<i>Unit of Analysis</i>	<i>Static Analysis</i>	<i>Dynamic Analysis</i>
Financial flow of DFI	Capital markets approach, Macroeconometric analysis	Exchange rate analysis
Location of production	Theory of location (L) Institutional analysis	Developmental model Economic geography
Firms and competition	Resource based view, ownership advantages (O)	New international trade theory, Game theory
The scope of the firms	Internalisation theory (I)	Internationalisation process models

**Table 3.2: Core Concepts and Major Contributors**

<i>Theory</i>	<i>Concepts</i>	<i>Early contributors</i>	<i>Recent work / reviews</i>
Capital markets approach	return on investment	Aliber 1970 Agmon/Lessard 1977	
Exchange rate analysis	volatility and uncertainty	Logue/Willet 1977 Batra/Hadar 1979	Froot/Stein 1991 Kogut/Kulatilaka 1994
Macroeconometric analysis	GDP, growth, costs, etc.	Scaperlanda 1967	Clegg 1995
Theory of location	comparative advantages	Mundell 1957	Dunning 1993
Institutional analysis	government-firm relationships	Kobrin 1987 Guisinger 1985	Stopford/Strange 1991, Loree/Guisinger 1995
Developmental cycles	evolving comparative advantages	Vernon 1966 Kojima/Ozawa 1985 Dunning 1986	Markusen 1991 Narula 1995 <i>see appendix 3.1</i>
Resource based view	firm (ownership) specific advantages	Hymer 1960/1976 Kindleberger 1969	Yamin 1991 Dunning 1993
Industrial org./ game theory	oligopolistic competition economies of scale	Knickerbocker 1973 Dixit 1980 Krugman 1983	Markusen 1995
Internalisation theory	transaction costs	Caves 1971 McManus 1972 Buckley/Casson 1976	Dunning 1993 Casson 1995 <i>see chapter 4</i>
Economic geography	agglomeration	Marshall 1920 Krugman 1991	Krugman/Venebles 1994 Malmberg/ Sölvell/Zander 1996
Internationalisation process model	proximity, experience uncertainty avoidance	Wiedersheim-Paul /Johanson 1973 Luostarinen 1972	Johanson/Vahlne 1990 Nordström 1991 Andersson 1993
Eclectic paradigm	O L I	Dunning 1977	Dunning 1993, 1995

Table 3.1 summarises economic theories by their level of analysis and whether or not they focus on static or dynamic analysis. This categorisation serves as orientation rather than a precise characterisation. In some cases, the dynamic theories have developed out of the static theories, such as the developmental model. In other cases the pairs reflect contrasting views. Internalisation and internationalisation theory account for some of the most lively encounters at academic conferences. Table 3.2 lists the multitude of theories with their main analytical concepts, original contributors and recent reviews or extensions.

### **3.2 DFI as Capital Flow**

On the most aggregate level, DFI is analysed as a flow of capital between countries. Theoretical research on this level has grown out of financial market analysis and the aggregation of microeconomic theory. Recent research focuses on dynamics of DFI flows including exchange rate effects. Data available at aggregate permits extensive empirical analysis not feasible at lower levels of aggregation.

#### **3.2.1 Capital Markets Approach**

The first response by economists to the emergence of DFI was to observe the new phenomenon "through the filters least disturbing to reigning paradigms of the profession" [Vernon 1994, p. 138]. Considering Thomas Kuhn's "The Structure of Scientific Revolutions" [1962], Raymond Vernon [1994] finds it all but surprising that capital market approaches to DFI have been dominant in the 1960s.

The basic premise is that MNEs face differentials in international capital rents and use DFI to overcome barriers to international capital flows. They fund themselves in countries with relatively high capital endowments and hence lower interest rates. They invest in countries with low capital endowment and high capital costs. DFI serves as international capital arbitrage. In this framework, international interest differentials determine DFI stocks whereas changes in relative interests yields determine DFI flows. As DFI also transfers other resources in addition to capital, these too have to yield a higher return abroad to make a DFI profitable. This simple differential rate of return hypothesis has been analysed empirically but was often insufficient to explain DFI [see Agarwal 1980 for review]. It can however

explain DFI in the 19<sup>th</sup> century due to high transaction cost in the capital market at that time [Hennart 1991].

Aliber's [1970] widely cited hypothesis of optimal currency areas assumes that MNEs can finance themselves in hard currency countries.<sup>38</sup> They earn a 'currency premium' by utilizing the interest differential between hard currency and weak currency countries because their creditors do not recognize the risk of devaluation associated with DFI in weak currency areas. Therefore, they pay lower capital cost than competitors in local markets, whose capital costs are increased by a risk premium to compensate the creditor for the expected devaluation.

The financial market approach became more comprehensive when the tradeoff between yield and risk was incorporated. Firms maximising yield and minimising risk diversify their investment portfolio by international investments, as do financial investors. If the systematic risk of the home and foreign market are less than perfectly correlated then the risk of an internationally diversified portfolio is lower than that of a purely national portfolio. The capital asset pricing model has been extended to an international asset pricing model. It can explain diversified DFI as reaction to barriers and cost to international portfolio capital flows. Lowering these barriers, MNEs are contributing to the integration of international capital markets [Agmon and Lessard 1977, Errunza and Senbet 1984]. For private investors, investment in a MNE becomes an alternative to investing in an international investment fund.<sup>39</sup>

The empirical support for portfolio investment models to explain direct investment is weak [see Agarwal 1980, Stehn 1992 for reviews]. Graham and Krugman [1993] reject the approach because DFI flows have not paralleled international portfolio capital flows as would be predicted by this approach. In recent years, international liberalization of financial markets makes this motivation for DFI increasingly irrelevant for investment between industrialized countries where most DFI occurs.

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<sup>38</sup> A similar argument is made by Rich [1980] for reserve currency centres such as Switzerland.

<sup>39</sup> Jahrreiß [1984, p. 233-253] reviews this approach and related empirical tests.

### **3.2.2 Dynamic Macroeconomic Analysis**

DFI-flows are a function of firms desired capital stock at given foreign locations according to their long-term plans. Individual investment decisions determine the timing of a given DFI project. This timing is sensitive to changes, anticipated changes and volatility of major environmental variables, as well as uncertainty. DFI flows react very sensitively because they are generally irreversible. Sunk costs are high due to plant specific investment, personnel recruitment and training, market research and negotiations with foreign partners and governments.

Changes in the environment can create temporary cycles of DFI flows as MNEs adjust to new levels of desired foreign holdings. Such changes arise in the tax and tariff policy, the innovations in corporate finance markets, liberalisation of service sectors, or privatisation processes. Once the finite number of firms who can use the new business opportunities has invested, DFI flows drop to their previous level - at a higher level of stock. The reaction to a change may involve substantial adjustment costs. Implementation lags may drive a temporary wedge between desired capital stock abroad and the actual capital invested. Also anticipated changes of, e.g. the investment incentives, can lead to a rush or delay of DFI and thus cause cycles.

On the other hand, temporary influences, such as taxation and exchange rate revaluations, can have long-run implications on the permanent stock of DFI after the temporary influence has long disappeared due to so-called "hysteresis effects" [Dixit 1990, Pindyck 1991]. An enterprise investing during an incentive program or a favourable exchange rate constellation will not necessarily withdraw if these cost factors become less favourable such that it would not attract the same project again. Divestment decisions depend on expected future cash flow only and ignore sunk costs. Therefore, volatile exchange rates and exchange rate expectations will induce investment flows that follow different paths over the cycle as increasing investment during a devaluation is not matched by the same divestment during a reevaluation. Baldwin and Krugman [1989] made this argument for international trade showing how entry and exit decisions during a temporary shock can lead to a different equilibrium after the shock although the cause of the shock has been removed. Kogut and

Kulatilaka [1996] applied this approach to DFI.

### 3.2.3 Exchange Rate Analysis

The issues arising from volatility and uncertainty of environmental variables have been discussed in most detail for exchange rates. In perfect capital markets, revaluation of exchange rates would not affect investment flows as both domestic and foreign investors have access to the same financial markets. Three independent lines of arguments have been made why this may not be so.

Devaluation of foreign currency reduces the share of foreign assets in an investor's portfolio. With unchanged risk evaluation, the share of foreign assets should remain constant. Thus a "portfolio rebalance effect" induces selling of domestic and buying of foreign assets [Logue and Willet 1977]. Froot and Stein [1991] reach a similar conclusion by assuming imperfect capital markets with information asymmetries: Since investors are better informed than bankers on a given project, financing will always require a contribution of an equity share from his own wealth. If temporary devaluation changes the value of investors' wealth in foreign currency, this "wealth effect" will enhance ability to invest abroad: The same funds buy more foreign assets.<sup>40</sup>

Thirdly, only changes in real exchange rates affect decisions over location of production and thus DFI. Changes of nominal exchange rates influence only the timing of DFI, not the general trend. Real devaluation of foreign currency reduces relative foreign labour cost and thus leads to more DFI. Local production replaces exports from the home base [Kohlhagen 1977], possibly smoothed as adjustment to desired capital stock is lagged [Goldsbrough 1979]. This result does however not necessarily hold if other than constant marginal cost functions are assumed [Batra and Hadar 1979]. Empirically testing the wealth effect versus the labour cost argument for DFI into the US, Klein and Rosengren [1994] found support for the wealth effect. Both the 1978-81 and 1986-90 surge of DFI into the US coincided with periods of dollar weaknesses [Graham and Krugman 1993, Stevens 1993].

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<sup>40</sup> The model assumes that long-term expected value of foreign assets in home currency are independent of current exchange rates.

Exchange rate risk can be hedged in financial markets if it is short or medium run and in a commonly traded currency. In this case, it causes "only" transaction costs (TC). To reduce TC and to minimize unhedgeable risk the firm may change its investment decisions. It can reduce the 'exposure', i.e. the net cash flow in foreign currency. Models of MNEs with exchange risk generally find a positive relationship between DFI and exchange risk, as DFI replaces exports. This is because in DFI only repatriated profits are exposed to exchange risk. For exports the total sales accrue in foreign currency with costs in domestic currency [Itagaki 1981, Batra and Hadar 1979 and Calderón-Rossel 1985]. Cushman [1985, 1988] empirically supports this line of argument. These results contradict pure portfolio-models [Hartman 1979], which predict a negative correlation.

Exchange risk furthermore induces firms to invest in more locations to be able to react flexibly to changes in real local cost of production [see Kogut and Kulatilaka 1994, Aizenman 1992]. Also, an initial investment can serve as a platform for subsequent entry, with the timing of entry triggered by movements in the real exchange rates [Kogut and Chang 1996].

### **3.2.4 Macroeconometric Analysis**

The diversity of DFI is a major obstacle to macro-level analysis, both for modelling and empirical research. Macroeconometric research combines financial data, such as those discussed above, with microeconomic determinants of DFI derived from firm level theoretical work. The most commonly tested variables include market size, market growth, factor costs, trade barriers as well as interest rate differentials and exchange rate movements. This research has used three different kinds of data set: cross country inflow of DFI from a source country, cross industry data of DFI inflow, or times series of DFI into a particular country.

The time series approach is most popular as capital flow data are readily available and econometric techniques are well developed.<sup>41</sup> Many countries have been studied, most

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<sup>41</sup> Latest cointegration technique is applied by Pain [1993] and Bajo-Rubio and Sosvilla-Rivero [1994].

frequently US investment in Europe [see Clegg 1995 for summary]. The dependent variable is DFI as measured in the balance of payments or changes in recorded DFI stock.

Market size and growth are considered in all these studies as penetration of foreign markets is a major motive of DFI. GDP and the change in GDP are the most common proxies and generally significant.<sup>42</sup> Low labour costs are generally presumed to attract DFI as they reduce costs of production. However, it is difficult to show this empirically because low labour costs are associated with low income and thus low local demand.<sup>43</sup>

Exchange rate effects are tested, but empirical results are as a whole are as inconclusive as the theoretical research.<sup>44</sup> Relative interest rates reflecting the cost of borrowing were however frequently significant.<sup>45</sup> Institutional aspects can often only be captured by dummy variables that indicate the presence of condition. For instance, dummies for tariff discrimination dummies and the time of membership in the European Union were significant.<sup>46</sup> Economic risk of macroeconomic instability is related to the inflation rate and reduces investment. It is significant in Bajo-Rubio and Sosvilla-Rivero [1994].

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<sup>42</sup> GDP and/or GDP growth have been tested by, inter alia, Bandera and White [1968], Scaperlanda and Maurer [1969, 1972], Goldberg [1972], Root and Ahmed [1979], Goldsbrough [1979], Lunn [1980, 1983], Scaperlanda and Balough [1983], Hultman and McGee [1988], Culem [1988], Barrel and Pain [1991], Bajo-Rubio [1991], Bajo-Rubio and Sosvilla-Rivero [1994], Torrissi [1996]. Clegg [1995] found a surprising negative effect of market size in a 40-years study. The approach is not fully satisfactory as DFI contributes to production and thus host country GDP. GNP would be more satisfactory. O'Sullivan [1993] and Millner and Pentecost [1992] defined the relevant market beyond the host country, i.e. the European Union.

<sup>43</sup> This applies to time-series studies [Goldsbrough 1979, Cushman 1988, Barrel and Pain 1991, Pain 1993, 1996, Bajo-Rubio and Sosvilla-Rivera 1994, Torrissi and Delaunay 1996] as well as cross-country studies [Swedenborg 1979, Kravis and Lipsey 1982, Schneider and Frey 1985, Agarwal, Gubitz and Nunnenkamp 1991, Woodward and Rolfe 1993, Yamawaki 1993, Thiran and Yamawaki 1995, Döhrn 1996].

<sup>44</sup> see inter alia Cushman [1985], Stevens [1993], Clegg [1995], Torrissi and Delaunay [1996].

<sup>45</sup> The effect was significant in Boatwright and Renton [1975], Cushman [1985, 1988], Pain [1993] and Clegg [1995], but not Culem [1988].

<sup>46</sup> see Lunn [1980, 1983], Scaperlanda and Balough [1983], Culem [1988] and Bajo-Rubio and Sosvilla-Rivero [1994]. Torrissi and Delaunay [1996] additionally used the share of Japanese imports in total imports as a measure of trade discrimination.

Cross-country analysis can consider differences between countries of origin, host countries, or even host regions [e.g. Coughlin, Terza and Arromdee 1991, Thiran and Yamawaki 1995]. Most research focuses on the USA or other industrial countries as source country, or analyses inward DFI to individual countries or the EU. The evidence of this research is reported with the discussion of locational advantages.

### **3.3 The Location of Production**

#### **3.3.1 Theory of Location**

The traditional basis for analysis of international economic activity in the real (rather than monetary) sector is the neoclassical theory of international trade. It provides however no framework for explaining the existence or development of DFI. It explains international trade in terms of comparative advantages of the participating countries based on the assumption of perfect competition. Certain resources or factors are immobile, production functions and consumer preferences are identical, and specialisation is incomplete. All countries specialize in products using relatively abundant factor of production. Trade leads to an equalisation of factor prices (Heckscher-Ohlin Theorem). In this model, the assumption of perfect competition eliminates MNEs.

Early attempts to model DFI use a modified factor endowments based model of international trade. An early popular hypothesis was Mundell's [1957] 'factor endowment theory' that showed that under certain assumptions capital flows can substitute trade if barriers prevent the free flow of goods. This explains a type of DFI that is allocating factors of production in a trade reducing and inefficient way as production is not located using comparative factor-cost advantages.

Trade theory suggests that location of international production would be based on comparative advantages of factor-costs. DFI would move where production costs are lowest. Empirical research shows that trade barriers and labour costs are a very incomplete framework to analyse the location of DFI. The concept of 'locational advantages', as reviewed by Caves [1982] and Dunning [1993], covers many influences. While popular debate is still

focusing on production costs, research suggests that attraction of the local markets are at least as important.

Production cost advantages are an important component of locational decisions in industries with low transportation costs. Their DFI depends on costs of production of the host economy compared with any other potential host country. They focus on productivity-adjusted relative labour costs. Factors influencing the productivity thus are determinants of DFI. This includes transportation and telecommunications infrastructure,<sup>47</sup> the quality of the human capital, especially education and employee motivation,<sup>48</sup> and quality, reliability and costs of local supplies. Natural resource processing production depends, naturally, on the existence of natural resources.

Market related advantages are becoming increasingly important. Rather than factor-costs, proximity of the production to the market becomes the overriding consideration in any of the following situations:

- Protectionism (tariffs, quotas, administrative barriers to trade) can be bypassed by DFI.<sup>49</sup> It can jump tariff-barriers and obtain or maintain market access, and extract rents generated by trade barriers. Also, DFI can be a means to prevent or preempt anticipated protectionist measures, and to establish a presence in a trading bloc.<sup>50</sup>
- Transportation costs are a natural barrier to trade. They are diminishing in relevance due to modern transportation technology but they are still relevant for bulky goods and

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<sup>47</sup> see e.g. Bartik [1985], Glickman and Woodward [1988], Coughlin, Terza and Arromdee [1991], or Woodward and Rolfe [1993] for empirical support.

<sup>48</sup> Educational and technological infrastructure was shown to be significant in attracting DFI by Swedenborg [1979], Dunning [1980], Cantwell [1989] and Yamawaki [1993]. For this reason, some studies found a positive association between endowment with skilled labour [Svensson 1996] or of the wage level and DFI [Swedenborg 1979, Thiran and Yamawaki 1995].

<sup>49</sup> While the relative empirical relevance of tariffs as determinants of DFI decreased over the last decades [see Dunning 1993, p. 155, p. 165] quotas were found highly relevant by Stehn [1992].

<sup>50</sup> Pain [1996] and Döhrn [1996] estimate the impact of the integration in European Union on DFI flows and find a significant positive effect for flows to the countries of the union.

fresh food.

- Production and sales activities may be indivisible, especially in service industries (hotels, banking, trade, consulting).<sup>51</sup>
- The interaction between the production and sales activities may require local production. This includes cooperation with downstream firms, such as just-in-time delivery or long term reliable supplies. Local production can improve performance by increasing flexibility, after sales service, or access to market information or technological know-how, which in turn influence innovation, product design or marketing.<sup>52</sup>
- Investment in distribution channels may complement exports to the host economy.<sup>53</sup> Acquisition of existing distribution networks from local competitors or adaptation of established local brand names are fast market penetration strategies [Sölvell 1987].

Investment characterized by any of these factors is becoming more important with modern management in production and marketing. This DFI depends primarily on the potential market (market size and growth) but also on costs of local production. This provides a theoretic rationale for empirically established positive effects of host country market size and growth on DFI.<sup>54</sup> However, according to Dunning [1993, p.142] the potential loss of a market is paramount driving force behind this market oriented investment, more than entry into new markets.

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<sup>51</sup> DFI in the service sector is of increasing importance, but has often been neglected by academic research focused on manufacturing. For instance in the US, foreign owned banks are more important for their industry than are foreign owned manufacturing firms. On the international competition in services see e.g. McCulloch [1988].

<sup>52</sup> 'Relationship' with business partners are an increasingly important part of marketing [Webster 1992, Styles and Ambler 1994] and may thus require local presence. Wagner [1991] found a significant positive influence of a concept "importance of being close to the customer" on DFI-intensity of German electronics industry, less in the machinery industry.

<sup>53</sup> Pain [1993] includes the growth of exports as a determinant of DFI in a regression analysis to capture this effect.

<sup>54</sup> See cross-country studies by Swedenborg [1979], Kravis and Lipsey [1982], Dunning [1980], Veuglers [1991], and Svensson [1996], time-series studies cited above and reviews by Lizondo [1991] and Stehn [1992].

### **3.3.2 Developmental Model**

Comparative advantages of nations evolve with the process of economic development. On this basis, stages models relate the product cycle [Vernon 1966, 1979] or the economic development of the source country [Dunning 1986, Ozawa 1992, Narula 1995] to outward DFI. Parallel, research has focused on differences of DFI within East-Asia and other regions of the world [e.g. Kojima 1978, Lee 1990, Ramstatter 1991]. These streams of literature are reviewed, linked and extended in appendix 3.1 with the objective of developing a model of the interaction of changing comparative advantages with inward and outward DFI flows.

### **3.3.3 Economic Geography**

The location of economic activity in geographic space has been analysed largely independent of mainstream economics in the field of economic geography. Krugman [1991] highlights the importance of this work for the explanation of regional concentration of economic activity. Alfred Marshall [1989/1916] already points out the causes of economic agglomeration:

- pooling of markets for specialised skilled labour,
- development of subsidiary trade and suppliers of intermediate inputs, and
- flow of information, especially technological know how, between firms.

Krugman's work focuses on modelling the agglomeration process, especially external economies of scale in labour and input markets. Fixed cost in the industry, regional dispersion of the market and transportation cost determine the cumulative process of concentration. The locational patterns can change very suddenly: once a critical mass of capital and industry specific infrastructure is accumulated, investment moves to new centres that may evolve by historical accident or temporal protectionism [Krugman 1991].

Krugman [1992] formalizes the tensions between scale-related 'centripetal' and market-related 'centrifugal' forces of locational decisions. In simulations, he shows the agglomeration of economic centres with given economies of scale, transportation costs, immobile farmers and mobile production workers. The same argument applies to DFI as the international

allocation of mobile capital in the presence of immobile workers and more complex barriers to trade. Research extending this approach uses primarily simulation techniques [see Krugman and Venables 1994, Markusen and Venables 1995, Puga and Venables 1996].

These arguments imply that the existing industrial structure can be a major determinant of DFI. Suppliers of intermediate goods and technologically specialised labour force are locational advantages for related firms, and competitors.<sup>55</sup> The effects are especially observable for DFI because of specific externalities:

- Service industries such as banks and consultants follow their customers, but once established they provide services and information to other potential investors.
- Local individuals and institutions adapt to the needs of foreign MNEs: managers may learn foreign languages, governments set up foreign investment agencies and change the legal framework, and local businesses upgrade their quality standards.
- Suppliers of intermediate goods follow their customers, as widely reported in the automobile industry.

Other research focused on the third aspect of externalities: the exchange of knowledge. Innovation processes tend to be localised and knowledge at early stages of development is highly tacit and tends to stick to the local milieu [Ayadalot 1986, Malecki 1991]. Intense innovatory activity in an area contributes not only to firms competitiveness [Porter 1990] and the evolution of multinational firms [Sölvell, Zander and Porter 1991]. It also attracts further investors who wish to participate in the innovatory activity. The Swedes Malmberg, Sölvell and Zander [1996] call it the 'Greta-Garbo-effect' after the Swedish actress who was attracted to Hollywood and later herself attracted more movie industry related business. This approach can explain such seemingly paradox as Korean DFI in Californian semiconductor industry: by becoming insider they can access into the knowledge pool in Silicon Valley for their own innovation and development.

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<sup>55</sup> Svensson [1996] found empirical support for an industry agglomeration index attracting DFI. Proxies found to attract DFI loosely related to agglomeration include urbanisation [Root and Ahmad 1978], level of inward DFI and degree of industrialisation [Wheeler and Mody 1992].

### 3.3.4 Institutional Analysis

The general institutional framework in both source and host countries influence the volume of DFI and its characteristics. This consists of the social environment as well as the legal, institutional and general policy environment ("Ordnungspolitik").<sup>56</sup> Research has mainly focused on host country policies rather than countries of origin, presumably because most countries take a neutral attitude towards outward DFI [Meyer, Ambler and Styles 1994].<sup>57</sup>

Empirical evidence suggests that the general policy framework plays a more important role in attracting DFI than fiscal measures specifically designed to attract DFI. This includes the openness of the economy [Li and Guisinger 1992], approval procedures and bureaucracy, tax regime, environmental regulation and other aspects of business law. The nature of regulative environment can become a significant advantage over alternative locations or the home location if the latter is overregulated, as in India [Lall 1986], or regulates specific industries, e.g. by environmental standards.<sup>58</sup> Negative effects of the social or institutional environment can arise for instance with uncooperative bureaucracy, restrictions on foreign ownership and profit remittance, or a high degree of unionisation and union bargaining.

Specific fiscal incentives and tax allowances geared towards DFI play at best a marginal role although they may influence on the choice of location within a country or region. This evidence is regularly found in studies of DFI into developing countries [Guisinger et al. 1985, Hill 1990, Agarwal, Gubitza and Nunnenkamp 1991] as well as industrial countries [Safarian 1993].<sup>59</sup> However, specific incentives and requirements for DFI influence the performance

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<sup>56</sup> Heitger, Schrader and Bode [1992] discuss these issues for the CEE context.

<sup>57</sup> An exception is Japan in the 1970s when outward DFI was actively encouraged as part of the industrial restructuring process [Ozawa 1979b], and Sweden [Blomström and Kokko 1995].

<sup>58</sup> Motta and Thisse [1994] provide a formal two country - two firm model where raising environmental standards may lead to delocation which however does not necessarily reduce domestic welfare.

<sup>59</sup> The impact of general tax legislation and specific tax allowances on DFI has been analysed empirically by Root and Ahmad [1978, 1979], Lim [1983] and Woodward and Rolfe [1993] for DFI in developing countries, and Grubert and Mutti [1991], He and Guisinger [1992] and Loree and Guisinger [1995] for outward DFI from the US.

of DFI, e.g. for local content of inputs or share of exported output.<sup>60</sup> The impact of governmental policy on the competitive structure of markets and on DFI would however differ between industrialised and developing countries [Brewer 1993].

In the increasingly interrelated world economy, the relationships among companies and among host and home governments as well as between companies and government are increasingly intertwined and complex [Stopford and Strange 1991]. Major investment projects are increasingly subject to individual negotiations between investor and host country agencies, not only in the case of privatisation related DFI. The relative bargaining power of the MNE *vis-à-vis* its host government has been used successfully to explain the organisational form of DFI as weaker MNEs have to accept a JV partner [Kobrin 1987, Gomes-Casseres 1991 for empirical support]. Game-theoretic models have been developed to tackle some of the emerging interactions of between institutions and MNE.<sup>61</sup>

A peculiar aspect of the institutional framework is political risk. It arises with potential changes in the legal framework of any of the countries involved which affect the return on investment of DFI. It includes impact of political violence or revolutions as well as the changes in the structure of taxes, tariffs and the regulatory environment. All these can induce major changes in relative prices. Thus, small changes may have major impact on the profitability of foreign investments.

Political risk is generally reported as a major deterrent of DFI in survey-based studies. The econometric support is however weak, mainly due to problems defining political risk and finding appropriate proxies. Studies using indices based on the quantity and intensity of political events [e.g. Feierabend and Feierabend 1966] were generally not very successful in explaining DFI flows. Comprehensive studies based on both economic and political variables

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<sup>60</sup> This arises in Guisinger *et al.* [1985], Wells [1986], Hill [1990], and Loree and Guisinger [1995].

<sup>61</sup> For instance, Boughin and Vannini [1994] model host country union bargaining and show how union power deters DFI. Haapanranta [1996] models competition between governments offering subsidies to MNE as common agency problem with governments as principals and MNE as agent.

could show the relevance of political variables, but their impact on DFI was small compared with economic variables: Nigh [1985] shows the significance of inter-country conflict or cooperative events and - with respect to developing countries as hosts - of internal political events. Schneider and Frey [1985] compare various models and obtained best performance of a model that included several both economic and political variables. Edwards [1991] uses indices by Cukierman, Edwards and Tabellini [1992] for the probability of change in government and for political violence but found significant impact on DFI only by the former. Chase and Kuhle and Walther [1988] use commercial risk indices to proxy political risk and find no support for the hypothesis that country risk would be compensated by higher return on investment.

### **3.4 Industrial Organisation**

DFI is most prominent in industries with large by economies of scale, intangible assets, high product differentiation and worldwide oligopolistic market structures. This is mainly horizontal DFI among high income economies rather than vertical DFI that would take advantage of factor cost differentials [Markusen 1995]. Oligopolistic competition strongly suggests that at least the short-term dynamics of DFI and the timing of investment, if not the location decision as such, are influenced by strategic behaviour. Multinationals consider their strategic position *vis-à-vis* their main rivals in their most important markets to decide market entry and investment projects. This section considers the sources of competitive advantage that may induce DFI, how interaction of firms affects DFI in oligopolistic markets, and incentives to internalise business.

#### **3.4.1 Resource-based View**

A major school of thought views incomplete markets as the main cause of DFI. Companies investing abroad have a competitive disadvantage over their domestic competitors due to lack of information on the local market conditions and higher cost of communication and transportation. To overcome these disadvantages and to operate profitably in foreign markets, they must have to have some kind of firm specific advantage. This rationalisation of DFI as a function of firm specific or 'ownership advantages' is related to the 'resource-based view of the firm' [Wernerfelt 1984, Conner 1991] in the strategic management literature.

The monopolistic nature of firm specific advantages has been of major concern to Hymer [1960 and 1976], Kindleberger [1969, 1984] and others<sup>62</sup> because of the potential extraction of monopolistic rents from the host economy. Most researchers of MNEs have however focused on a Schumpeterian understanding of competition where monopolistic advantages are temporary and create incentives for innovation and dissemination of new products.

Many origins of firm specific advantages have been analysed since Kindleberger [1969]. To induce DFI, the advantage has to be firm specific and transferable within the MNE, and - as argued in the transaction cost approach - internal transfer has to be superior of an external transfer [Caves 1971]. In this framework, multinational firms are mainly exporters of the services of firm specific assets [Markusen 1991, 1995]. Dunning [e.g. 1993] distinguishes the following firm-specific, or "ownership", advantages:

- resources based on the assets of the firm, including property rights and intangible assets,
- advantages of common governance of the established firm over a de novo entrant,
- advantages of common governance arising because of multinationality.

Relevant corporate assets include physical assets, intellectual property rights as well as intangible assets embodied in the human capital of the firm, such as management, engineering, marketing and financial capabilities. In terms of recent literature in strategic management, these intangibles include "core competencies" such as technological know how, and "value creating activities" such as total quality control and just in time manufacturing systems [Prahalad and Hamel 1990]. In other cases, firm advantages may arise from the regulatory environment such as preferred access to natural resources.

Advantages of common governance arise from firm-level economies of scale such as

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<sup>62</sup> for instance, Newfarmer [1985] and Cowling and Sugden [1987] are concerned about collusion of oligopolistic MNEs. Collusion between MNEs may become more likely if they develop similar international structures because then they can easier agree on any collusive action. See Yamin [1991] for a review of research following the market-power approach in Hymer's work.

centralised R&D or favourable access to resources.<sup>63</sup> Advantages of multinationality arise from market power, worldwide accumulation of technology, and the knowledge and business contacts to manage a worldwide network of activities. These advantages, especially the worldwide accumulation of knowledge, can have a re-enforcing 'experience effect'. Firms established internationally are best positioned for further expansion because acquisition of knowledge is a cumulative process of interaction between creation of technology and its application in production [Pavitt 1987, Cantwell 1989]. Operating in a variety of environments exposes MNEs to many challenges and innovations. These stimulate development of specific competencies and learning opportunities not open to purely national firms [Bartlett and Ghoshal 1988]. Ownership advantages become increasingly specific to the firm and independent of the asset base and economic structure of the home economy [Narula 1995].

Empirical studies have focused on the identification of relevant firm specific advantages. The review of this research by Dunning [1993, p. 142-43, 148-53, 160-64] suggests that the most important are technology related, including capabilities to generate technological know how, as well brand names and marketing knowledge. Plant size was often highly significant although it may be highly correlated to other capabilities and thus not explain very much by itself. The effect of multi-plant industries conferring back advantages to their owners receives some support, while the experience effect is empirically difficult to separate from other effects.

However, the empirically significant firm specific advantages vary widely across source countries. For instance technology<sup>64</sup> and marketing asset were highly positively significant for US firms, but not for Japanese. In some cases, the signs were actually reversed for

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<sup>63</sup> This also implies that plant level economies of scale are not sufficient to explain DFI, for which there is some empirical support [Brainard 1993, Markusen 1995].

<sup>64</sup> Technological capabilities are commonly measured by the ratio of R&D expenditures in turnover. Empirical research established a positive relation between R&D expenditure and the propensity for DFI [e.g. Caves 1974, Mansfield and Romeo and Wagner 1979, Grubaugh 1987, Hennart and Park 1994, Wagner and Schnabel 1994, Kogut and Chang 1996, Svensson 1996].

different countries.<sup>65</sup>

### 3.4.2 Strategic Competition

The DFI literature has for long considered two effects of oligopolistic competition: Graham's "exchange of threats" hypothesis, and Knickerbocker's 'follow the leader' hypothesis. Game theoretic models consider DFI as a strategic move within oligopolistic competition with first-mover advantages. Formal models have also been developed by international trade economists introducing market imperfections and firm-level economies of scale into their models.

Graham [1975, 1978, 1985] models intra-industry DFI resulting from 'exchange of threats' between rivals. In his model, firms finding their domestic market invaded by a foreigner would retaliate by attacking the monopolistic position of the rival in his home market. This strategy is particularly relevant for capital intensive production processes with significant economies of scale. Basis for the argument is a model of Cournot type competition between two firms, both enjoying monopolies in their home market but with different marginal costs. Graham identifies conditions that trigger an entry in to the rivals market. The argument is further refined by considering experience curve effects that reduce marginal cost as the volume of production increases, creating incentives to increase output early to slide down the experience curve sooner than competitors. He concludes that the exchange of threats maintains competition, but in a less cut throat form than between enterprises with large production facilities and low marginal costs. Graham [1985] extends the argument suggesting that this cross-investment would accelerate new product development, and makes collusion *less* likely.

Knickerbocker [1973] suggests that dominated firms in an oligopoly imitate the strategy of the leader to prevent him from gaining an early lead advantage of establishing a position in the market and factually raising entry barriers. Scharfstein and Stein [1990] model this

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<sup>65</sup> A very comprehensive and methodologically rigorous cross sector analysis of determinants of DFI outflow from Germany has been presented by Wagner [1991] who used cross sectoral stock data for 1978 to 1984. He found technology intensity to be highly relevant but not marketing intensity. See Wagner [1991] also for a review of other empirical studies of German DFI.

'follow the leader' with managers of the follower being assessed in their performance compared with the leader. With an imitation strategy, their downside risk is missing a major opportunity. Investing in a project similar to the leader may be more risky in absolute terms, but not with respect to the relative position to the leader.

The hypothesis implies that DFI would increase with industry concentration. Knickerbocker [1973] and Flowers [1976] show this using entry concentration indices to show the bunching of entry of firms in given industries. The phenomenon increased with industry concentration, but decreased for very high concentration, which they interpreted as indicating tacit collusion in very narrow markets. The hypothesis receives further empirical support by Yu and Ito [1988], who compare DFI into a competitive and an oligopolistic industry in the US, and Li and Guisinger [1992] who analyse service MNEs. However, the phenomenon can be explained alternatively: (i) followers may assume that leaders undertook proper market research and his investment 'signals' an investment opportunity. (ii) Leaders contribute to the local infrastructure by their externalities which makes the location more attractive for suppliers, customers, and then competitors.<sup>66</sup> (iii) The effect may be spurious as both competitors react to a common external stimulus such as market liberalisation.

Other research has focused on push factors arising in the competitive nature of the home market. Porter [1990] argues that domestic competition strengthens firms competitive advantages because it creates permanent challenges for improvements. This competitive strength makes firms 'fit' for international competition, where they may compete with a competitor from the same region of origin [Porter 1990, p. 117-122]. Concentrated industries are found to engage more in DFI [Wagner and Schnabel 1994]. Dominated firms in oligopolistic competition may lead the move abroad because they face limits to expansion in the domestic environment [Mascarenhaas 1986, Ito and Pucik 1993].<sup>67</sup>

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<sup>66</sup> Empirical studies use industry classifications which cannot distinguish between "follow the leader", and "follow the customer" as for instance many automotive suppliers. This motivation is also common in many service industries such as banking [Erramilli and Rao 1990].

<sup>67</sup> Hennart and Park [1994] test this effect for DFI. Their quadratic expression has a peak at 48% market share in the domestic market which would suggest a rejection of the theory - contrary to their own interpretation of the empirical result.

Dixit [1980] presents a game-theoretic model to analyse the interaction between a MNE and a potential competitor. DFI can be a strategic move to deter entry: by choosing the DFI option, the MNE can deter a local competitor to emerge, as his post investment decisions are based on the lower marginal costs of local production. Extending the model, Smith [1987] and Jacquemin [1989] show that DFI can replace exports even in the absence of tariff barriers: it simultaneously reduces transaction costs and increases market power through a commitment of sunk costs, because the locational decision is irreversible.

Further models of strategic motives inducing DFI have been developed by what should be called the "Leuven school" of DFI. For instance, Motta [1992] shows how the decision between exports and DFI becomes non-monotonic because of the interaction with the potential local competitor. In Motta [1994], he shows how DFI can crowd out an existing local competitor as well as a competing MNE exporting to the country. Veuglers [1995] presents a model in which firms are induced to become multinational by their domestic rivals (potential) DFI, because they may incur competitive disadvantages in their home markets. Konings [1995] and Sels [1996] additionally consider a waiting game between two potential entrants with externalities from the first mover [also see Vannini 1995].

### **3.4.3 Modern International Trade Theory**

The neoclassical theory of international trade assumes perfect competition. Only by dropping this assumption, it can explain issues related to DFI including intra-industry trade and locational decisions of MNE.

The contradiction between intra-industry trade and the factor endowment based theory of trade has been explained in two ways. Brander [1981] models it as a result of price discrimination by firms restricting domestic supply while selling more aggressively abroad. This 'reciprocal dumping' leads to trade for the same good in both directions despite the absence of comparative cost advantages. More common is the explanation of intra-industry trade by the interaction of product differentiation and economies of scale [Helpman and Krugman 1985]. Countries specialize in the production of different product ranges, and trade with each other to satisfy consumer desire for variety.

Locational decisions of firms in imperfect markets have been modelled on the basis of intra-industry trade models. Krugman [1983] presents two models of horizontal and vertical MNEs with firm specific advantages. Horizontal MNEs are modelled as a response to product differentiation. Costs of producing locally are assumed to be higher than at home, but if marginal costs of exporting exceed the marginal costs of local production, the firm would shift its production to the market. Vertical MNEs are explained in a model of a monopsonistic downstream firm that can eliminate the distortions of monopsonistic behaviour by international backward integration. Helpman [1984, 1985] and Helpman and Krugman [1985] analyse a single plant locational decisions in general equilibrium trade models with increasing returns at the firm level and a given noncompetitive market structure with differentiated products. Markusen [1984] and Horstmann and Markusen [1987a] consider multiple plants under a single headquarter.

The next generation of models by Horstmann and Markusen [1992] and Brainard [1993] has endogenous market structures in which they show the emergence of MNE. Both models have firm level activities that are joint-inputs across plants, plant level economies of scale, and tariffs or transportation costs between the two countries of the model. MNEs emerge in equilibrium if firm-level fixed costs are large and tariffs and transportation costs are high about plant level scale economies. MNEs are more likely to exist if both countries are large and, in Brainard's [1993] model, if the countries have similar relative factor endowments. Horstmann and Markusen [1992] also show that small changes in the underlying locational advantages, e.g. taxation, can cause major shifts in the market structure because of moves between different Nash equilibria which result in jumps of prices and output. Markusen and Venebles [1995] use this model as basis for simulations showing that for countries of similar size, MNEs displace international trade.

The same kind of model has been used for licensing versus DFI decisions. The internalisation theory, discussed in chapter 4.1, has explored the incentives in great detail, but international trade economists have provided more formal models. Ethier [1986] considered market failure due to informational asymmetry on the value of the technology to be licensed. Horstmann and Markusen [1987b] consider incentives of franchising contracts, where the franchisor has

to monitor the quality of the local franchisee to protect his reputation. Ethier and Markusen [1996] and Saggi [1996] consider the potential diffusion of knowledge that may create third market competition. Horstmann and Markusen [1996] use an agency model to analyse the incentives between licensor and a licensee who has superior information on the local market. They show how DFI is motivated by the desire not to share rents with a local licensee. Temporary licensing may be preferred if costs of investment mistakes due to unfamiliarity with the market are high.

Game-theoretic models that draw both on the Leuven school and the new international trade theory have been used by Motta and Norman [1996] and Sanna-Randaccio [1996] to analyse the effects of economic integration. The models show how the removal of trade barriers increases the flow of market-seeking DFI.

### **3.5 The Scope of the Firm**

#### **3.5.1 Internalisation Theory**

The internationalisation theory explains the emergence of multinational enterprises from the failure of markets. Its roots are in the transaction cost (TC) approach initiated by Coase [1937] but it has developed largely independent of the infamous work on TC by Williamson [1975, 1981, 1985]. Early contributions in this tradition are Caves [1971], Buckley and Casson [1976], McManus [1972], Swedenborg [1979], Rugman [1981] and Hennart [1982].

The views by researchers in the internalisation theory differ from transaction cost not in substance but in emphasis: whereas Williamson's argument focus primarily on market failure due to lock in effects arising from asset specificity, internalisation theory focuses on market failure in markets for information. Many assets transferred by MNEs to their affiliates have a partial public good nature such that market transactions would fail due to information asymmetries. Chapter 4.2 reviews the concepts of this literature and develops a synergetic model. Some authors, in particular Rugman [1981, 1985] and Hennart [1995], argue that internalisation is a sufficient explanation for the existence of MNEs. This view contrasts with Dunning's OLI paradigm where all three conditions, ownership, location and internalisation

are necessary to explain DFI. In this study, Dunning's view is adopted.

Transaction cost economics (TCE) treats decisions to engage in a transaction and its internalisation as distinct and is therefore a static approach. Some dynamic approaches to TC have aspired to overcome this limitation: Buckley [1988, 1990, Buckley and Casson 1985] incorporates dynamic aspects of corporate expansion and strategic actions, taken not to overcome market failure but to create or exploit it. Internalisation incentives arising from strategic positioning have been incorporated in one 'internalisation theory'. This approach takes an opposite line of reasoning: rather than deriving internalisation incentives from market failure, it defines them as motivation that may lead to an internalisation decision. Langlois' [1992, 1995] dynamic view of transaction costs sees boundaries of firms entirely determined by capabilities of the firm rather than market failure. He argues that in uncertain environment, common ownership of multiple stages of production is a superior institutional arrangement for coordinating systemic change.

Kogut and Zander [1993, 1995, Zander and Kogut 1995] departed from the market-failure approach of TC arguing that transfer of tacit knowledge explains internalisation. Markets are not considered a feasible alternative because of the need for an organisational mode to transfer tacit knowledge. Thus, the creation, accumulation and transfer of tacit know how would determine the evolutionary growth of firms.

### **3.5.2 Internationalisation Process Model**

The theories reviewed so far consider DFI determined by characteristics of the firm and its environment. Researchers on internationalisation processes analyse the international business of a firm as a gradual process. Based on the early contributions by Johanson and Wiedersheim-Paul [1975] and Johanson and Vahlne [1977], this research is frequently called the Uppsala-school. Other early contributors are Luostarinen [1979] in Finland, and in the American literature Bilkey and Tesar [1977], Cavusgil and Nevin [1981].

The model by Johanson and Vahlne [1977, 1990] is rooted in the behavioural theory of the firm following Cyert and March [1963] and Aharoni [1966] as well as the growth theory of

the firm by Penrose [1959]. The gradual increase of firms' international involvement is explained by an interplay between the development of knowledge on foreign locations and operations in the countries with on the other hand increasing resource commitment. Knowledge on foreign markets is 'experiential knowledge' which cannot be taught. It can only be acquired through experiences and active involvement in the country. Such knowledge is essential for resource commitment because it enables recognition of business opportunities and reduces market uncertainty. Therefore, past commitment and accumulated country specific experience determine current activities as well as future resource commitments and higher degree involvement. American researchers modelled the process in analogy to innovation adaptation as incremental increases of experience and learning over multiple stages [Cavusgil 1980, Reid 1981].

This understanding of the internationalisation process has three implications. First, firms will typically follow an 'establishment chain' moving from lower to higher modes of involvement. This has led to a number of stages models: The Swedish school suggests a start with no regular export activities, then exports via independent representatives, then sales subsidiaries, and eventually local manufacturing [Johanson and Wiedersheim-Paul 1975, Johanson and Vahlne 1990, Nordström 1991]. Other models have additionally introduced contractual business such as licensing and JVs as stages of the internationalisation process [Root 1987, Young et al. 1989, Kay 1991].

The second implication is that firms enter markets in a sequence starting in countries in close 'psychic distance'. This distance includes not only geographical but also cultural, political and linguistic communalities between the home and the host economy [Johanson and Wiedersheim-Paul 1975].<sup>68</sup> Traditionally strong business ties also act to reduce unfamiliarity and thus increase present DFI.<sup>69</sup> Luostarinen [1979] argued that even similarity of the

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<sup>68</sup> The first author to use the term 'psychic distance' was probably Beckermann [1956].

<sup>69</sup> Agarwal and Gubitz and Nunnenkamp [1991] found a strong consistency in the country pattern of German DFI in developing countries.

economic conditions and market size would favour an early entry.<sup>70</sup> Thirdly, initial investments in a country can serve as a platform for learning about a market or to allow customers to develop brand loyalty. A platform creates an option for further DFI and taking advantage of emerging opportunities [Kogut 1983, Kogut and Chang 1996].

Case study research frequently found support for the sequential entry pattern.<sup>71</sup> However, it was established primarily for firms at an early stage of internationalisation [Forsgren 1989].<sup>72</sup> The relative importance of psychic distance appears to have declined since the 1970s as economic conditions are becoming more important, e.g. industry specific barriers to entry [Sölvell 1987] and the market potential and industry structure [Nordström 1991]. Also, firms move quicker from low involvement modes to higher involvement modes and may even leap-frog some stages of the traditional model [Nordström 1991, Engelhard and Eckert 1993].

The limitations of the internationalisation process models are, firstly, weak delineation of theoretical boundaries, i.e. underlying assumptions and scope of the models; secondly, weak explanatory power and, thirdly, insufficient congruence between the theoretical and operational level [Andersson 1993].

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<sup>70</sup> Casson [1995] presents a formal model of entry decision making and shows which conditions would favour sequential entry, including expected similarity between foreign markets and difference to the home market, low costs of deferred entry and high costs of learning combined with low costs of communicating experience from the first to the second foreign country.

<sup>71</sup> see e.g. Johanson and Wiedersheim-Paul [1975], Luostarinen [1979], Larimo [1985], Buckley and Newbold and Thurwell [1979], Davidson [1980], Veuglers [1991] Jansson [1993], Chang [1995]. Contrary findings emerge from Hood and Young [1983]. See also reviews in Caves [1982, p.82] and Dunning [1993, p. 156]. The entry sequence pattern does not seem to apply for advertising agencies [Terpstra and Yu 1988] and consulting firms [Sharma and Johanson 1987]. A possible explanation is that the internationalisation of business service firms is typically driven by the needs of corporate customers.

<sup>72</sup> Support was found for exporting firms in a large number of studies in many countries including the USA [Bilkey 1978, Bilkey and Tesar 1977, Cavusgil 1980, 1984], Germany [Dichtl et al. 1984], Japan [Johansson and Nonaka 1983], Turkey [Karafakioglu 1986].

### 3.6 A Synthesis: The Eclectic Paradigm

John Dunning [1977] integrates many theories surveyed in this chapter into a general paradigm of international production. He extends the framework repeatedly [1981, 1988, 1993], most recently to explain strategic alliances [Dunning 1995]. The basic premise is that DFI is undertaken if three conditions are simultaneously met. If not, export or licensing may be a superior strategy. Based on the acronyms of the three components this approach is commonly known as the 'OLI-paradigm'.

- The investing firm needs 'ownership advantages', that is specific assets to obtain a competitive advantage over local competitors. They include property rights and intangible assets, named 'Oa advantages' as well as advantages arising from common governance, named 'Ot advantages'. Oa advantages include advantages due to abilities that facilitate the generation of new assets, especially knowledge. Ot advantages are capabilities of organising Oa advantages with complementary assets. They include (i) those of branch plants of established enterprises over *de novo* firms and (ii) those arising specifically from multinationality (see section 3.4.1).
- The host country must possess 'locational advantages', which include factor cost advantages and also proximity to the market, the existing economic structure and the legal, social and political frameworks (see section 3.3.1).
- 'Internalisation incentives' must make it more efficient for the MNE to use its competitive advantage by internally rather than selling components in the market place. These advantages may arise from market failure as discussed in the transaction cost and internalisation literature (see chapter 4), but may also arise because of distortions in the regulatory environment.

This chapter has given a condensed summary of the various streams in the economics literature that contribute to the explanation of DFI. It sets the scene for two lines of theoretical work that shall be explored in detail in the next chapter: the internalisation or transaction cost approach, and the developmental model.

## **Appendix 3.1: A Developmental Model of Direct Foreign Investment**

### **3A.1 Developmental Approaches to DFI**

The developmental approach to DFI is discussed in this appendix in detail as it has some relevance to the East European case. The focus is on a model that relates the economic conditions of the home and host economies to the emergence of DFI. It complements the transaction cost approach presented in chapter 4 on which most of the subsequent empirical analysis is build.

The economies in CEE are middle income economies in geographic proximity to the industrialised countries of Western Europe. This situation demands an analytical framework that can explain the role of DFI between countries at different levels of economic development. It should guide the search for the determinants of DFI from advanced into less advanced economies, and describe its special characteristics. In John Dunning's terminology, what home or firm-specific O-advantages would induce firms to take advantage of the low labour cost L-advantage of CEE?

The model below draws on various streams of literature on the interaction between DFI and economic development. The basic premise is that the structure of the economy influences DFI, which in turn influences economic structures and development. In the process of development, some industries become uncompetitive in more advanced countries. They move to less advanced countries where the factor endowment is more appropriate for their production technology, and where they contribute to human capital accumulation. The mechanisms underlying this interactive process of development and DFI are described in the model.

The intellectual antecedents of the model are the product-cycle hypothesis by Vernon [1966], the 'Japanese type DFI' observed by Kojima [1978], and the relationship between stages of economic development and the pattern of inward and outward DFI first described by Dunning [1981a, 1986]. First, these three directions in the literature are summarised. Then a model is presented that illustrates the forces driving DFI between countries at different

stages of their economic development. Thirdly, the contributions of this kind of DFI to economic development in the host economy are outlined.

Vernon [1966] first proposed a dynamic model of DFI by relating it to the stages of the product cycle. Firms locate their innovative activities in countries where technological know-how is available, high income increases demand for high quality products, and a shortage of unskilled labour supply increases incentives for innovations. Innovators enjoy a temporary monopolistic position, which allows them to charge prices above marginal cost. A close cooperation between R&D and production activities enables the transfer of technology to the production line during the innovation phase of the product. Thus, production in the industrialised home country is supplying the home market.

As the product matures, competitors emerge in the domestic market, and the innovator starts exporting to other industrial countries to maintain his leadership. Increasing demand and intensified competition with standardized products in the mass production phase leads to relocation of the production to less advanced countries with comparative advantages in manual labour. Thus, DFI emerges as part of a strategy that allows the innovator to maintain a competitive advantage over potential competitors throughout the product cycle. This hypothesis could explain American DFI abroad in the 1950s and 1960s when the USA was the only major source of DFI. However, as Vernon himself recognised [1979], this approach is less useful for explaining technological competition between Europe, Japan and the USA of the 1980s.

Kojima [1978] argues that Japanese DFI would be different from American DFI in that it is trade creating rather than trade replacing. He found that Japanese investors in Asia to made more use of the differences in comparative advantages of different locations. Ozawa [1979a] describes Japanese investment in Asia as a result of industrial upgrading in Japan itself: as the economy has advanced towards skill intensive sectors, labour intensive production processes and environmentally sensitive industries have moved to South-East Asia. The shortage of unskilled labour in Japan led to investment in labour intensive production in the economies of South-East Asia where labour costs were low. Recent research on DFI from the

newly industrialising economies of Korea, Taiwan and Hong Kong found similar features [Whitmore, Lall and Hyun 1989, Lall 1991, Wells 1993].

The theoretical work by Kojima and Ozawa [1984] and Lee [1990] focuses on the contribution that this 'trade-creating' DFI makes to the host economy. By transferring the necessary managerial resources, DFI strengthens the comparative advantages of host countries, and thus the international division of labour. This 'Japanese-type DFI' would be trade creating whereas American DFI is mainly import-substituting and trade-diminishing. Therefore, Japanese DFI would be more beneficial to host economies since it uses local factors of production and creates additional international trade.<sup>73</sup>

Dunning [1981a] takes a more general perspective. His investment-development cycle draws connections between the character and composition of DFI outflows and the national stage of development of the home country. Early DFI tends to be resource-oriented, first towards raw materials, later using cheap labour supply. DFI from mature industrial countries is more likely to be market-oriented and thus determined by the international competitive situation in the marketplace.<sup>74</sup> Using a similar approach, Ozawa [1992] relates the accumulation of physical and human capital with economic development to inward and outward DFI. In the factor driven first stage of development, inward DFI is factor-seeking while outward DFI is minor. In the second, investment-driven, stage, inward DFI becomes market seeking while outward DFI seeks low cost labour. In the innovation-driven third stage, both inward and outward DFI are market and technology-seeking.

Narula [1995] analyses the dynamics of the interaction between the competitive advantages of firms and the immobile locational advantages of countries in more detail. In the early stages of development, countries have mainly natural assets and their outward DFI is

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<sup>73</sup> If these differences really existed (empirical evidence is mixed), they are probably not based on cultural grounds (as implied by Kojima) but on the specific economic environment of Japan in the 1960s and 1970s. Also, Kojima's welfare implications are debatable as welfare-reducing effects of DFI would arise only if market-oriented DFI is induced by protectionism. See Kojima [1989, 1995] for his own view and Buckley [1985, 1991] for a discussion of Kojima's contribution.

<sup>74</sup> This approach has also been extended by Dunning [1986] and Tolentino [1987, 1993].

determined by this asset base and the economic structure at home. In the final stage, the asset base consists mainly of created assets such as human capital and infrastructure. The O-advantages of firms become increasingly independent of their home country as assets are created and acquired at many locations in the world. The created assets of any country at a given point in time are path-dependent on prior technological accumulation, which depends on, among other, inward DFI [see also Cantwell 1989, Katseli 1992].

The stages model approach is useful as a descriptive tool. Yet, as with all stages theories, its explanatory and predictive power is limited. This applies in particular for a transfer to a region with a very different economic structure. Therefore, focusing on forces driving DFI at the given stage in the process is essential.

### **3A.2 Structural Change and DFI <sup>75</sup>**

Economic development is a process of accumulation of physical and human capital. In this process, economies move towards more sophisticated production technologies by acquisition of the necessary resources. In particular, higher levels of human capital enable higher productivity and thus higher income. The factor endowment of the economy becomes more capital and human capital intensive. The industrial structure of the economy gradually changes towards the more skill intensive sectors.<sup>76</sup>

Western Europe is at an advanced stage where, in Narula's [1995, p. 30-31] words, L-advantages "increasingly take the form of the ability of countries to create and efficiently organise technological and human assets and to tap new markets". O-advantages are increasingly firm specific rather than derived from host country structures because they "become globalized, their nationalities become blurred". However, many small and medium size enterprises (SMEs) are more appropriately described by intermediate stages. They primarily seek production factors or new markets. CEE is at an early stage of the process in

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<sup>75</sup> This section is based on Meyer [1996].

<sup>76</sup> This is a simplification as other factors of production may also become prohibitively expensive such as real estate or environmental goods (due to regulation). The focus on human capital does not however change the general implications.

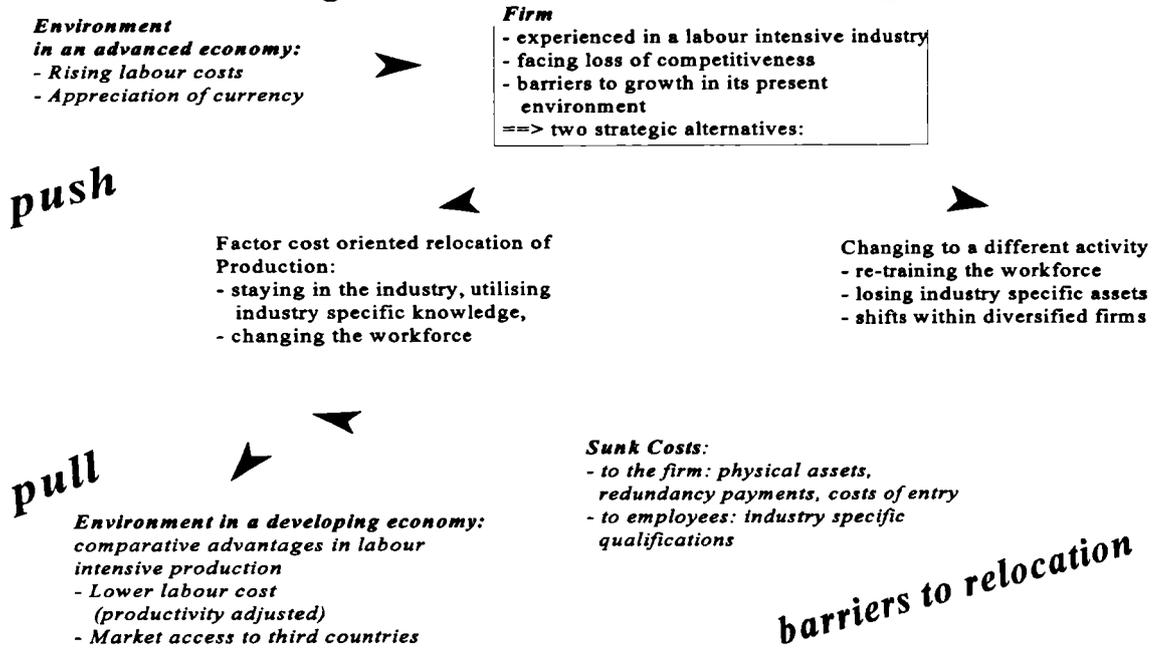
that it possesses mainly natural assets and low cost labour with some created assets such as technological expertise in selected areas.

In this situation, DFI can emerge as a consequence of developmental adjustment processes in the advanced economy (figure 3A.1). The evolution of locational advantages and especially of comparative cost advantages creates the environmental conditions that favour factor cost oriented DFI. Some countries lose competitive advantage in sectors that other countries try to attract [Markusen 1991]. In this structural change, certain stages in the value chain or whole production processes become unprofitable as they face import competition. Supply of untrained labour declines as workers have opportunities to increase their skill level. This shortage of low skilled labour combined with maximum spreads of wages between the skilled and unskilled undermine the international competitiveness of production processes based on unskilled labour. The core of untrained workers will move to sectors that are not exposed to international competition, in particular the service sector.

Rising labour costs, often in connection with appreciation of the currency, create strong push factors for labour intensive firms. If they are unable to redesign their production processes by substituting low skill labour by capital and knowledge-intensive technologies, they face barriers to growth in their present environment and lose international competitiveness. Nevertheless, they possess valuable assets that can be utilised through restructuring. Businesses in this situation face two strategic alternatives to put their assets and capabilities to best use:

- they could move into another sector, acquiring new technological knowledge and retraining their labour force, but losing their industry-specific assets, especially knowledge-based intangibles such as employee experiences or exclusive technological knowledge, or
- they could move their production facilities - or the labour intensive parts of the production process - abroad, utilising their industry-specific assets but changing their labour force as they close domestic operations in the long-run, and use the locational advantages of the host economy [Kojima and Ozawa 1984].

**Figure 3A.1: Economic Forces driving the Asian model of DFI**



The choice between these alternative strategies depends on

- the attraction of potential low cost locations,
- the nature of the firm's core competencies, and
- the sunk costs of implementing the relocation strategy

The attraction of a potential foreign location for production creates the pull factors to induce factor-cost oriented investment. This depends on local labour costs, adjusted for labour productivity, taking into account all non-wage expenses such as training and social payments. In addition, investors consider a wide range of secondary factors in assessing production costs. For instance, the costs of local supplies vary due to access to raw materials and existence of local supplier network for intermediate products. The costs of bringing the products to the market depend on the geographical proximity to important markets, the trade regime, and infrastructure. The regulatory environment, including tax regime and bureaucratic procedures, can additionally raise costs substantially.

The nature of the core competencies of a firm is always a core determinant in strategic decisions. Diversified enterprises with mainly financial assets, or capabilities embodied in employees that are not mobile, may prefer to shift into other sectors of industry. On the other hand, if assets are highly industry specific and intangible, then the preference will be for relocation, as this strategy can profitably combine lower local factor costs abroad with existing capabilities. Such assets include technological and managerial know-how, including knowledge about markets and reputation with customers [Wells 1993]. Due to their intangible or tacit nature these assets can often not be transferred via markets, as markets for knowledge-based assets are highly imperfect. The more intangible the assets are, the more the firm will prefer an internal mode of transfer over a contractual relationship to internalise transactions, as discussed in the TC literature [chapter 4].

DFI induced by structural change involves established MNEs as well as SMEs moving abroad for the first time. The relative importance of SMEs in structural change DFI depends on the business structure of the home economy. Since structural change creates very strong push factors, it induces the major change in corporate strategy that a first step in the

internationalisation process of an enterprise requires. Thus, structural change induces relatively many first time investors and SMEs. As their investment behaviour differs from established MNEs, this will influence the characteristics of DFI. These investors have a strong preference for locations in close proximity to their home base, where gathering experiences is less costly [section 3.5.2].

Implementation of either strategy involves, however, one-off expenses that are often unrecoverable sunk cost. Relocation incurs fixed costs to the firm as well as to its employees that have to be weighed against the net present value of reduced production costs. Firms incur costs from exploring potential new locations and setting up new production facilities. Machinery may be immobile and has to be written off. In addition, labour law may require high redundancy payments to former employees. The human capital of laid off workers is lost and new employees need firm specific training.

Workers in the relocating firm face a loss of their human capital as their industry specific training becomes worthless (sunk costs) at home after the structural change has been completed. As they are usually immobile, they have to invest in education and training or face 'structural' unemployment. This explains the strong resistance of labour unions to structural change and thus inertia in the process. The job specificity of qualifications and the inter-sectoral labour mobility thus affect the costs to the individuals and indirectly to the firm that has to restructure its workforce. These costs are highly dependent on the institutional environment in the home country.

The factor cost oriented DFI described in this model is a special case of Dunning's [1993] general paradigm: structural change threatens the ownership advantages of certain firms at their established location. They can continue to use their ownership advantages in a less advanced country that has complementary locational advantages, especially labour supply. However, only DFI allows them to internalise the markets for their intangible assets.

Many scholars researching DFI in developing countries expressed the expectation that inward DFI could play a catalytic role in the process of economic development. For instance,

Markusen [1991] argues that via its 'linkages and leakages' the know-how transferred by the foreign investor diffuses throughout the host economy and thus strengthens its locational advantages, especially the quality of the human capital. Externalities of DFI arising from the mechanisms described in the model lead to an often very positive assessment of the impact of this type of DFI.

This structural change DFI is by its motivation 'comparative advantage augmenting', in that its complementarity to the domestic human and capital resources makes its externalities particularly useful. It is considered "desirable from the viewpoint of the developing countries' factor endowment" [Ozawa 1979b] and contributes to a steady and balanced economic growth. Therefore, a MNE is not only "a facilitating institution which helps to organise world production to optimally exploit comparative advantage" [Markusen 1991], but its externalities contribute to "DFI facilitated development" [Ozawa 1992]. The empirical evidence for the arguments is however mixed [Meyer 1994a, 1996].

Since Western and Eastern Europe are at different stages of their development process, the model may be applicable here. The model discussed here predicts that a certain type of DFI would emerge, which has some desirable impact on economic development, and the following characteristics:

- Factor costs are a major motivation for DFI in CEE.
- Industries in a process of restructuring due to a loss of competitive advantages at their home location move their production activities to less advanced countries. Firms facing barriers to growth in their established markets thus would be more active.
- This DFI comes from industries that are labour intensive by the standards of the home country, but technology intensive by the standard of the host economy. Firms with labour intensive production would thus be more active.
- A relatively high share of this DFI comes from SMEs preferring locations in close proximity to the home economy.



## **Chapter 4**

# **Transaction Cost Analysis of Direct Foreign Investment**

### **4.1 Transaction Cost Economics as Basis for Empirical Analysis**

Since the work of Coase and Williamson, transaction cost economics (TCE) has developed in many directions. In an international context, it has been advanced in parallel but largely independently as 'internalisation theory' following Caves [1971], McManus [1972], Swedenborg [1979], Buckley and Casson [1976], Rugman [1981] and Hennart [1982]. In the subsequent literature, various complementary interpretations of the concept have emerged, including several empirical studies in an international context.

This chapter reviews and extends the transaction cost (TC) approach to analyse the research questions of this study. This chapter is normal science modifying existing paradigms to confront them with empirical evidence [Kuhn 1962, p.30]. The economic transition of CEE offers the opportunity to apply existing paradigms to a different and changing environment. The evaluation of the theoretical and empirical results should feedback to the advancement of the underlying paradigms. Thus, mid-range theories are developed to guide the empirical inquiry. That is, "theories that lie between the minor but necessary working hypotheses... and the all inclusive systematic efforts to develop a unified theory that will explain all the observed uniformities" of the objects of inquiry [Merton 1968, p. 39].

The TC framework is employed to analyse choice of DFI over other forms of international business. This decision is of particular concern because DFI in CEE was, in the early years, well below expectations. Aggregate flows of DFI do not seem to match the opportunities of new markets and factor-cost differentials [section 2.3]. Although DFI increased in 1995, the low level in most countries of the region is still puzzling, as is the long time lag of many MNEs moving into the region. Thus, the objective of the study is to explain not only why firms invest, but also why many others do not invest. Therefore, the firm level analysis includes both investors and non-investors.

The common framework for such analysis is the OLI paradigm [Dunning 1993]. It suggests that firms would become more active in the region if they had some kind of ownership advantage that combined profitably with locational advantages in the region. They would engage in DFI if they had due incentives to internalise such business. Thus, the analysis has to consider the specific locational characteristics [section 2.2] as well as the relevant ownership advantages [section 3.4] and internalisation incentives.

#### **4.2 The Internalisation Decision**

Transaction costs (TC) are unobservable '*cost of using the price mechanism*'. They can have many origins and appear in many forms, including directly attributable costs such as "costs of negotiating and concluding a separate contract for each transaction" and "discovering what the relevant prices are" [Coase 1937, p. 390], but also including the opportunity costs of a sub-optimal factor allocation, e.g. due to time lags or acceptance of a second best offer as expected search costs exceed expected efficiency gains. In other words, they are the costs arising from the loss of efficiency in factor allocation due to less than perfect markets.

The trade off between these costs of the market and those of internal organisation determines the optimal organisational form for any given transaction, and thus the boundaries of the firm. This analysis is concerned with the choice of organisational form in an international context: when do companies prefer to internalise their foreign operations? A model of *international* transaction costs should explain the internalisation of transactions between business units located in different countries, considering the costs of trans-border transactions

and of operating in different social and economic environments.

A general framework is presented for the analysis of such internalisation decisions based on the concepts of the TC literature. It grows out of a synergy of prior theoretical and empirical work and demonstrates how much TCE can incorporate, including some arguments brought forward by its critics. However, the framework is mostly static, focusing on the internalisation decision of a given transaction. In this, the limitations of TCE are clearly acknowledged, because it is felt that the model loses much of its explanatory power if mutated to a dynamic theory.

The choice of organisational form for a given transaction depends on the TC of alternative modes. In the international context, the trade-off is between the costs of using international markets for goods and services, and the costs of internal organisation in a DFI project. The costs of organising a transaction, both internally or externally, depend on the potential market failure for the goods and services transferred. Characteristics of goods and services that make them sensitive to market failure are referred to comprehensively as ‘sensitivity’. The sources of the sensitivity are discussed further below as asset specificity and information asymmetry.

**Figure 4.1: The Internalisation Decision**

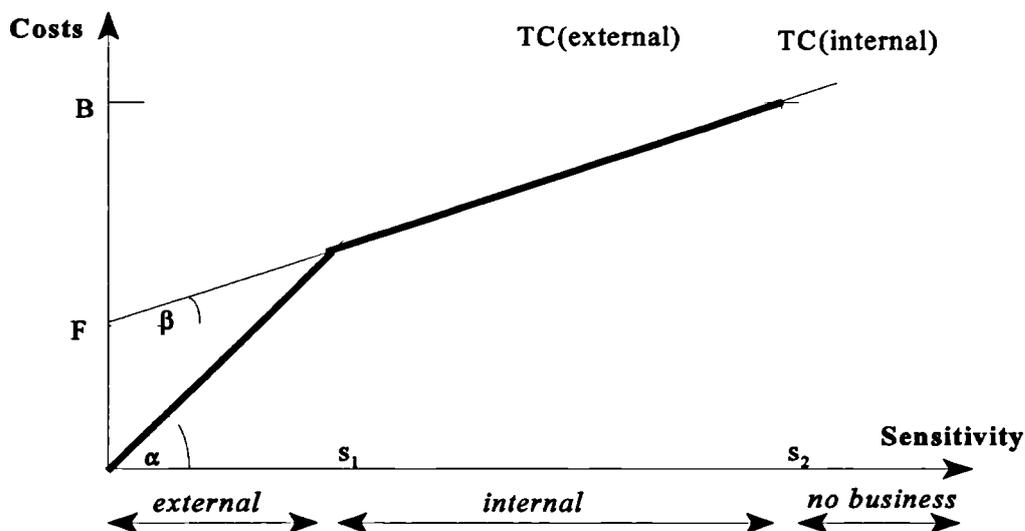


Figure 4.1 illustrates the basic relationships. Both external and internal TC are increasing over product sensitivity. External TC are shown as a linear function of sensitivity,  $TC(e)$ . Internal organisation requires certain fixed costs,  $F$ , that are independent of the characteristics of the products. In the international context, these would be the costs of setting up and operating a DFI project. Yet the internal transaction cost curve,  $TC(i)$ , has a flatter slope as internal organisation allows enterprises to overcome market failure. If the curve was steeper, no transaction would be internalised at all.

The bold line illustrates the TC minimising organisational mode. External transactions are preferred for products with low sensitivity, e.g. homogeneous goods in competitive markets. A critical point is reached at  $s_1$  where  $TC(i)$  and  $TC(e)$  intersect. If external TC exceed internal TC, then DFI would be preferred to a market exchange of the same transaction. The benefits of a transaction are equivalent to the difference of sales revenues and production costs. No business will occur if the costs of a transaction exceed its benefits ( $B$ ), which is the residual of sales revenues  $R$  and production costs ( $PC$ ), i.e. to the right of  $s_2$ . These relationships can be expressed formally: starting from the profit maximisation function:

$$(4.1) \quad \text{Profit} = R - PC - TC,$$

It follows that profit maximisation requires minimisation of TC. Assuming that the choice of organisational mode does not change revenues or production costs, then

$$(4.2) \quad \text{Mode} = \begin{aligned} &= \text{external, if } TC(i) > TC(e) \\ &= \text{internal, if } TC(i) < TC(e) \text{ and } TC(i) < (R - PC) \\ &= \text{no business if } TC(i) > (R - PC) \end{aligned}$$

Hence, for all business that can be observed, i.e. that are profitable under either condition, the internalisation condition is:

$$(4.3) \quad \text{Internalisation} = \begin{aligned} &= \text{yes, if } TC(i) / TC(e) > 1 \\ &- \text{no, otherwise} \end{aligned}$$

The expression can be rewritten as:

$$(4.4) \quad TC(i) / TC(e) = (\alpha S + F) / (\beta S) = (\alpha + F/S) / \beta$$

where  $\beta$ ,  $\alpha$  are the slope coefficients of  $TC(e)$  and  $TC(i)$  respectively, and  $S$  is an index of sensitivity. The probability of a given transaction being internalised in a DFI-project is thus positively related to  $\alpha$  and  $S$ , and negatively on  $\beta$  and  $F$ :

$$(4.5) \quad P(\text{DFI} = \text{yes}) = P( TC(i) / TC(e) > 1) = f(\beta^-, \alpha^+, F^-, S^+).$$

The following exposition of various factors influencing the elements of the basic model uses extensive references to empirical tests. Therefore, a brief introduction to this empirical work is in place here. Empirical work on TC faces the challenge that it is by definition impossible to quantify and measure TC. The discrepancy of managers' perceptions of TC and actually measured costs [Buckley and Chapman 1995] is a major obstacle but not the only one. Empirical research has proxied TC with their presumed determinants. Statistical significance is taken to show both that the proxy influences TC, and that TC influences the internalisation decision under consideration. A common way to test transaction cost models is with a binary dependent variable model of internal versus contractual transfer. For instance, Davidson and McFetridge [1985] use a Logit model, defining the dependent dummy variable as one for transfers to wholly owned subsidiaries (WOS) and zero for licensing. Alternatively, Contractor [1984] and Shane [1994] define their dependent variable as the "ratio of royalties earned from licensing to unaffiliated foreigners" over different measures of direct investment income to proxy the share of business externalised. Table 4.1 summarizes the methodology used in empirical research of TC in an international context. The theory presented here is based on this empirical research. Mid-range theory is advanced through the synergy of many specific empirical studies. The empirical foundations are reported in extensive footnotes to the theoretical arguments.<sup>77</sup>

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<sup>77</sup> For ease of argumentation, empirical tests are referred to such that all '*positive*' effects refer to a higher preference for internalisation, i.e. DFI, and '*negative*' effects to favour market transactions such as licensing.

**Table 4.1: Methodology of Empirical Research**

<i>Author, year</i>	<i>Model</i>	<i>Dependent Variable</i>	<i>Sample (country, data source, sample size, unit of analysis)</i>
Horst 1972	LPM	MNE - domestic firm	US
Grubaugh 1987	LPM, Logit	MNE - domestic firm	US, n=186 firms
Davidson 1980	rank correlat.	Entry sequence	US outward, Harvard MNE project, n=20 host countries (180 firms)
Contractor 1984	OLS	Share of royalties over DFI income	US outward, department of commerce survey 1977-80, industry level, n=19 / 30 countries
Kumar 1987, 1990	OLS	share of DFI in sales ratio royalties / sales	India inward, domestic sources n=49 industries
Davidson, McFetridge 1984, 1985	Logit	DFI - licensing	US outward, Harvard MNE project n=1226 technology transfers
Kogut, Singh 1988	M-Logit	greenfield - JV - acquisition	US inward, various sources n=228 entries
Gatignon, Anderson 1988	Logit M-Logit	WOS - JV	US outward, Harvard MNE project, n=1267 affiliates
Chu, Anderson 1992	M- O- Logit	WOS - JV	replication of Gatignon and Anderson 1988
Gomes-Casseres 1989, 1990	Logit	WOS - JV	US outward, Harvard MNE project, n=1532 affiliates
Hennart 1991	Logit	WOS - JV	Japanese in US, questionnaire n=158 parent affiliate couples
Agarwal, Ramaswani 1992	M-Logit	no biz - export - JV - WOS	US in Japan, Brazil, UK; Q-survey 97 firms = 18% <sup>a</sup> ), factor analysis, n=285 firm-country relations
Kim, Hwang 1992	M-Logit MANOVA MDA	licensing - JV - WOS	US outward, questionnaire (15% <sup>a</sup> ) using Likert scales, n=96 firms
Benito, Gripsrud 1992	OLS	Entry sequence	Norwegian outward, Norge Bank data, n=201 affiliates
Kogut, Zander 1993	Logit	WOS - licensing, WOS - JV	Swedish outward, questionnaire (16 of 20 firms <sup>a</sup> ) using Likert scales, n=82 technology transfers
Shane 1994	OLS	Share of royalties over DFI income	US outward, department of commerce survey 1977 and 1982 n=86 and 166 industries
Aswicahyona, Hill, 1995	OLS	Share of DFI in output	Indonesia inward, domestic sources n=37 industries (31% <sup>a</sup> )
Denekamp 1995	OLS	DFI Stock	US outward, official sources, n = 61 industries 1982 / 85 / 89

<sup>a</sup> = ratio of useable observations over firms contacted. n= number of observations.

### 4.2.1. Product Sensitivity

Transaction costs are a function of characteristics of the products transferred, aggregated above as 'sensitivity' to market failure. The properties of goods and services that make them susceptible to market failure are assets specificity and information content, discussed in the literature on problems of 'hold up' and 'information asymmetries' (figure 4.2).

#### Asset Specificity

Asset specificity is the core determinant of internalisation in the TC framework described by Williamson [1985]: it motivates vertical integration. Asset specificity refers to investments by either partner specific to the business relationship. These are sunk cost, i.e. unrecoverable in the case of a change of partners [see Klein, Crawford and Alchian 1978].

If two or more agents sign a contract requiring relationship-specific investment they become mutually dependent. After the investments are made, market forces will not punish opportunism and maladaptation as in perfect markets; and agents become vulnerable to the misbehaviour of the partner. If both partners depend on each other, a situation of bilateral monopoly evolves that may or may not be resolved efficiently. However, if only one partner depends on the other, the lock-in situation could be exploited by the stronger partner. A long-term contract could theoretically resolve such situations [Demsetz 1988]. However, if contracts are not enforceable because of limitations in the legal framework, or if contracts are highly incomplete due to uncertainty over final outcomes, then internalisation may occur. In this argument, asset specificity is neither a necessary (information asymmetry suffices) nor a sufficient condition (imperfect contracting needed).

In international business, assets specific to any transaction will be higher than in a uni-national environment, because of higher negotiating costs, coding and measurement costs, search costs, bargaining costs, and coordination costs. Assets specificity<sup>78</sup> arises with investment in physical assets or human capital, most apparently if resources are committed for product or process customisation.

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<sup>78</sup> Williamson [1983] distinguishes site specificity, physical asset specificity, human asset specificity and dedicated assets.

- Products customized for one buyer or supplier require higher coordination costs, and possibly investments in equipment specifically to the business relationship [Williamson 1981, Anderson and Gatignon 1986]. Such sunk cost investments are asset specificity in a narrower sense.
- Production processes specialised in the use of a particular quality of input may be dependent on one source for their raw material. Such dependence arises particularly in industries processing natural resources. Hennart [1988] showed how this led to higher vertical integration in the aluminium than the tin industry.
- Training individuals specifically for a business relationship is a form of transaction-specific investment [Monteverde and Teece 1982, Anderson and Schmittlein 1984]. Such costs arise in particular with the transfer of 'tacit knowledge'.<sup>79</sup> Training costs rise for transfers to countries with a lower level of education and less sophisticated technological expertise and thus imply a preference for internalisation.

Empirical research has problems finding suitable proxies for asset specificity because it emerges in many variations. It varies not only between firms but also between individual transactions for any firm. None of the international studies reviewed had proxies for product customisation, but process customisation was shown by Gomes-Casseres [1989, 1990] and Hennart [1991] using measures of intra-firm trade and resource industry dummies.<sup>80</sup> More evidence exists showing a positive association between local technical capabilities and preference for contracts or joint-ventures (JVs).<sup>81</sup>

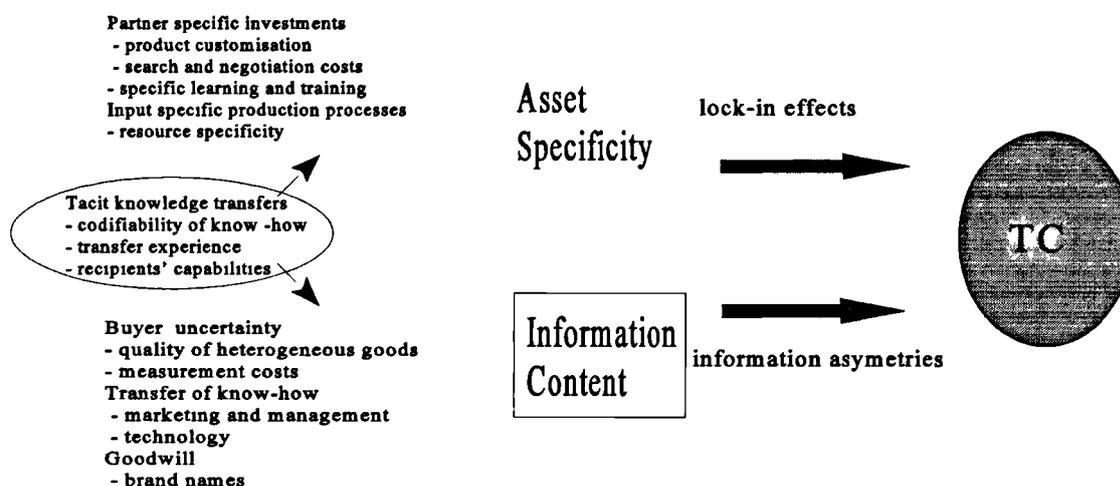
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<sup>79</sup> Teece [1977] uses questionnaire data to estimate the costs of transferring knowledge internationally within an enterprise.

<sup>80</sup> Gomes-Casseres [1989, 1990] uses a resource industry dummy and a dummy for high share of affiliates' sales to other members of the parents MNE and found both significant. In Hennart [1991], the resource industry dummy is significant for producer goods companies.

<sup>81</sup> Contractor [1981, 1984] finds negative effects on internalisation by indigenous capabilities, proxied by R&D expenditures and research personnel. Kumar [1987, 1990] finds a negative effect of R&D expenditures in India on incoming DFI versus licensing. A similar study in Indonesia finds an insignificant positive effect [Aswicahyona and Hill 1995]. Gomes-Casseres [1989] uses the size of the host country's industrial sector to proxy the experience of local firms and found a significantly negative effect on DFI. Hallwood [1990] shows how the lack of capable Scottish licensees induced DFI into suppliers to the emerging offshore oil-industry. Evidence against the proposition comes from Davidson and McFetridge [1985] with a positive effect of literacy on DFI rather than licensing.

Figure 4.2: Product Characteristics



### Information Content

The price mechanism generates an optimal allocation of goods if all agents have full information. If however, information on the goods traded is incomplete, or information itself is the traded item, then various forms of market failure arise [e.g. Arrow 1971]. Such "demand externalities" [Williamson 1985] include information asymmetries [e.g. Akerlof 1970], externalities from the "public good character of knowledge within the firm" [Caves 1971, p. 4], and free-rider potential for users of brand-names who may degrade the quality of standards [Davidson 1982, Anderson and Gatignon 1986]. These market failures are conceptually distinct from asset specificity because they arise from the nonspecific nature of intangible assets [Kay 1991, 1992].

Here the framework departs from Williamsonian TCE which aggregates information and asset specificity related market failure [e.g. Williamson 1985, Anderson and Gatignon 1986, Shelanski and Klein 1995]. Information related issues appear more important in an international context, and therefore receive more attention in the internalisation literature on MNEs [e.g. Casson 1987, 1990, 1995]. While asset specificity is mostly related to transfers

of goods and vertical integration, information asymmetries arise mainly for technology transfer and horizontal expansion. However, exports can be subject to informational asymmetries, for instance over the quality of goods, and licensing agreements can be subject to asset specificity if the licensee has to invest in specific physical assets.

In the international environment, informational market failures are more prevalent because less efficient formal and informal information channels make information asymmetries more likely and more persistent. Diffusion of transferred knowledge is more likely as licensors can less easily observe misuses of intellectual property and control externalities. Transactional problems proliferate because international law is less specific and more costly to enforce. Thus the 'appropriability regime' permits only weak enforcement of property rights and thus reduces control of externalities [Rugman 1981, Teece 1986]. Multinational firms can safeguard their intangible assets by means other than the legal system, for instance by operating the business themselves or by not training local employees more than necessary for their particular job.

Imperfections in the markets for information thus imply that product sensitivity to TC increases with:

- Buyer uncertainty regarding the quality of goods related to product diversification and human capital intensity [McManus 1972, Casson 1982]. Information asymmetries may require multiple quality and quantity controls and thus increase measurement costs [Hennart 1982].
- Transfer of information, such as marketing, general management, and technological knowledge, especially of recent origin [e.g. Williamson 1981], transfer of product innovations that are more difficult to evaluate than process innovations [Brada 1981, Hennart 1989], and transfer of "unstructured, poorly-understood products and processes" [Anderson and Gatignon 1986, Horstmann and Markusen 1987b].
- Transfer of goodwill, especially by permitting local partners to use a brand name. Goodwill is conceptually different from marketing knowledge, as the former is the value of a reputation, and the latter refers to management capabilities.

Potential damage from uncontrolled diffusion increases the sensitivity to market-failure especially if technology is close to the core competencies of the firm or if potential conflicts arise from exports to third markets.

A different kind of market failure arises if knowledge is 'tacit' [Polanyi 1958]. Knowledge could still be a public good in that its use is non-rivalrous. However, access to the knowledge is not costless, because it requires a learning process. The recipient acquires knowledge through experience, rather than by reading factual information. Therefore, concerns about externalities from uncontrolled diffusion are secondary. Diverse cultures, formal and informal communication networks, and especially different languages inhibit the transfer of tacit knowledge as teaching and the exchange of experience become more difficult. The transfer is facilitated by the codifiability of the technology [Kogut and Singh 1988], by the transfer experience of the transferor, and by the technical expertise of the recipient [Contractor 1981, Pavitt 1985]. Kogut and Zander [1993] argue that the transfer of tacit knowledge requires an organisational mode of transfer because a market-transaction would not be feasible [see also Love 1995].

The effects of information intensity are well supported by empirical studies. Research<sup>82</sup> or advertising<sup>83</sup>-intensive firms, as well as diversified enterprises<sup>84</sup> prefer internalisation,

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<sup>82</sup> R&D expenditures are commonly used as proxy for technology intensity [see Stopford and Wells 1972]. They are significant for international internalisation decisions e.g. in Davidson and McFetridge [1985], Gatignon and Anderson [1988] and Denekamp [1995] (using industry level data on R&D). Grubaugh [1987] finds R&D expenditures to have a significant effect on the likelihood of a firm being multinational rather than domestic.

Hennart [1991a] does *not* find this variable to be significant for Japanese MNEs, suggesting that their core competencies and intangible assets are other than technological knowledge, but for instance management know-how. Contractor [1984] also finds no significant effect for R&D intensity, but the ratio of managerial employees is significant, indicating that internalisation of management know-how may be a prime purpose of DFI.

A related variable found to be significant is the age of technology, because older technology is more codifiable, priceable, and thus easier to transfer, and less essential for the core competitiveness of the transferor [Davidson and McFetridge 1984, 1985, Teece 1977]. Not significant is a dummy for 'radical technological innovations' in Davidson and McFetridge [1985].

<sup>83</sup> Marketing intensity is commonly proxied by advertising expenditures. Gatignon and Anderson [1988] and Gomes-Casseres [1989] find a positive significant effect using industry level data on advertising expenditures. Grubaugh [1987] finds a positive but not significant effect of advertising

especially if the local operations are close to their core business activity.<sup>85</sup> However, the conditions appear to vary for firms of different origins as they compete on the basis of different kinds of core competences. Less established is the effect of reputation, since marketing knowledge and goodwill are difficult to separate empirically and advertising intensity has been used as a proxy for both. Whether the preference for internalisation by information intensive firms is attributable to the public good character or the tacit nature of knowledge has only recently received attention.<sup>86</sup>

#### 4.2.2 Moderating Influences on TC

Transaction costs are subject to two moderating influences: uncertainty over the outcome of the transaction, and potential opportunistic behaviour of the business partner. These moderating influences induce the curves TC(e) and TC(i) to turn upwards as indicated by little arrows market (o, u) in figure 4.3. It is generally presumed that the effect of these influences is stronger on the external TC than the internal TC, leading to a shift of  $s_1$  to the left, i.e. internalisation becomes more likely. In fact, the abilities to cope with opportunism and to adjust more effectively to volatile environment have been the rationale for the

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intensity. Hennart [1991a] found *no* significant effects for Japanese MNE, in the case of consumer good industries even a wrong (negative) sign. Kumar [1987] finds positive effects of advertising intensity on DFI and licensing, of which the former was significant (no test was made on the difference between the two effects). A similar proxy is insignificant in AswicaHyona and Hill [1995].

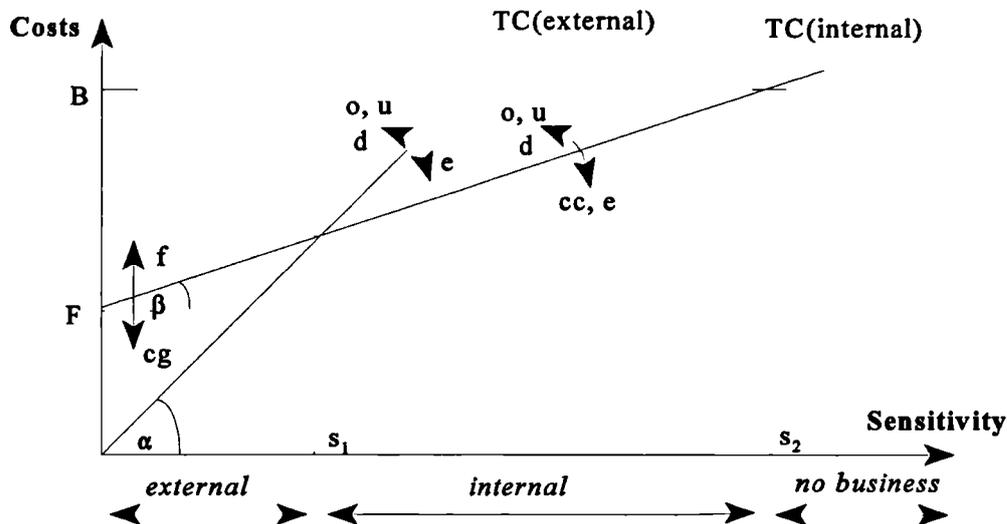
<sup>84</sup> A product diversification proxy including the perception of innovation potential and quality of training programs is surprisingly negative and significant in Agarwal and Ramaswani [1992], but positive significant as an interaction term with contract risk. This suggests that diffusion of knowledge is *only* of concern, and prevents DFI *if* contract law is weak. Human capital proxies are positive and significant in Kumar [1990] and AswicaHyona and Hill [1995].

<sup>85</sup> A dummy indicating whether the partner or affiliate is the same industry as the parent is significantly negative in Davidson and McFetridge [1985], and Hennart [1991], but not in Gomes-Casseres [1989]. Hennart's [1991] variable for the relative size of parent and affiliate is not significant. Contractor's [1984] variable for the size of the parent is not significant either. Gomes-Casseres [1989] had a significant positive effect *only if* the affiliate was in the MNE's core business industry (4-digit industry level data). Also, product innovation favour wholly owned affiliates *if* the affiliate was in the MNEs core business, whereas process innovations had no significant impact.

<sup>86</sup> Kogut and Zander [1993] find significant results for tacitness increasing the likelihood of an internal mode of technology transfer. Tacitness was defined by three other constructs: codifiability, teachability, and complexity.

superiority of internal organisation in Williamsons original work. Figure 4.4 gives an alternative illustration of the interaction of product and environmental characteristics.

**Figure 4.3: Changes in Transaction Cost Curves**



The next sections discuss the logic underlying the moderating effects, contract risk and the likelihood of opportunism. A note on necessary and sufficient conditions for TC to evolve follows.

### Contract Risk

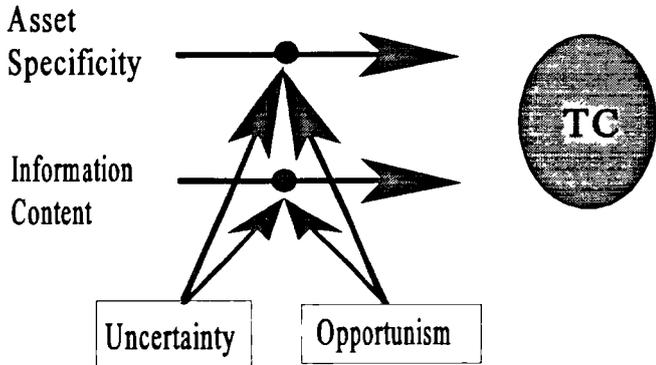
International business is subject to various sources of uncertainty. This arises from the unpredictable impact of environmental or organisational variables on corporate performance or inadequacy of information [Miles and Snow 1978, Pfeffer and Salancik 1978]. Uncertainty includes not only the probabilistic distribution of outcomes but also unknown types of events that would influence business results in an 'unpredictable' way.

Uncertainty reduces the possibility of writing complete contracts while increasing the

probability that situations arise in which the partners need a joint reaction in response to changes in the environment. Therefore higher uncertainty, and higher risk aversion [Chiles and McMackin 1996], would increase preferences for internalisation. This is because risk sharing can (i) reduce effects on the outcome of the joint project, and (ii) eliminate effects on the terms of trade between the partners.

Figure 4.4: Moderating Effects

Product Characteristics



Environmental Conditions

(i) Risk can be shared through equity holding or contractual arrangements. Firms' ability to bear risk is related to their business size, and two partners jointly may engage in business that would not happen otherwise. If risk-sharing contracts are not feasible because they are unenforceable, or the uncertainty makes even the type of event that might affect the business unpredictable, then internalisation may be preferred.

(ii) Re-negotiation over the distribution of rents and complex coordination mechanisms would substantially slow adjustment of interdependent partners linked by a contractual relationship. With interdependence, a hierarchical mode of coordination within a common organisation may be more efficient [Williamson 1991]. On the other hand, if the market is perfect, spot markets are the quickest medium to adjust to a new equilibrium price.

Thus, higher industry uncertainty induces the internalisation of markets where product characteristics are sensitive to market failure, while simple and homogeneous goods will trade on spot markets. Higher levels of integration would be associated with industry uncertainty. Dunning [1993, p. 177] refers to these uncertainties as 'contract risk', Anderson and Gatignon [1986] as 'external uncertainty'. Miller [1992] classifies these sources as industry and firm uncertainty:

- Industry uncertainty arises in input markets, for instance by changes in quality or shifts in market supply, as well as output markets, for instance by changes in demand due to changes in tastes, or the availability of complementary, or substitute, goods.
- Industry uncertainty also arises from the competitive nature of the output market. Some TC literature refers to this situation as the 'small numbers problem'.
- Input supply uncertainty arises, for instance, from the dependence on a single supplier. This is the classical case of asset specificity, with uncertainties about partner performance inducing internalisation.
- Furthermore, uncertainty increases with the duration of an envisaged project because the longer the planning horizon the less predictable is the environment for the time near the end of the contract [Coase 1937, p. 391].

Empirically, showing the impact of uncertainty convincingly is almost impossible. Kim and Hwang [1992] include constructs for demand uncertainty and intensity of competition as proxies for economic uncertainty in the market. In a domestic study, Anderson and Schmittlein [1984] use a deviation from forecasts variable to proxy uncertainty. Neither study found significant results.

### **Likelihood of Opportunism**

Williamson [1975] explains TC as a result of opportunistic behaviour. If transactions "are subject to *ex post* opportunism... [then] appropriate safeguard measures can be devised *ex ante*", by organising them inside the boundaries of the firm [Williamson 1985, p. 48]. Contrary to Williamson, others do not consider opportunism a necessary condition for internalisation.

Casson [1991, 1995] and Ghoshal and Moran [1996] suggest including opportunism as a distinct attitudinal variable. Individuals' propensity to behave opportunistically depends on their attitudes and the costs of opportunistic behaviour. Cultural values shape attitudes to opportunism but also change with institutional settings and the perceived behaviour of others. The costs of opportunism include social or legal consequences of detected cheating: a social network acts as a means of preventing opportunism, as each individual has a reputation at stake vital for continued business [Granovetter 1985]. A clear legal code and contract enforcement at no or low costs limit the scope for opportunistic re-negotiation.

In a uni-national environment, it can be assumed that attitudes and the cost of cheating are similar for alternative business partners. However, the institutional structure of a society, including its norms and value systems, affects TC [North 1981, 1990]. Therefore, the economic performance of countries depends on the trust in their society, which in turn depends on culture [Casson 1991, Hill 1995]. For instance, socialisation mechanisms influence the individual's sense of obligation and duty and can prevent opportunistic behaviour [Ouchi 1980]. A culture that emphasises respect and self-respect relative to status will face less cheating and thus lower TC [Casson 1991, 1995]. On the other hand, TC would be high in a country that lacks middle-class social networks that are neither infested by corruption nor absent due to revolution (as can be presumed in some countries of CEE).

Internationally, fewer social networks exist and partners often do not know each other. A damaged reputation abroad may not matter as much as it would in the local community because businesses in different countries are less likely to communicate such information efficiently. Their reputations of new transaction partners are more difficult to establish and it takes longer to establish mutual trust. Thus, international transactions are subject to TC related to lack-of-trust. However, these TC would vary across partner countries. The presence of high levels of trust and cooperative behaviour in a foreign country affect the TC of business with that country, and thus the preference to internalise international transactions.

- High trust countries experience lower levels of internalisation [Hofstede 1980, Hedlund 1980, Laurent 1983]. Their international transactions would use more licensing if their

business partners also trusted them more.

- For international business, not only the trust within a society but also trust between two countries is important: political frictions between countries would reduce the latter without affecting the former.
- International law enforcement is often more costly as partners operate under different legal codes, and interaction with the legal system in a foreign country can be cumbersome. Of particular concern is the often weak protection of intellectual property [Anderson and Gatignon 1986, Clegg 1990]. This would increase internalisation in certain environments and industries.

Shane [1994] tests the trust proposition empirically and finds that US business in high trust countries uses more licensing compared with investment.<sup>87</sup> Other aspects of international variations in trust and constraints on opportunism have not been tested in a comparable way. Denekamp [1995] uses a 'legal intensity index' to show empirically that industries where lawyers constitute a high share of the employees are more likely to internalise.

### **Necessary and Sufficient Conditions**

The literature fails to agree which determinants of TC would be necessary or sufficient conditions, and how different determinants would interact. No empirical study so far has been able to clarify the nature of the interaction effects. Based on the theoretical discussion in this chapter, the following propositions on the determinants of TC are suggested:

- The existence of at least one of these two product market imperfections, asset specificity or information asymmetries, is a necessary condition.
- Uncertainty is a necessary condition.
- Opportunism increases the magnitude of TC, but is not a necessary condition.

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<sup>87</sup> He uses Hofstede's [1980] 'power distant scale' and a Confucian Connection 'integration index' as proxies for the level of trust within different societies. Arnott, Gray and Yadav [1995] find investors *from* high power distance countries (=low trust) to favour JV (insignificant) and greenfield (significant at 10%), which appears contrary to the proposition.

The propositions are based on the following considerations.<sup>88</sup>

(i) In a highly uncertain environment, the ability to adjust to changes in the environment is essential for market performance. With neither asset specificity nor information asymmetries, as on currency markets, spot markets are used as coordination mechanisms. If markets are not perfect, i.e. if adjustment processes are interdependent, then many coordination problems arise, and internal adjustment mechanisms are superior [Williamson 1991]. The same arguments would hold with respect to opportunism.

(ii) In the absence of uncertainty, complete contracts could overcome interdependence between partners [Demsetz 1988], and information asymmetries could not arise by definition. As uncertainty increases, contracts will become incomplete and thus raise TC. In particular, it has been argued that complexity aggravates a product-specific market failure problem [Masten, Meehan and Snyder 1991, McFetridge 1995]. Similarly, Anderson and Gatignon [1986] argue that 'external uncertainty' affects internalisation only if interacting with asset specificity or technology transfer.

(iii) Opportunism is a necessary condition for firms to exist in the original framework of TC as devised by Williamson [1981]. This however is disputed in the recent literature: certain interactions between individuals can be accomplished only within an organisation, not across markets, even in the absence of opportunism. This includes teamwork [Alchian and Demsetz 1972] and the transfer of tacit knowledge [Kogut and Zander 1993]. A different counter argument states that internalisation does not resolve the problems of opportunistic behaviour [Granovetter 1985]. Extensive monitoring may actually reduce cooperative attitudes, and thus increase opportunistic behaviour and thus TC [Ghoshal and Moran 1996].

#### **4.2.3 Internal Transaction Costs**

Within organisation, hierarchies replace prices as coordination mechanisms. Management coordinates individual activities, gives directions, and monitors agents. A particular

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<sup>88</sup> In algebraic form, this can be expressed as :  $TC(e) = S u + S u o$ .  
If either sensitivity to market failure (S) or uncertainty (u) disappear, then TC would be zero. Yet this does not apply for Opportunism (o).

important aspect is the collection, communication and evaluation of information [Casson 1995]. In the literature, the costs of organising internal transactions have been called 'monitoring costs' [Alchian and Demsetz 1972], 'internal uncertainty' [Anderson and Gatignon 1986], 'governance costs' [Langlois 1992], or management costs [Demsetz 1988]. In this study, they are called internal TC or, to stress that they depend on the management of the firm, management costs.

The costs of internal organisation depend on characteristics of the organisation, in addition to product characteristics (S). Organisations may have synergy effects with other operations or specific resources and capabilities that lower their internal TC. In terms of the TC(i) curve, this can affect the intercept or the slope.<sup>89</sup>

Capabilities that increase an organisation's ability to reduce uncertainty and opportunism in the internal transactions would turn the TC(i) curve downwards. A good example of such an effect is corporate culture, as analysed by Casson [1995]: Firms may be able to instill a higher level of trust among their employees than exists in the society outside the enterprise. Therefore internal transactions are subject to lower TC, as indicated by the arrow (cc) in figure 4.3.

### **Common Governance**

International production involves its own administration costs besides those incurred by independent firms [Hirsch 1976]. These costs of operating in a foreign country are subject to economies of common governance (cg) and experience (e), psychic distance (d) and, in imperfect financial markets, on sources of funding (f). All these costs are independent of product sensitivity and thus affect the intercept F of TC(i).

International business has a major fixed cost component. The larger the turnover, the more firms can utilise economies of scale and of common governance. The per unit internal TC are

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<sup>89</sup> For ease of argument, it is assumed that no effect affects intercept and slope simultaneously. This does not change the results, unless effect are in opposite direction, which is unlikely.

thus declining with increasing turnover.<sup>90</sup> In Williamson's [1985] perspective, the more frequent are transactions, the lower are internal TC per transaction. Similarly, common governance allows to utilise headquarter resources between different international operations. Since these effects shift TC(i) downwards, internalisation becomes more likely.

In addition, costs of entry are mainly country specific sunk costs, i.e. incurred upon entering a foreign country, and not recoverable in case of withdrawal. Investors need to study the legal, social and economic framework and to establish contacts with local partners and government authorities. Goods have to be adapted to local tastes, legal requirements and the specific properties of inputs. This implies, e.g., that subsequent transactions have far lower fixed set-up costs, and thus are more likely to be internalised. Also, high sunk costs imply that entry decisions are only reversed if economic conditions deteriorate substantially. The population of foreign firms present in a country is thus a function of historical developments, a phenomenon known as hysteresis [e.g. Dixit 1990].

### **Psychic Distance and Experience**

The costs of business in a foreign country are higher the more distant and different this country is from the environment in which the company is used to operating. This effect increases both transaction and management costs. Understanding of other cultures requires extra effort that is often not undertaken, so that cultural distance becomes a constraint on rationality as business practices vary. Risk assessment is hampered because the investor is not used to the nature of many sources of risk and political influences on trans-border transactions [Caves 1982]. The costs of establishing a business in a distant country increase with the need to gather information, train local staff and adapt management to the local cultural and legal environment. They are caused by lack of information, difficulties in exchanging information (due to language barriers), higher legal enforcement costs, and a lack of reputation as an entrant. All these aspects are captured by the concept of '*psychic distance*',

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<sup>90</sup> Gatignon and Anderson [1988] propose the opposite, arguing that large operations require access to local capital and the sharing of risk with a local partner. Below, it is argued that this is a separate constraint on investment. They measured it by the number of employees abroad which was not significant for the JV - WOS decision, but negative and significant for the share of ownership in the JV.

which covers geographic, cultural, legal, religious, linguistic, historical, economic and ethnic aspects of the differences between two locations of business activity [Beckermann 1956, Johansson and Wiedersheim-Paul 1975].

Companies can reduce the costs of distance if their management is familiar with the local environment through personal experiences and contacts [e.g. Gomes-Casseres 1989]. Cultural distance may decline with the presence of a foreign business community as it fosters an environment that adapts to the need of foreign firms [Anderson and Gatignon 1986]. On the aggregate level, familiarity can be expected to follow historical relationships, such as political cooperations, or expatriate communities. The increasing costs of psychic distance have three implications:

- To decide the organisational form of a given transaction, firms are concerned with the differential impact of psychic distance on costs of market and internal organisation. Clegg [1990] stresses that distance increases the problems of controlling the use of knowledge transferred by licensing, i.e.  $TC(e)$  turns upwards. In contrast, Root [1983] and Davidson and McFetridge [1985] argue that internal costs increase more than external TC, turning, and possibly shifting,  $TC(i)$  upwards. Thus, psychic distance would increase the preference for licensing. Anderson and Gatignon [1986] argue that under great socio-cultural distance, either a high or a low control mode is preferred, but not an intermediate. Thus, whether  $s_1$  shifts left or right is an empirical question.
- Companies prefer to enter countries closer to home early in their internationalisation process [section 3.5.2]. Firms without international experience prefer expansion to the nearer country if faced with the choice between countries that differ only with respect to their psychic distance.
- A cultural gap raises obstacles to integrating acquired firms. Organisation cost considerations suggest that greenfield investments are preferred to acquisitions if post-acquisition costs arising from matching organisational structures are high. These rise if the 'organisational fit' of the firms is lower [Jemison and Sitkin 1986]. Furthermore, firms in proximity have personal contacts and may find it easier to find suitable partners with whom to form a successful JV. Therefore, Kogut and Singh [1988, p.

414] hypothesise: “The greater cultural distance between the country of the investing firm and the country of entry, the more likely a firm will choose a JV or... greenfield over an acquisition”.

Experience in business with a particular country, or international business at large, helps overcoming the obstacles of psychic distance. Thus, operating costs decline with the experience accumulated in a country. Experiences arise in every business context and may be transferable to related business projects. The accumulation of experiences leads to continuous reductions in production costs. Specifically, (1) experience in transferring technology by licensing reduces the future cost of licensing; (2) experience in managing foreign subsidiaries reduces the cost of additional operations; (3) any experience in a country reduces cost of future projects in this or similar countries. The accumulation of experience leads to continuous reductions in transaction costs. Both TC curves turn downwards, compensating the effect of distance.

Empirical evidence strongly supports the view that firms start internationalisation in nearby countries and subsequently move on to more distant countries [section 3.5.2]. Several studies using simple measure of distance found that long distance favours low involvement modes.<sup>91</sup> Using a Hofstede-index for cultural distance, Kogut and Singh [1988] find a preference for JV over acquisition for increasing distance while Shane [1994] finds contrary evidence as

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<sup>91</sup> For British firms, Buckley and Davis [1981] find DFI more likely the closer the host country is culturally to the UK, particularly for countries within the commonwealth. Also see Stopford [1976].

Davidson and McFetridge [1985] find countries bordering the US (as country of origin) receive more DFI relative to licensing. They also find positive significance for dummy variables for countries with the same language and religion as the investor's country (USA). Their original interpretation of these variables differs from the above as they interpreted them as indicators for market demand for US goods and technology. Higher demand is expected to lead to higher turnover of technology and thus make internalisation the more attractive form. Other variables proxying demand, such as per capita GNP and population, are however not significant.

Gatignon and Anderson [1988] use multiple dummies for four clusters of partner countries outside the Anglo social-cultural sphere, which are significantly *negative* in some model specifications. Gomes-Casseres [1989] derives a familiarity index from Davidson's [1980] entry sequences and finds a strong effect that WOS were more likely in familiar countries. Also, using data on managers perceived distance, Kim and Hwang [1992] find a significant *negative* effect.

distance favours licensing.<sup>92</sup> Kogut and Singh also find investors from distant origins favour acquisitions, contrary to their expectations, but this effect is reversed (though insignificant) after taking Japanese firms out of the sample. The effects of experience have been confirmed in several empirical studies.<sup>93</sup>

### **Costs of Capital**

Internalisation decisions are frequently interdependent with investment decisions, and thus with the commitment of the investor to bear country specific investment risk. TCE often ignores this aspect because it would not arise under perfect capital markets: either a risk-sharing contract is drawn up, or each partner would receive a share in the integrating company to reverse the impact on each individual's risk portfolio.

However, international capital markets are not perfect, especially in emerging and transition economies. An enterprise wishing to internalise its business in a foreign country has to contribute a major share of the capital. If local capital markets are underdeveloped, this capital may have to be raised on international capital markets rather than locally. Hedging such currencies is expensive, or impossible. Thus, the investor has to bear the country risk associated with the project because he has to invest at least some equity as otherwise lenders would not be willing to finance foreign operations.<sup>94</sup>

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<sup>92</sup> Both use a composite index based on the deviation of each country from the US as country of origin by ranking along four cultural dimensions developed by Hofstede [1980]. The same index is not significant for entry sequences of Norwegian firms in Benito and Gripsrud [1992].

<sup>93</sup> Experience is considered by counting related activities, e.g. number of previous transfers [Teece 1977], number of worldwide DFI projects [Davidson and McFetridge 1985], number of previous foreign entries [Gatignon and Anderson 1988, Bakema, Bell and Pennings 1996], number of countries where the MNE has subsidiaries [Kogut and Singh 1988]. Hennart [1991] uses a more meaningful proxy of 'years since the first establishment of an affiliate by the company (in the US)'. It is significant for consumer goods industries, but not for producer goods. Also, the variable 'age of the affiliate' is positive, supporting the experience argument, although this could alternatively be explained by a stages of entry model. Agarwal and Ramaswani [1992] also find 'scale and experience' to significantly influence the choice between joint and wholly owned ventures, but not between exports and DFI.

<sup>94</sup> Townsend [1979] shows that given asymmetrical information between investor and banker on the viability of a project, and 'costly state verification' on its performance, complete funding by non-equity is not possible.

Shifting the country risk to a local partner can reduce investment risk. This diminishes internalisation as a JV or licensing replaces WOS. The second alternative would be non-involvement or even withdrawal from the market. In either case, country risk reduces the degree of internalised cross border business. It arises primarily from environmental uncertainty, but also from industry and firm uncertainty. Environmental uncertainty covers changes of political regimes and governmental policy, macroeconomic changes in economic activity and prices, social movements and the natural environment such as rainfall or earthquakes [Miller 1992].

Uncertainty has been introduced in the model twice with opposite implications:

- interacting with asset specificity and information it raises TC and thus internalisation,
- increasing country risk it reduces investment and internalisation.

Unfortunately, no clear division exists between different kinds of uncertainty that would have different effect. It has been proposed that the internalisation effect is mainly associated with industry uncertainty, whereas the business deterrent effect is associated with environmental risk. This separation should be helpful for analytical purposes. However, the literature does not provide conceptually clear distinctions of uncertainty that would fit this model. The trade-off between different kinds of risks implies that agents may be willing to accept higher levels of industry risk if country risk is low. In less complete capital markets more low-control modes and non-involvement would be expected. This suggests that internalisation is less likely in developing countries.

In empirical research, country risk could rarely be shown to influence DFI unless measures of managers' perceived risk are used.<sup>95</sup> Economic development influences several

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<sup>95</sup> See for instance Kobrin [1982] or Nigh [1986]. Gatignon and Anderson [1988] include a country risk dummy for medium and high risk countries, of which the high risk dummy was significant. Kim and Hwang [1992] find a significant negative influence by managers' perceived country risk. Erramilli and Rao [1990] find DFI by service multinationals motivated by following the customer more likely to be internalised than market seeking DFI because the latter faces higher market uncertainties.

Agarwal and Ramaswani [1992] include constructs for perceived contractual risk and perceived investment risk. Contractual risk is found to encourage exports and discourage DFI (but with no

determinants of the model, including country risk, but also including the technological capabilities of recipients of technology transfer (and thus costs of training), the development of financial markets and the regulatory environment.<sup>96</sup> This can lead to correlations between various country-specific variables, and surprising effects in regression analysis.

#### 4.2.4 Institutional Environment

Governments in a considerable number of countries employ a wide array of measures to constrain the activity of multinational enterprises, or to induce them to perform in a way deemed beneficial for the host economy [section 3.3.4]. In particular, ownership is constrained as expected spillovers into the national economy are larger if the business is run in partnership with a local company. Some potential effects of government policy and the institutional environment on internalisation decisions are illustrated in figure 4.5. These effects are likely to occur in imperfect, or restrictive, regulatory frameworks, as in the transition economies.

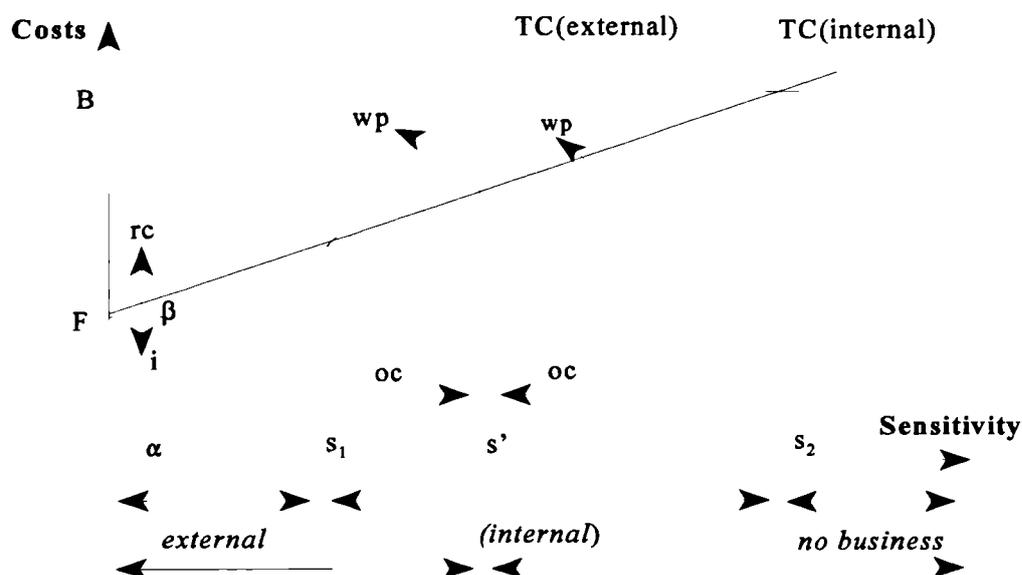
Firstly, governments can constrain foreign ownership such that DFI is not permitted in a given industry. Such regulation was frequent throughout CEE until about 1992. This implies that the internalisation option is not available (oc). The  $TC(i)$  thus vanishes from the menu of available options. The model retains only one critical point,  $s'$ , between market transaction and no business. This implies that, firstly, some businesses that would have been internalised are now externalised, as intended by regulators. However, business of higher sensitivity, between  $s'$  and  $s_2$ , are not profitable under the constraint, and thus not implemented. Since this includes sensitive technology transfer, such constraints thus may prevent some of the most attractive projects.

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effect on JV versus WOS choice). Investment risk discourages all forms of business, in the case of JV and WOS significantly. Some interaction effects with other variables were also significant.

<sup>96</sup> Contractor [1984] includes GDP per capita and the share of manufacturing in GDP as proxies for level of development, both of which were shown to favour DFI. Davidson and McFetridge [1985] had various proxies for economic development, some of which had surprising signs. Dunning [1988] found a U-shaped relationship with only intermediate countries preferred licensing over DFI. This effect could however, be removed by including other country variables.

**Figure 4.5: Influences of the Institutional Environment**



Secondly, regulatory constraints (rc) can increase the fixed costs of operation. This can emerge as a weakness in the institutional framework, e.g. if the bureaucracy is incompetent. However, many governmental policies deliberately raise the cost for investors, for instance, by local content or export share requirements, limited profit remittance, or taxation. Any such extra costs are independent of product sensitivity and would shift the TC(i) curve upwards. Thus, less DFI is likely as some transactions are externalised, and others are not implemented.

Thirdly, a weak protection of property rights (wp) may increase the scope for opportunistic behaviour and thus turn the TC curves upwards. This condition is likely to occur in transition economies where many property rights have only recently been codified, and law enforcement costs may be high. Since internal organisation enables to overcome some of these hazards, TC(e) is likely to turn more. This shifts  $s_1$  to the left, and increases the

likelihood of DFI at the expense of contractual knowledge transfer.<sup>97</sup> Yet, it also reduces the upper benchmark  $s_2$ , and thus the number of transactions occurring. Thus, the model suggests that enforceable property rights would encourage more international business, using both external and internal modes. A crucial point in this argument is the cost of law enforcement. If legal fees are expensive, this could have the same deterrent effect as lack of legal protection.

Because of governmental regulation of DFI, a stream of the literature argues that the choice of organisational form depends on the relative bargaining power of MNEs *vis-à-vis* host governments [e.g. Fagre and Wells 1982, Lecraw 1984, Kobrin 1987].<sup>98</sup> Gomes-Casseres [1991] combined this argument with TC, arguing that the decision over the organisational form of business can be divided into two stages, the determination of the firm's preferences, and the negotiations with the local government. He finds empirical support for some interaction effects.<sup>99</sup> Several other studies found support for specific aspects of the regulatory framework as an exogenous constraint on the choice of ownership form.<sup>100</sup> Figure 4.5

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<sup>97</sup> A similar effect could occur with regulatory constraints on licensing or other forms of contractual cooperation and spot markets.

<sup>98</sup> Relative bargaining power of MNEs *vis-à-vis* local governments is analysed empirically by Beamish [1985], Lecraw and Morrison [1991], Grosse and Behrmann [1992] and Loree and Guisinger [1995].

<sup>99</sup> In his empirical test, he multiplies all variables of interest with a dummy for restrictive host government policies. He finds that some influences impact on WOS-JV decisions differently under a restrictive policy regime. In particular, the positive effect of GNP growth (a proxy for the bargaining power of host governments in bargaining models) is found significant *only* for restrictive countries. On the other hand, some otherwise significant effects such as a resource industry dummy, familiarity and small business size do not hold for restrictive countries [Gomes-Casseres 1991].

<sup>100</sup> Davidson and McFetridge [1985] test the impact of foreign exchange controls, DFI screening, equity controls and form of government, and obtain negative coefficients for the first three of which only equity controls were significant. In Gatignon and Anderson [1986] a dummy proxying government restrictions is significant. Contractor [1990] finds significant effects of restrictive measures as reported by companies in his sub-sample of developing countries. In Contractor [1984], this variable is positive, but significant only in some model specifications. Shane [1994] measured investment barriers and incentives as the proportion of US firms reporting various government regulations in the US Department of Commerce benchmark survey. Using factor analysis these variables are reduced to a single variable. Shane finds it to have a positive effect, contrary to his expectation. He explains this by the "national level correlations between barriers to foreign investment, barriers to licensing, and level of economic development" [Shane 1994, p. 63].

suggests that bargaining power of MNE would be high in highly sensitive businesses that are profitable only if organised internally. Governments may be more successful in negotiating externalisation in the range between  $s_1$  and  $s'$ .

#### 4.2.5 An equation

The components of the TC model can be brought together in one equation. The abstract variables influencing the choice for DFI versus market transactions in equation 4.5 have been explored in more detail subsequently. Merging all the elements, a more detailed relation can be proposed. In the notation, plus and minus signs are used again to indicate the sign of the first derivative, i.e. the direction of the influence. The slope coefficients  $\alpha$  and  $\beta$  of the TC(e) and TC(i) curves depend on uncertainty, opportunism, psychic distance, weaknesses in property-right protection, experience and corporate culture:

$$(4.6) \quad \beta = f(u^+, o^+, d^+, e^-, cc^-)$$

$$(4.7) \quad \alpha = f(u^+, o^+, d^+, e^-, wp^+)$$

The fixed costs F of internal TC depend on common governance, availability of financial resources, and on constraints and incentives set by host government regulation:

$$(4.8) \quad F = f(cg^-, f^+, rc^+, i^-)$$

The concept of sensitivity has been defined as a, not measureable, index of asset specificity (AS) and information contents (IC). Combining these elements, equation 4.5 can be rewritten to summarise the framework in one equation. This equation establishes a relationship between the probability of a business choosing DFI as an internal mode of transaction over a market mode, and the independent variables discussed in this chapter:

$$(4.9) \quad P(\text{DFI}=1) = f(AS^+, IC^+, u^+, o^+, d^?, e^+, cc^+, wp^+, cg^+, f, rc^-, i^+)$$

In the case of the variables u, o, and e, the arguments in previous research are adapted with

respect to the relative impact in the TC(e) and TC(i) curves, as discussed above. For psychic distance  $d$ , the literature disagreed on the relative impact. Equation 4.9 is used later as basis for empirical analysis.

### **4.3. Markets, Hierarchies, and Intermediate Forms**

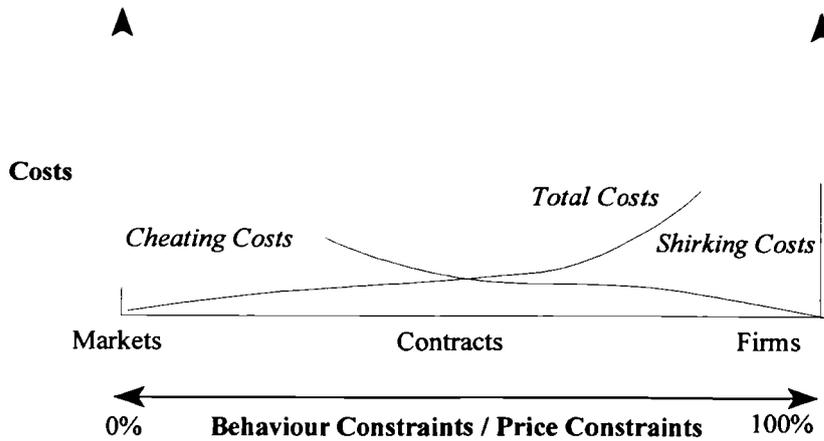
The discussion so far compared two distinct modes of operation, internal and external. In the recent literature, the notion of organisational forms that mix elements of markets and hierarchies received considerable attention. Some researchers of TCE treat contractual arrangements, explicit or implicit, as intermediate forms of internalisation between markets and hierarchies. For instance, Williamson [1991, p. 280] describes intermediate forms such as "various forms of long-term contracting, reciprocal trading, regulation, franchising and the like" as hybrid modes. They would be "located between markets and hierarchies with respect to incentive adaptability and bureaucratic costs." Shelanski and Klein [1995, p. 337] review TCE and state that "governance structures can be described along a spectrum".

Hennart [1993] presents a model that "locates contracts in the continuum between markets and firms". He assumes convex total costs and suggests that intermediate forms are cost efficient (figure 4.6).<sup>101</sup> Also the interpretation of outsourcing with long-term contracts as a 'move-to-the-middle' [Clemons, Reddi and Row 1993] suggests an understanding of the market and firms as endpoints of a one-dimensional scale.

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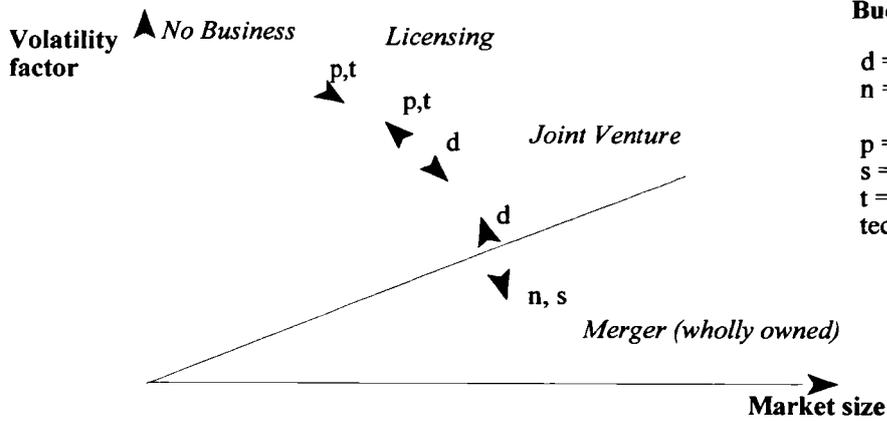
<sup>101</sup> There is no general reason why total cost should be convex. If it is concave, corner solutions would lead to markets or hierarchies. In fact, Eccles and White [1988] found mixed incentive schemes (price and hierarchy) to be more expensive.

**Figure 4.6: A Markets versus Hierarchies View**



Based on Hennart [1993]

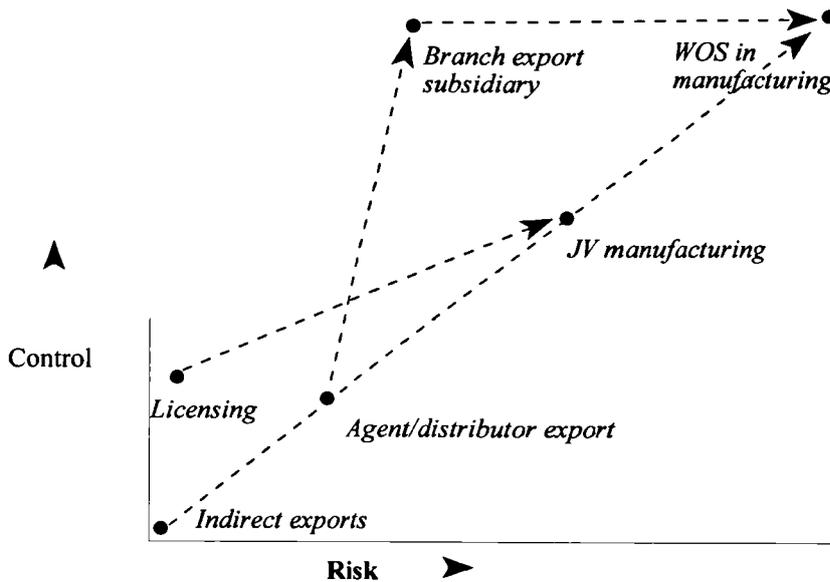
**Figure 4.7: A Two-Dimensional View**



Based on a draft of Buckley and Casson [1996]

d = cultural distance  
 n = protection of firms' independence  
 p = lack of patent rights  
 s = scope economies  
 t = uncertainty of technological competence

**Figure 4.8: A Two-Dimensional Marketing View**



Source: Root [1987]

An alternative interpretation of the dependent variable is to treat different organisational modes as independent alternatives with no implicit order. Buckley [1985a, p. 52] argues that "a simple spectrum running from wholly-owned foreign subsidiary to 'simple contracts' is an inadequate representation of the nuances and complexities of the different arrangements." Buckley and Casson [1996] show that licensing would be preferable if high volatility combines with large market size, which appears to fit the case of Russia (figure 4.7).<sup>102</sup> In their model, licensing is less attractive *vis-à-vis* 'no business' or DFI if patent rights are poorly protected or the value of the technology is highly uncertain. JVs become less attractive for business across high cultural distance because of coordination problems. Root [1987] located exports and DFI at opposite corners of a box diagram with the dimensions 'risk' and 'control' [see also Young *et al.* 1989]. In this framework, contracts are characterised by zero risk and some degree of control (figure 4.8).

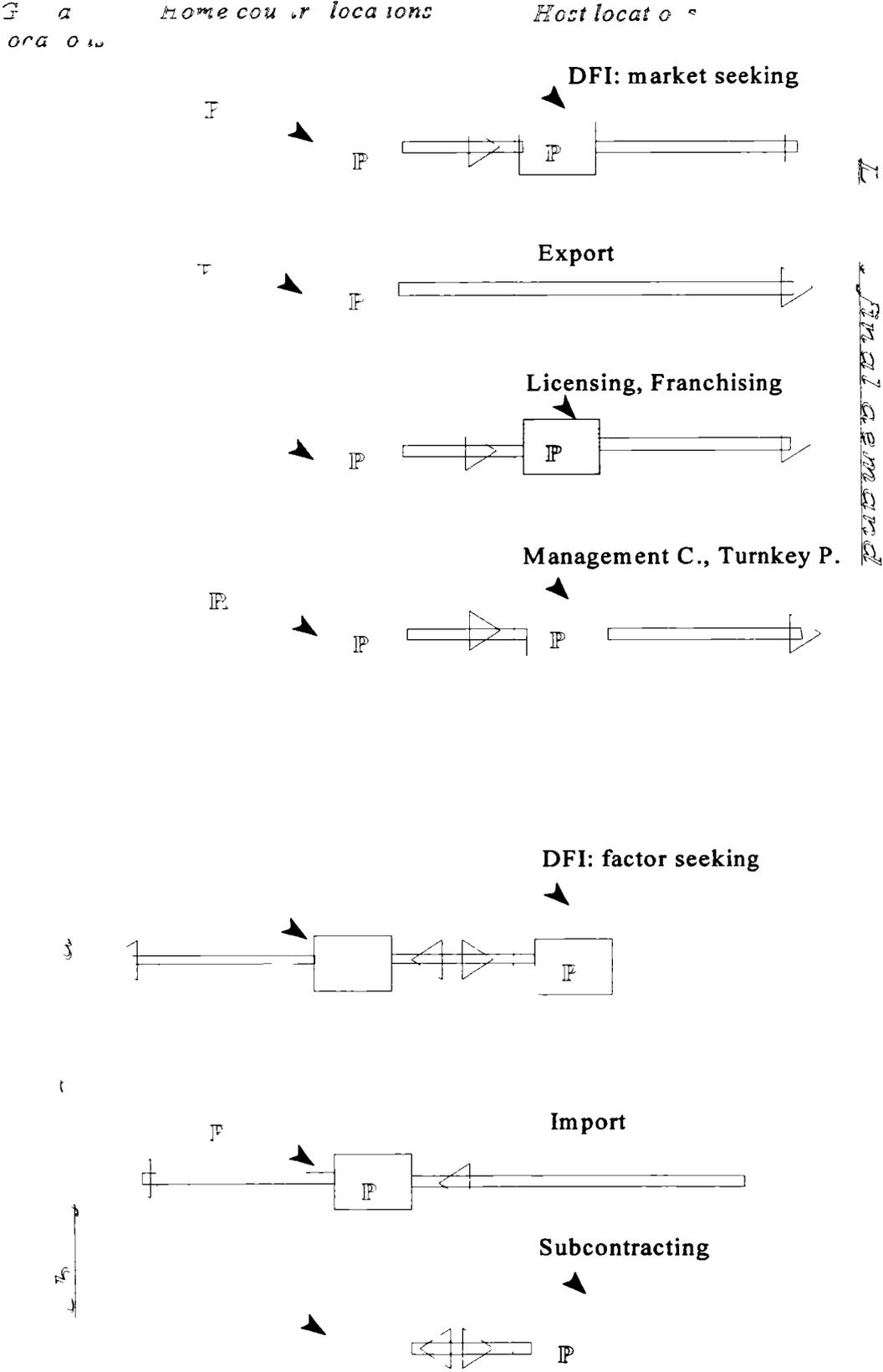
These interpretations consider contracts as a distinct mode of transaction. Firms would make internalisation decisions between contractual relations and DFI, as well as between trade and DFI. The relevance of different aspects of the TC framework varies however. Licensing involves technology transfer and thus is likely face problems of information asymmetry. For exports, quality control related information asymmetry as well as asset specificity can cause market failure.

The contract versus DFI choice is comparable to prior research on transfer of technology in the theoretical internalisation literature [e.g. Buckley and Casson 1976] and the corresponding empirical analysis [e.g. Davidson and McFetridge 1985]. The trade versus DFI choice is comparable to research on transfer of goods, such as outsourcing [Monteverdi and Teece 1982].

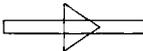
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<sup>102</sup> The arrows in figure 4.7 are based on the argumentation in Buckley and Casson [1996, p. 15-18]. JVs and cultural distance in particular are further discussed in chapter eight.

**Figure 4.9: Cross-Border Interfaces**



### Notation used in figure 4.9

$\mathbb{R}$	Research and Development unit
$\mathbb{P}$	Production unit, including sales and distribution owned by 'home' country firm
$\boxed{\mathbb{P}}$	Production unit, including sales and distribution foreign owned
$\mathbb{P}$	Production unit, including sales and distribution owned by 'home' country firm, but with limitations on control
	Transfer of goods
	Transfer of know how

#### 4.4 The Nature of the Cross-border Interfaces

So far, the TC approach has been presented for *given* transactions. However, decision over the organisational mode and the transaction itself are related. To prepare an empirical analysis, it is necessary to distinguish different cross-border transactions found between Western and Eastern Europe. Only transactions that are similar in terms of underlying choice over location of production and markets can be compared with the TC approach.

Figure 4.9 illustrates seven stylised patterns of cross-border transactions between a 'home country' say Western Europe, and a 'host country', say Eastern Europe. The first distinction is with respect to the markets that the project is to serve ultimately. In the lower half of the figure, projects are illustrated that use local production facilities in the host country to serve global markets. The simplest mode of obtaining local produce is to buy it from a local producer, a market transaction, and import it to the parent's plant. There it may be further processed for sale in the global markets, including home, host and third countries.

Alternatively, DFI could establish a local production facility, using technological knowhow and, typically, intermediate goods supplied by the parent firm. With the re-import of (semi-) finished goods, the parent is linked to the affiliate by bilateral flows of goods and services. The same kind of relationship can be established with an independent subcontractor. Again,

goods are transferred in both directions, and the 'home' firm may supply the local firm with production technology. The subcontracting arrangement would be an intermediate form, while DFI is an internalised mode. Imports are typically market transactions, though long-term supplier relationships could also be considered intermediate form.

Business focussing on the local market also can be organised by exporting, DFI, contractual arrangements. Exports are market transactions, usually involving only transfer of goods, not supported by transfer of know how. The buyer could be a local partner with an exclusive relationship, an independent sales agents, or the final customer.

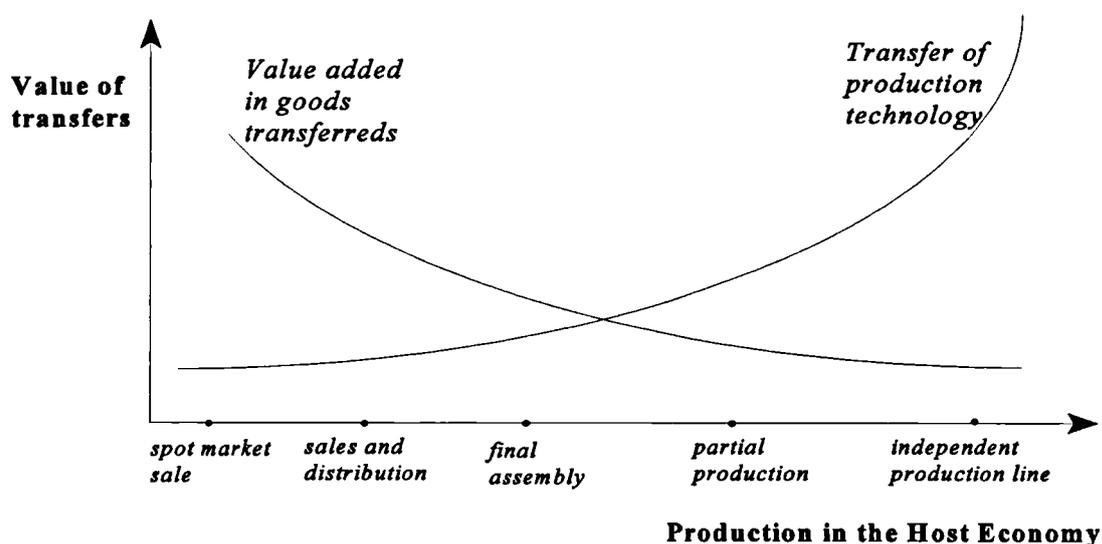
A DFI internalises stages of the production chain located in the host country. This can involve a full local production, or only the local distribution of goods. Figure 4.7 illustrates that the further down the production chain is the cut-off between home and local production, the more value added is already the goods transferred, and the less production technology knowhow is required locally. If the local partner does not have knowledge on the industry, this equates with higher transfers of know how. For projects covering only the sales and distribution stage, marketing know how becomes an important transfer - especially in CEE.

A licensing agreement transfers the knowhow to an independent local producer. He may receive intermediate and raw materials in addition to technology. Similarly a franchising agreement transfers goods, services and marketing knowhow to an independent downstream partner engaged in final stages of production, sales and distribution.

A special case are management contract and turnkey projects. In a management contract the home firm operates a business on the premises of a local partner. Intangible assets required to run the operation are internalised, business risks can be shared with a local partner. This mode, common in the hotel industry, give the management firm control over its sensitive know how, but not over the physical property [e.g. Contractor and Kundu 1996].

A turnkey project also enables a manufacturer to internalise his production know how while operating in a foreign country. A plant is build on premises owned by a local firm, but is

**Figure 4.10: Extend of Local Production  
International Transfers, and Organisation Modes**



transferred to local control only after completion. With the complete ('turn-key') plant, only how-to-operate knowledge is transferred, not how-to-build knowledge.

If a firm wishes to serve a market, without locating major parts of the production at the location, it has the choice between exporting and investing directly in a distribution network. A contractual alternative exists in form of franchising. Other contracts involve some kind of local production activity, often due to the indivisibility of production and sales location for services or construction.

#### **4.5 Conclusion**

Equation 4.8 integrates many arguments from the TCE literature. The synergy shows the eclectic nature of TCE: many quite different arguments have been made in its name and do fit under the common umbrella of TCE. Most empirical work on TC in the international context takes a partial view focusing on selected determinants and specific kinds of business transactions. Thus, it appears well established that, for instance, intangible assets are preferably internalised because markets for information are imperfect. A number of other

determinants have also been shown in specific studies. However, some of the core concepts remain to be shown empirically, including core concepts of asset specificity, uncertainty and opportunism. Also, interaction effects have frequently been proposed but rarely supported empirically. This also applies to TCE literature on topics other than MNEs [Shelanski and Klein 1995]. Moreover, a major task is the use of more comprehensive tests.

Which of these objectives can be achieved in this study? Since the prime objective is to explain DFI in the context of economic transition, the sample has been selected accordingly. In addition, industry-level data for the host economies are of too poor a quality to yield any interesting results. Thus the task is to make best use of available information while applying the framework as broadly as feasible.

In chapter seven, market transactions of international trade and contracts are analysed as alternative to DFI. Special tests feature the interaction of product sensitivity with environmental variables, and the intermediate-form interpretation of contracts. Chapter eight applies TCE to the choices of entry mode and of joint-ventures (JVs) versus wholly owned affiliates. In the latter decision, the internalisation incentives would favour full ownership since JVs are an intermediate form more sensitive to market failure.

## Part III

# Empirical Analysis



# Chapter 5

## The Enterprise Survey

### 1. Objectives of the Survey

The review of statistical evidence shows a dearth of reliable quantitative information on DFI in CEE that would be useful for analytical purposes. The discussion of theoretical issues suggests that enterprise level data may be more suitable than data at higher levels of aggregation. Therefore, a special database for this research was created using a questionnaire survey.

This survey is the first large enterprise survey that draws on a (stratified) random sample of Western companies. It covers firms with and without investment in the region. Both reasons for and against involvement in the region can be analysed and compared. Earlier questionnaire studies have surveyed related issues (see appendix 5.2). They generally used lists of companies known to be active, e.g. from Chamber of Commerce sources [Wang 1993, Engelhard and Eckert 1994, Ali and Mirza 1996], or they remain vague about the method of selection of their sample firms, which is a particular problem in the largest studies by Gatling [1992] and OECD [1994]. This may, but need not, have major implications for the validity of their conclusions.

The focus of this survey is on the characteristics of business relationships. British and German enterprises reported their business with the region including trade, investment or contractual arrangements. The questionnaire was designed around the following objectives:

- To collect information on the dependent variables, i.e. the business activities of the sample firms in the countries of Central and Eastern Europe (questions 1, 5).
- To collect information on the business characteristics that according to theory would be relevant for the choice of organisational form (questions 2, 3, 4, 6, 7, 8, 9).
- To collect firm specific data relevant for the decisions concerning activity and organisational form that are not generally available from databases and annual reports (questions 11, 12, 13).
- To collect exploratory information on motivations and obstacles to investment, separating market and factor cost DFI (questions 8a, 8b, 9a, 9b, 10).
- To build a database of contact persons for further research (question 14).

The study focuses on Germany and the UK as these are contrasting cases of countries which are unusually active and unusually inactive in their DFI activity in CEE - compared with their world-wide DFI activities. The questionnaire covers five transition countries: the Czech Republic (CR), Hungary (HU), Poland (PL), Russia (R) and Romania (RO). These countries are large enough to potentially attract the attention of multinational businesses while representing a variation of economic and political conditions in the region. The Visegrad countries (CR, HU and PL) are the most advanced but differ in their policy towards DFI and their privatisation processes. These differences were expected to affect the variation of DFI within the region. Russia attracts substantial DFI according to local sources in a different local environment. Romania was selected as a contrasting case that, until the time of the survey, received only a small amount of DFI. Additionally, respondents were asked to provide information on a 'write-in' country of their own choice.

This chapter contains the details of the questionnaire needed for the interpretation of the empirical results obtained with the data set. The questionnaire surveyed business activities of British and German companies in winter 1994 and 95. The next section summarises the details of the data collection and the enterprise survey instrument. Section three introduces the descriptive statistics for some interesting variables of the data set. The fourth section contains a short discussion of the factor cost hypothesis based on descriptive statistics, and the fifth section concludes. The questionnaire is reproduced in appendix 5.1.

## 5.2. Methodology of the Questionnaire Survey

### Base Population

The base population has been selected in view of the two research objectives understanding DFI flows to CEE, and testing theory of the multinational enterprises. These two objectives are to some extent conflicting. Transition economists, and policy advisors, would preferably be based on a very broad sample to get as close as feasible to explaining the aggregate flows of DFI. To be relevant for economic policy, the selected industries should be relevant for the host countries, and typical or representative for investment at large. Thus,

- sample firms should be active in CEE with a variety of organisational forms;
- sample firms should be representative for selected industries,
- the sample should contain a matched sample of German and British industries for comparative analysis,<sup>103</sup>

The analysis of theoretical propositions on the other hand requires to focus on some selected industries only to reduce variations from influences other than those analysed by the theory. The tests of the propositions arising for transaction economics and the developmental model further require for the sample that

- it should exclude industries facing major trade barriers such as textiles
- it should include technology and goodwill intensive industries as variation of these characteristics is important to analyse TC propositions,
- it should include labour intensive industries such as textile or electronics to be able to test propositions derived from the developmental model.

A compromise had to be made by focusing on industries of interest from both the theoretical and policy analysis perspective. The base population for the survey covers manufacturing

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<sup>103</sup> Any one home country may be subject to country specific effects such as proximity or government policy. British investment in particular is of minor importance in the region. To isolate country specific effects, a control group is necessary, provided by the second country. British and German DFI should be suitable opposite cases of actual firms behaviour.

companies in the UK or in Western Germany.<sup>104</sup> The focus on manufacturing is a consequence of the comparatively important role of manufacturing investment. In addition, the theoretical frameworks have been developed for manufacturing industries. Three industries have been selected which cover more than half of all manufacturing firms in the two countries such as to reduce variation but retain policy relevance:

**Food** Food, beverages and tobacco (USSIC codes 20, 21),

**Chem** Chemical industry including pharmaceuticals, petroleum refining (USSIC 28, 29),

**Mach** Machinery including electrical and transport equipment (USSIC 35, 36, 37).

These industries are all active in the region. DFI in machinery and automotive industry has a higher share in investment in CEE than worldwide. Also, the food industry is very active in the region, beyond its share in worldwide DFI. The chemical industry, on the other hand, appears yet under-represented in the region [section 2.3, table 2.8]. The theoretical requirement of variation in technology and marketing intensity applies to all three industries, as they all include consumer goods industries and, except food, high-tech firms. Labour intensive production is important in some machinery industries in this broad definition, but neither the food nor the chemicals industry.

The base population was retrieved from a company database (Fame and Amadeus) using their own selection routine.<sup>105</sup> These databases are the most comprehensive databases available and cover more than stock market quoted enterprises. They also provide data on company accounts needed for further analysis. In addition to the random sample, some companies have been contacted, who were known to be active in the region from Chamber of Commerce

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<sup>104</sup> Including East Germany would have added an additional layer of complexity to the study. Therefore, the sample includes only West German firms and investment in other transition economies. (One exception is a firm who relocated its corporate headquarters from West to East Germany). For legibility, the word West is henceforth omitted.

<sup>105</sup> It was necessary to clean the resulting list e.g. to exclude firms in liquidation or receivership, and to avoid contacting both parent and affiliated company. Thus holding companies have been excluded if affiliates accounting for more than 50% of turnover were also in the list - unless the affiliates were functional sales affiliates.

sources. These all have annual turnover below £ 750 million annually and are active via investments or contractual arrangements. They add information on the preferred form of business by small and medium firms without being representative of German or British industry.

### **Sample Stratification**

The data have been collected using a stratified random sampling method. The stratification is by company size using turnover in:

Large	turnover more than £ 750 million in latest available year (usually 1993),
Medium	turnover of £ 100 to £ 750 million, and
Small	turnover of £ 3 to £ 100 million.

In the 'Large' group, all companies have been contacted, while in the 'Medium' and 'Small' groups a random sample was selected. The purpose of this stratification was to include a complete list of the largest investors, as they account for most of the business volume with the region, but also to include medium and small companies in the sample, as they make a major contribution in some industries and react differently to the same incentives. The stratification has been designed such that the proportions of firms contacted in each size group were equivalent to the proportions of firms known to be active from a list from Chamber of Commerce sources.<sup>106</sup> Also, the lower limit of £ 3 million has been motivated by the smallest firms in this list. The sample was not stratified by industry. The number of firms contacted in each industry thus reflects their proportion in the base population. The sample should thus be a good representation of potential investors from the selected industries.

### **Preparation and Administration**

The design of the questionnaire paid special attention to ease of completion, potential sensitivity of information and avoidance of quantitative questions to enable a high return rate

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<sup>106</sup> Without stratification, the sample would have been dominated by small firms most of which have no investment in CEE.

and thus a good representation of the base population. The German translation was prepared by the researcher himself and has been thoroughly checked by another native German speaker experienced in the design of research questionnaires (Dr Sabine Küster).

The questionnaire has been piloted on a sample of 30 British companies selected from the Extel database in July 1994, followed by a reminder letter. Of them, five (17%) returned a completed questionnaire. The pilot study led to changes in questionnaire design, formulation of questions and the definition of the base population. The preparation of the questionnaire included interviews with individuals experienced in questionnaire design as well as potential respondents. After this process, the researcher felt confident that questions were understood and not ambiguous, and that the main options had been included in the suggested responses.

Administration included several tasks necessary to achieve good quality replies and a representative response rate: identification of contact persons from various data bases<sup>107</sup> and some telephone calls, mailing the questionnaire with a prepaid return envelope, and mailing a reminder letter with a new copy of the questionnaire to non-respondents after two weeks. The cover letter on LBS letterheads contained a strong statement of confidentiality. The questionnaire was sent out in October and November 1994 to the British companies and in February 1995 to the Germans.<sup>108</sup> German responses were collected at University of Bonn (Prof. Dr. Dieter Bös), although the questionnaire was sent from the UK due to substantial postage cost differentials. Respondents who had indicated their interest received a thank-you-letter with a LBS CISME Centre brochure and an executive briefing of the nontechnical data analysis.

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<sup>107</sup> Fame and Amadeus, Annual Reports, Excel, LBS-Alumni Directory, CBI-list of active firms, Hoppenstedt and two membership directories of German industrial organisations. The contact person would preferably be the director in charge of East European operations, or business development. In some cases, an individual at a level closely below the board was contacted. If neither was available the letter was sent to the managing director

<sup>108</sup> The German questionnaire referred explicitly to business 'at the end of 1994 to avoid distortions due to the time-difference.

### **Questionnaire Returns**

In total, 677 companies were contacted, slightly more in Germany than the UK in anticipation of different return rates. The return rate of 39.3% is quite high relative similar studies (see appendix 5.2). This is a result of careful questionnaire design and administration.

Table 5.1 gives the absolute number of respondents for each size group for both the UK and Germany. The return figures include responses by companies, who explained that they are not active in the region without returning the actual copy of the questionnaire. Three respondents, did not refer to the requested business unit, but the European headquarters of a multinational enterprise. In addition, 27 (4%) mostly large firms replied that they were not willing to complete the questionnaire, mainly as a matter of corporate policy due to too many of requests to complete questionnaires (table 5.2). Two questionnaires contained inconsistent responses and have been excluded from the analysis and also the return statistics.

### **Sample Selection Biases**

The return rates are consistently high across size groups, home countries and sectors, with more than 30% for each category considered (table 5.1) and highest returns for large firms. British firms were expected to have a higher return because of experiences by other research and a special reputation effect of London Business School within the UK. This effect may have increased returns by large British firms, but no difference was observed for medium and small firms. In anticipation, the number of German firms had been increased. Active firms were expected to be more likely to respond than firms without business with CEE because respondents would have more personal interest in the research. Comparing the return by chamber-of-commerce-list firms with the other medium and small firms indicates that such a bias exists, but is not substantial. Advertising intensive firms were suspected to have a lower return because of more concern about confidentiality. This does not seem to be the case either: Of 22 top advertising firms in the sample, 12 returned a completed questionnaire, which implies a return rate comparable to that of large firms in the full sample.<sup>109</sup>

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<sup>109</sup> Based on a list 100 top advertising firms in the UK published by Marketing Week [14.4.1995] which included 22 firms of the base population.

Across industries, little variation was observed except for a low return of 32% from the German food industry. This is in part explained by the only major self-selection effect observed: Only two of nine tobacco manufacturers responded both supplying exclusively the domestic market. This may be a result of the secrecy in this industry. It was solved by redefining the industry as 'food and beverages, USSIC code 20' only. Overall, none of the potential biases seems to affect the general representativeness of the sample with respect to the base population.<sup>110</sup>

**Table 5.1: Questionnaire Returns**

<i>Group</i>	<i>Turnover million £</i>	<i>British Sample</i>			<i>German Sample</i>			<i>Total</i>		
		<i>no. send</i>	<i>no. return</i>	<i>return rate</i>	<i>no. send</i>	<i>no. return</i>	<i>return rate</i>	<i>no. send</i>	<i>no. send</i>	<i>return rate</i>
<i>Large</i>	<i>&gt; 750</i>	<i>103</i>	<i>55<sup>a</sup></i>	<i>53.4%</i>	<i>107</i>	<i>44</i>	<i>41.1%</i>	<i>210</i>	<i>99</i>	<i>46.6%</i>
<i>Medium</i>	<i>100 - 750</i>	<i>100</i>	<i>34</i>	<i>35.0%</i>	<i>107</i>	<i>38</i>	<i>35.5%</i>	<i>207</i>	<i>72</i>	<i>34.8%</i>
<i>Small</i>	<i>3 - 100</i>	<i>100</i>	<i>37<sup>a</sup></i>	<i>36.0%</i>	<i>107</i>	<i>36</i>	<i>33.6%</i>	<i>207</i>	<i>73</i>	<i>34.8%</i>
<i>COC parents</i>	<i>3 - 750 &gt; 750</i>	<i>26 -</i>	<i>11<sup>a</sup> 2</i>	<i>38.5% n.a.</i>	<i>27 -</i>	<i>11 1</i>	<i>40.7% n.a.</i>	<i>53 -</i>	<i>22 3</i>	<i>39.6% n.a.</i>
<i>Total</i>		<i>329</i>	<i>139</i>	<i>41.3%</i>	<i>348</i>	<i>130</i>	<i>37.4%</i>	<i>677</i>	<i>269</i>	<i>39.3%</i>

<sup>a</sup> includes a response referring to a business unit not in the original base population. These three cases have not been included in the calculation of the reported return rates.

**Table 5.2: Reasons given for Not Completing the Questionnaire  
number of non- respondents**

<i>Reasons given</i>	<i>UK</i>	<i>German</i>	<i>Reasons</i>	<i>UK</i>	<i>German</i>
Company policy not to respond	8	5	Other Reasons	3	2
Diversified holding company	3	1	No Reasons	1	4

<sup>110</sup> Note however that in the empirical analysis in chapter six to eight, missing accounting data led to exclusion of many small and medium German firms in 'private' ownership.

### **Intra-firm Variation**

The questionnaire requested mainly factual information about business activities rather than perceptual or motivational data. Therefore, it was expected that responses from different individuals within a firm would not vary much. This 'intra-firm variation' could be checked based on 10 companies returning two responses, which did not reveal major differences for the main questions. Exceptions are the motivations and obstacles questions 8a, 8b, 9a, 9b that are not used in this analysis. The position of the respondent was not requested in the questionnaire unless he or she would be willing to participate in an interview, or requested a copy of the result. From this information, it can be inferred that most respondents were managers in charge for coordination of business with Eastern Europe reporting to the board, plus a substantial number of board members or Chief Executives.

### **Adjustments of the Sample**

Two problems arose in the creation of the database with the questionnaire responses:

1. The database contains enterprises that had their main business activity in an industry other than the three specified branches of manufacturing.<sup>111</sup> These firms have been removed from the sample to avoid distortion by industry specific effects and to maintain comparability of the German and the British sub-samples.
2. The database contains business units of MNEs from third countries. These are an indigenous part of the British or German industry and therefore had been included in the base population. However, respondents indicated in 21 cases, that their firms' strategic responsibilities do not include business or investment with CEE. Mostly, they were limited to supplying the domestic market. For the empirical analysis, they had to be excluded because they are not potential investors.

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<sup>111</sup> These companies have activities in three specified industries according to the selection routine provided by database, that however turned out to be only a small part of their business. They include from the UK eight construction and building materials companies, three utility distributors, three companies in paper and related industries, two telecommunication companies, two plastic manufacturers, a textile company, a trading company, and a shipping company, and from Germany a trader in raw materials, and a mining company.

In total, 40 firms were thus removed from the analysis (table 5.3, 5.4).<sup>112</sup> Since these firms would ideally not have been part of the base population, this does not affect the return rate.<sup>113</sup> Potential sample selection biases should be reduced by their exclusion. The remaining 229 firms will from now on be referred to as "the sample". Table 5.5 reports the structure of the sample across industries, size groups and home countries. Note that the regression analysis in chapters six to eight is based on fewer firms if values of independent variables were missing.

**Table 5.4: The Respondents**

<i>Firms</i>	<i>Respon-</i> <i>dents</i>	<i>Firms in</i> <i>sample</i>
<i>By industry</i>	50	46
Food and beverages (and tobacco)		
Chemical industry including pharmaceuticals and petroleum refining	59	52
Machinery industry, incl. electrical machinery and transport equipment	140	131
Other industries: mainly construction and services	20	-
<i>By firm size</i>	99	83
Large firms, annual turnover more than £750 million		
Medium firms, annual turnover £100 - 750 million	72	57
Smaller firms, annual turnover below £100 million	73	66
Medium firms known to be active from Chambers of Commerce	22	20
Respondents referred to European headquarters of company contacted	3	3
<b>Total</b>	<b>269</b>	<b>229</b>

**Table 5.4: Firms Excluded from the empirical analysis**

	UK	German	Large	Med.	Small	COC	Food	Chem	Mach	Other
'Other' Industries	18	2	6	10	3	1	-	-	-	20
Affiliates to MNE	12	9	10	6	4	1	4	7	9	1
Total	29	11	16	15	7	2	4	7	9	20

note: one company disqualified by both criteria.

<sup>112</sup> In Meyer [1995b] the summary statistics including all respondents have been reported.

<sup>113</sup> assuming that the proportion of ineligible respondents among respondents is equal to the proportion of ineligible respondents among firms contacted.

**Table 5.5: Sector and Size Structure of the Sample***number of observations*

	British				German				Euro HQ
	Large	Medium	Small	COC	Large	Medium	Small	COC	
Food	10	5	9	-	5	8	7	2	-
Chem	13	5	2	1	16	6	6	2	1
Mach	19	12	22	10	20	21	20	5	2
Total	42	22	33	11	41	35	33	9	3

**5.3 The Patterns of Business Activity**

In this section, the descriptive statistics for the activities observed in the sample are presented. At this stage, few interpretations are provided as this will be reserved to the in-depth empirical analysis of the following chapters. A simple technique is used to show differences in the pattern of activity, a contingency table analysis tests for the significance of the proportions observed in a table [see Aczel 1993, p. 678-683 for details]. This  $\chi^2$ -tests for independence of the variables are based on the difference of the value expected for each cell  $E_{ij}$  and the actually observed value  $O_{ij}$ . The  $\chi^2$ -statistic is

$$(5.1) \quad \chi^2 = \sum_{i=1}^c \sum_{j=1}^r ((O_{ij} - E_{ij})^2 / E_{ij})$$

where the double-sum  $\sum \sum$  refers to the sum across all columns  $c$  and all rows  $r$ . The  $\chi^2$  has  $(r-1)*(c-1)$  degrees of freedom. If this test statistic is significant, then the values in the cells of the table are influenced by cell specific determinants, i.e. the two dimensions of the table are not independent.

**5.3.1 Activity of Sample Firms**

The firms in the sample show patterns of activity that differ significantly for their home countries, their industries and their size (table 5.7). Of 229 firms included in the sample, 175 (76%) have active business relationships with the economies in transition in the form of

international trade, direct investment or contractual arrangements.<sup>114</sup> These will be referred to as active firms. The share of active firms is higher for large firms than for medium or small firms (88% versus 82% and 44%), higher for the chemical industry than for the machinery and food industries (92% versus 77% and 52%) and higher for German firms than for British firms (83% versus 69%). These differences are highly significant as shown by  $\chi^2$ -tests.

More than 90% of large firms, and the chemical industry are active from both countries of origin. However, in the other industries and among the medium and small firms, German firms have a far higher propensity of activity. For instance, 93% of medium size German firms are active compared with only 68% of their British counterparts. Among the small firms, almost twice as many German firms are active than British firms (58% versus 30%). The firms drawn from the chamber of commerce sources are as expected all active and have been excluded from the formal test for size groups. Across industries, the largest home country difference emerges in the food and beverages industry (68% versus 46%).

Major differences can also be observed for the types of activity reported by sample firms. Including multiple kinds of activity, 72% of firms are engaged in trade, 43% have DFI, and 34% have contractual relations. The differences again differ across categories, but mostly insignificantly. The propensity to engage in trade follows the pattern of activity as most active firms are involved in trade as part of their business. Contracts are particularly common in the machinery industry, and show little difference between German and British firms. Contracts are most common among large British firms, but medium and small German firms make more use of them their British counterparts.

DFI is undertaken by more than half of all active companies. Again, the highest proportions of active firms are observed among large enterprises (58%), chemical industry (58%) and German firms (51%). The difference between British and German firms is particularly evident among the small firms where not one British DFI has been identified, compared with

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<sup>114</sup> The interpretation has to consider that a self-selection bias is likely to operate in favour of active companies because managers without a business interest in CEE are more likely to ignore the request to complete the questionnaire. However, differences in the proportions of active firms across sub-samples would reflect differences in base population.

five (15%) investing small German firms. The food industry is least actively investing with 36% of German and 17% of British firms. The industry differences reflect the large economies of scale in the chemicals industry, and the high transportation costs in the food and beverages industry, which account for different degrees of internationalisation of the industries.

Not only are more German firms active in the region, the region is also more important for them. Table 5.6 shows the East European business as a share of firms' world wide operations, in terms of turnover, assets and employment. By all three measures, CEE accounts for a substantially larger share of business of German firms. The leading UK companies are below the leading German companies, and far more UK companies are found in the 0-2% category (for employment, assuming that most n.a. companies fall in this category as well). One German beverage company employs already half its employees in Hungary.

The first inspection of the data thus reveals deeper involvement of German firms especially among medium and small firms and in the food and machinery industries. Differences in the chemical industry and among large firms are minor which appears to suggest that for companies having reached a high international exposures, as most of these firms have, the country of origin differences loose in relative importance. A second feature is that the proportions of general activity, of trade, and of DFI show similar patterns across the various categories considered in table 5.7. However, the propensity to use contracts follows a distinct pattern with small UK-German differences. Also, they are most common in the machinery industry, which comes second only in terms of trade or DFI. The role of contracts is further explored in chapter seven.

**Table 5.6: Relative Importance of CEE for Firms**  
*Respondents in each category, in % of active sample firms*

	> 20%	10%-20%	5%-10%	2%-5%	0%-2%	n.a.	total
<i>By turnover</i>							
British	-	-	4	18	78	-	77
German	-	7	19	40	33	-	98
<i>By assets</i>							
British	-	-	1	1	44	1	77
German	-	4		9	34	3	98
<i>By employment</i>							
British	-	1	6	10	26	21	77
German	3	4	4	12	20	8	98

Categories by share of CEE activities in world wide activities

<sup>a</sup> = a company, who is importing but not exporting.

### 5.3.2 Characteristics of Active Business Relationships

The questionnaire collected information on business relationships with five countries in CEE: Poland, Hungary, Czech Republic, Russia and Romania. The variation of business across Eastern countries can be analysed using the firm-country relationship as the basic unit of analysis. Of these, there are 1145 observations (229 sample firms times five countries). The number of active business relationships with the countries is 656 (57.3%, table 5.8). This section reviews the active business relationships in detail.

In table 5.7, the pattern of activity is tabulated for various categories of sub-samples: home countries, host countries, industries and firm size. The propensity of activity and pattern of broad categories of activity are similar on the firm-country level to those described in table 5.7 at the firm level. The data for home countries, industry and size groups thus need no further comments, except to note that increased sample size increases significance levels.<sup>115</sup>

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<sup>115</sup> The data set includes multiple observations for each firm. This leads to 'repeated measures' in the home country, industry, and size categories which lead to overstatements of statistical significance.

**Table 5.7: Business Activity**

*in % of sample firms*

Sample:	Brit- ish			Ger- man				Full				
Size:	L	M	S	COC	L	M	S	COC	L	M	S	COC
<i>Active</i>	<i>90</i>	<i>68</i>	<i>30</i>	<i>100</i>	<i>93</i>	<i>91</i>	<i>58</i>	<i>100</i>	<i>88</i>	<i>82</i>	<i>44</i>	<i>100</i>
<i>of which</i>												
<i>trade</i>	<i>81</i>	<i>55</i>	<i>30</i>	<i>100</i>	<i>93</i>	<i>89</i>	<i>58</i>	<i>89</i>	<i>84</i>	<i>75</i>	<i>44</i>	<i>95</i>
<i>contracts</i>	<i>48</i>	<i>23</i>	<i>9</i>	<i>46</i>	<i>37</i>	<i>40</i>	<i>27</i>	<i>44</i>	<i>41</i>	<i>33</i>	<i>18</i>	<i>45</i>
<i>DFI</i>	<i>52</i>	<i>32</i>	<i>0</i>	<i>64</i>	<i>68</i>	<i>54</i>	<i>15</i>	<i>89</i>	<i>58</i>	<i>46</i>	<i>8</i>	<i>75</i>
Total no.	45	22	33	11	41	35	33	9	86	57	66	20
Sample:	Brit- ish			Ger- man			Full			Full		
Industry:	F	C	M	F	C	M	F	C	M	UK	D	all
<i>Active</i>	<i>46</i>	<i>91</i>	<i>71</i>	<i>68</i>	<i>93</i>	<i>83</i>	<i>57</i>	<i>92</i>	<i>77</i>	<i>69</i>	<i>83</i>	<i>76</i>
<i>of which</i>												
<i>trade</i>	<i>42</i>	<i>82</i>	<i>65</i>	<i>64</i>	<i>93</i>	<i>82</i>	<i>52</i>	<i>88</i>	<i>73</i>	<i>63</i>	<i>81</i>	<i>72</i>
<i>contracts</i>	<i>17</i>	<i>32</i>	<i>37</i>	<i>9</i>	<i>30</i>	<i>47</i>	<i>13</i>	<i>31</i>	<i>42</i>	<i>32</i>	<i>36</i>	<i>34</i>
<i>DFI</i>	<i>17</i>	<i>59</i>	<i>34</i>	<i>36</i>	<i>57</i>	<i>53</i>	<i>26</i>	<i>58</i>	<i>44</i>	<i>35</i>	<i>51</i>	<i>43</i>
Total no.	24	21	63	22	31	68	46	52	131	111	118	229
$\chi^2$ - tests	Propensity of Activity						Type of Activity					
Size (excluding COC)	40.909 (2) ***						8.182 (4) *					
Industry	17.425 (2) ***						5.285 (4)					
German vs. British	5.941 (1) **						0.653 (2)					

Notes: Figures in italics are percentages of totals. Totals are absolute numbers of firms. Boxes refer to sections of the table tested with  $\chi^2$ -tests.  $\chi^2$ -statistics are for tests of independence, i.e. whether the entries in each cell of a table are correctly predicted by the proportions of the full sample. Levels of significance: \* =10%, \*\* = 5%, \*\*\* = 1%. Abbreviations: Size: L = large, M = medium, S = small, COC = chamber-of commerce list; Industries: F = food and beverages, C = chemicals and petroleum, M = machinery.

Across the five host countries, a significant variation can be observed: Poland is leading in terms of share of companies reporting business (65.1%) followed by the Czech Republic (62.9%), Russia (58.1%), Hungary (57.6%) and at distant fifth place Romania (42.8%). The non-tabulated underlying differences between German and British firms suggest that Germans are more active than their British counterparts in all countries, except Russia. British firms have a small preference for Poland, especially for the first business contact, which is reflected in the small Polish lead in the proportion of active firms.

The pattern of trade, contracts and DFI is broadly similar to that of aggregate activity and varies statistically significant among host countries. Romania is lagging more in contractual relationships and DFI than in trade contacts. Russia attracts only little more than half the number of investors as each of the Visegrad countries. These two observations suggest that the less attractive environment affect especially the degree of foreign involvement, but less international trade. Surprisingly, the Czech Republic has the largest number of foreign investors, ahead of the early opening Hungary and the large market of Poland. This small (and insignificant) margin emerged especially for German firms, while British prefer Poland. The figures do not follow the aggregate flows discussed in chapter 2, which saw Hungary leading by a large margin. This may reflect differences in industries other than those sampled, or it may be a result of large volume of DFI being attracted by a few projects such as telecom.<sup>116</sup>

Trade as the basic form of international business is not surprisingly the most common form of business reported by the sample firms. The pattern of trade is shown in third part of table 5.8. A substantial imbalance appears between imports and exports. Export is part of most business relationships, while imports are reported by only 11.3% of firm-country relationships. This result holds across all sectors and size groups. The imbalance is in part a result of the sampling frame that focuses on manufacturing firms as imports are to a larger

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<sup>116</sup> The country variation corresponds with the pattern found in the OECD [1994] survey, except that they found less British DFI in Poland. It is also in line with surveys conducted in Germany that found a dominant interest in Visegrad countries, and a high correlation of activities between them [Engelhard and Eckert 1994]. The lagging position of Hungary was not observed in earlier surveys, except in Dresdner Bank [1993].

extend undertaken by trading companies.

The import data from the survey show some interesting features on trade by manufacturing companies. Imports are more likely in machinery industry and in large companies, and less in small and medium food processing companies. This holds for the share of firms importing as well as for importing firms relative to active firms. The discrepancy between export and import is more marked for British companies, with only 4.5% of firm-country relations involving imports to the UK, compared with 17.6% for German firms. The imports come mainly from the Visegrad countries, especially for Germany. Russia comes behind, while Romania so far seems almost negligible as a source for imports. These differences in the propensity to import are statistically significant as shown by  $\chi^2$  - tests.

The lower part of table 5.8 summarises the kinds of contracts used by sample firms. 14.9% of firm-country relations recorded contractual arrangements, standing alone or combined with other contracts or investment. Such dual relationship may or may not refer to the same business partner. The most common types are licensing (5.9%) and subcontracting (5.0%). The use of contracts varies significantly across industrial sectors, firm size, and between German and British firms, but has only a small variation among the Eastern countries.

German and British firms show a similar propensity to use contracts, but have preferences for different types of contracts. German firms use licensing and subcontracting, but never franchising while British firms use a variety of different contracts. The German preference for subcontracting confirms earlier research by Naujoks and Schmidt [1994].<sup>117</sup> In Russia, followed by Poland, licensing, turnkey projects and other contracts are most common presumably reflecting the attraction of the markets. Contracts can reduce the investment risk of supplying these markets. Subcontracting is most common in the Czech Republic and Hungary, which corresponds with the German preference for this form of business. These

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<sup>117</sup> They analysed trade statistics and found trade related to outward processing to be far more important for German-CEE trade than for any other EU country. Further research is needed to understand why subcontracting with or without equity investment is much more common for German firms.

host country variations are however not statistically significant.

The machinery industry is most actively using contracts, as 20% of firm-country units involve contracts. In the chemical industry, this ratio is only 11.5%, and 4.3% in the food industry. The most common contracts in the machinery are licensing and subcontracting, while the chemical industry make over-proportionately use of licensing. No type of contract attains importance in the food industry. Contracts are more commonly used by large firms, even relative to the number of their active business relationships. Contracts do not seem to be used by small and medium firms to overcome their limited financial and managerial resources. Only subcontracting is used over-proportionately by small and medium firms.

### **5.3.3 Characteristics of Direct Foreign Investment**

DFI is defined as investment in equity to influence management operations in the partner company. For this research, a lower limit of 5% in equity has been implemented in the questionnaire to define minority JVs. A DFI is recorded for all respondents indicating minority or majority JVs or a wholly owned subsidiary or branch, in question 1 of the questionnaire. 18.8% of all firm-country relationships include DFI projects (table 5.8).

Table 5.9 reports the characteristics of these 215 DFI projects with  $\chi^2$ -tests of independence for sections of the table.<sup>118</sup> The top part of the table reports the equity ownership chosen by the investors. It varies significantly across home and host countries but not for industries or size groups. The overwhelming majority of 77.1% of investors have wholly owned affiliates, while 27.1% have majority JVs and 14.0% have minority JVs. Thus, a shift towards full ownership occurred since earlier studies, and many firms have multiple projects with different ownership arrangement such that the percentage figures add to more than 100%.

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<sup>118</sup> Since the respondents could give multiple responses if they had several projects, the totals may add to more than 100%. In some cases up to 7 values are missing

**Table 5.8: Types of Business Activities**  
*in % of maximum possible business relationships*

Category	UK	D	CR	HU	PL	R	RO	Food	Chem	Mach	Large	Med.	Small	COC	Total
<i>Active</i>	47.9	66.1	62.9	57.6	65.1	58.1	42.8	37.8	76.5	56.5	77.0	59.3	25.8	71.0	57.3
<i>Trade</i>	43.4	61.7	56.3	52.0	59.4	55.5	41.0	32.6	73.8	51.6	71.4	53.3	23.6	68.0	52.8
<i>Contracts</i>	14.8	15.1	17.9	14.8	18.3	16.6	7.0	4.3	11.5	20.0	22.1	11.9	5.8	23.0	14.9
<i>DFI</i>	13.2	24.1	26.2	23.1	25.3	13.5	5.7	11.3	28.5	17.6	29.1	18.2	3.0	28.0	18.8
<i>Export</i>	43.1	60.0	54.4	51.3	59.4	54.1	39.7	33.0	72.3	50.2	69.5	53.0	23.3	66.0	51.8
<i>Import</i>	4.5	17.6	15.7	13.5	14.8	9.2	3.1	2.2	13.5	13.6	18.6	7.7	3.6	15.0	11.3
<i>Licensing</i>	4.7	7.1	4.4	5.7	7.4	9.6	2.6	0.9	7.3	7.2	9.5	3.5	0.9	14.0	5.9
<i>Franchising</i>	3.2	-	2.6	1.3	1.7	0.9	1.3	1.7	-	2.1	1.4	2.5	0.3	4.0	1.6
<i>Subcontracting</i>	2.5	7.3	8.3	7.0	6.1	3.1	0.4	0.4	3.5	7.2	7.0	4.2	3.3	4.0	5.0
<i>Management C.</i>	3.2	1.4	3.1	1.7	3.1	1.7	1.7	0.9	0.8	3.4	4.2	2.8	-	-	2.3
<i>Turnkey Project</i>	3.2	2.9	3.5	1.7	3.9	4.8	1.3	0.4	1.2	4.7	5.6	1.1	0.3	7.0	3.1
<i>Other C.</i>	5.2	2.9	3.9	2.2	4.8	7.4	1.7	1.7	3.5	5.0	7.2	3.2	0.9	3.0	4.0
<b>Total no.</b>	555	590	229	229	229	229	229	230	260	655	430	285	330	100	1145

notes as for table 5.6.

**Table 5.9 Characteristics of DFI Projects**

Category	UK	D	CR	HU	PL	R	RO	Food	Chem	Mach	Large	Med.	Small	COC	Total
<i>Minority JV</i>	20.5	10.6	6.8	5.7	12.1	38.7	20.8	15.4	12.2	14.9	17.6	7.7	22.2	7.1	14.0
<i>Majority JV</i>	16.4	32.6	30.5	22.6	24.1	35.5	23.1	26.9	17.6	33.3	28.0	25.0	33.3	25.0	27.1
<i>Wholly owned S</i>	74.0	78.7	79.7	86.8	81.0	58.1	53.8	69.2	86.5	72.8	77.6	80.8	55.6	75.0	77.1
<i>Greenfield</i>	62.0	48.2	55.9	54.0	57.9	40.0	41.7	38.5	70.4	45.0	48.8	61.2	40.0	60.7	52.9
<i>Acquisition</i>	22.5	32.4	31.0	32.0	35.1	10.0	25.0	38.5	32.4	24.5	35.0	22.4	10.0	21.4	29.0
<i>JV-Entry</i>	15.5	23.9	12.3	18.0	15.8	50.0	27.3	19.2	12.7	26.9	23.5	18.4	33.3	10.7	21.0
<i>JV-Acquisition</i>	19.7	18.7	17.5	18.0	14.0	33.3	18.2	19.2	14.1	22.2	22.7	14.3	11.1	14.3	19.0
<i>Market Motive</i>	94.5	98.6	98.3	98.1	98.2	93.5	92.3	100.0	98.6	95.7	96.8	96.2	100.0	100.0	97.2
<i>Factor Cost Motive</i>	23.3	35.5	35.0	28.3	33.3	29.0	23.1	24.0	18.9	40.9	30.6	30.8	40.0	32.1	31.3
<i>Both</i>	19.2	34.0	33.3	26.4	31.6	25.8	15.4	24.0	18.9	36.5	28.2	26.9	40.0	32.1	29.0
<i>Exporting to CEE</i>	78.1	85.0	83.1	80.8	82.8	87.1	76.9	73.1	90.5	79.6	88.8	72.0	40.0	89.3	82.6
<i>Importing from CEE</i>	20.5	27.5	28.3	28.3	29.3	12.9	7.7	11.5	16.2	33.9	27.2	13.5	20.0	39.3	25.1
Total no.	73	142	60	53	58	31	13	26	74	115	125	52	10	28	215

notes as for table 5.6.

**Table 5.10: Selected  $\chi^2$  - tests**

<i>Category</i>	<i>Home Countries</i>	<i>Host Countries</i>	<i>Industries</i>	<i>Size (excl. COC)</i>
Propensity of Activity	38.604 (1)***	28.316 (4)***	75.153 (2)***	200.521 (2)***
Type of Activity	7.790 (2)**	23.542 (8)***	27.314 (6)***	13.363 (6)***
Import	49.262 (1)***	25.108 (4)***	23.804 (2)***	47.144 (2)***
Type of Contract	43.471 (5)***	27.977 (20)	25.407 (10)***	24.544 (10)***
Ownership	7.915 (2) **	24.138 (8) ***	5.548 (4)	3.406 (4)
Entry Mode	4.633 (3)	23.791 (12) **	12.641 (6) **	5.999 (6)
Factor Cost Motive	3.314 (1) *	1.196 (4)	10.791 (2) ***	0.393 (2)
Import	1.226 (1)	5.715 (4)	10.397 (2) ***	3.969 (2) **

note: the  $\chi^2$  - tests refer to the boxed sections of table 5.8 and 5.9.

German investors have a higher share of wholly or majority owned investments. 30% of British investments include minority JVs compared with only 10% of German DFI. The overwhelming majority of DFI is wholly owned in Poland, Hungary, and the Czech Republic, while JVs are established by about one in three investors. This is surprising as JVs have been reported widely as the most common form of investment and until relatively recently full foreign ownership was not permitted. On the other hand, in Romania and Russia, JVs are still far more common. The chemical industry has a very high share of wholly owned affiliates, which is however not significantly different, nor is the high share of JV among small firms statistically significant.

The ownership structure is related to the mode of entry for which four alternatives had been suggested in the questionnaire, following Gatling [1993] and OECD [1994]:

- (i) greenfield, i.e. start-up ventures that are more than 95% foreign owned,
- (ii) acquisition, i.e. the purchase of all or part of an existing enterprise,
- (iii) joint venture acquisition, i.e. the formation of a new entity where the local partner contributed assets from the existing enterprise, and
- (iv) joint venture entry, where a new entity is set up with one or more local partners.

Again, substantial variations can be observed which are significant across host countries and industries. Greenfield investments are the most common mode of entry, accounting for more than 50% of projects, followed by acquisitions, JV-entry and JV-acquisition.<sup>119</sup> The high proportion of greenfield projects is surprising given the worldwide trend towards entry via acquisitions [e.g. UN 1992]. Greenfield entry is especially common for British firms, the chemical industry and for projects in the Visegrad countries. Acquisitions are more common for large parent firms, the food industry, German firms, and investments in the Visegrad countries. On the other hand, acquisitions account for only 10% of investments in Russia. JV-entry and JV-acquisitions are the dominant mode of entry in Russia, and are comparatively important in the machinery industry.

The data across firms size indicate few variations of ownership or entry mode because the small number of DFI projects by small firms, and different trends for medium and small firms: Medium firms seem to prefer greenfield entry and full ownership while small firms have a relatively high share of minority JVs and JV-entry. Due to the unequal distribution over size categories, the  $\chi^2$ -statistics in the fourth column are mostly insignificant.

For the same question in the EIU study [Gatling 1993], respondents were to indicate one option only. 29% of investors reported greenfield projects and 56% JVs or JV-acquisitions. In the OECD [1994] study, German and British investors have above average preferences against greenfield projects. Considering UK and German respondents only, 17% reported greenfield investments and 67% JVs or JV-acquisitions. The outlier in that study is Poland that already received more than half its projects as greenfield projects. Comparing those results with this study, it is even more remarkable that a high share of greenfield investments has been reported (table 5.10). The high share of greenfield projects is however in line with an observed trend towards greenfield entry in the region [Möllering *et al.* 1994, Rojec and Jermakowicz 1995]. This pattern raises the question, why are greenfield entries so popular in CEE - against worldwide trends? The differences can be

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<sup>119</sup> For the analysis, all projects described as representative offices were excluded. This includes some DFI projects reported as WOS or JV in the ownership question. In this way, the analysis covers only substantive investment projects

attributed to the industries surveyed, and the time of the study. Both Gatling [1993] and OECD [1994] include other industries, such as trade and services.<sup>120</sup> This could explain a bias towards JVs. The timing of the studies however suggests a highly plausible interpretation: JVs were a popular form of entry at very early stages of DFI in the region, a time of regulatory constraints and lack of knowledge on the local environment. Over time, constraints have been eased and multinationals gathered local experience such that greenfield entry and full ownership becomes feasible.

**Table 5.10: Mode of Entry in other studies**

	<i>Arthur Anderson Study for OECD 1994</i>										
	<i>D</i>	<i>UK</i>	<i>(a)</i>	<i>tot<sup>(c)</sup></i>	<i>%</i>	<i>PL</i>	<i>HU</i>	<i>CR</i>	<i>R</i>	<i>RO</i>	<i>(b)</i>
greenfield	4	4	29	37	23%	16	10	2	3 <sup>(e)</sup>	1	4
acquisition	4	7	28	39	24%	4	16	13	1	-	3
JV-acquisition	10	14	36	60	37%	7	15	7	11	2	14
JV-entry	3	4	23	30	19%	4	12	6	4	-	3
other	-	2	6	8	5%	1	-	5	1	-	-
total	20	26	126	162	100%	30	52	30	19	2	24
	<i>EIU / Creditanstalt [Gatling 1993]</i>								<i>This Study</i>		
	<i>PL</i>	<i>HU</i>	<i>CR</i>	<i>SU</i>	<i>RO</i>	<i>(d)</i>	<i>total</i>	<i>%</i>	<i>total</i>	<i>%</i>	
greenfield	7	7	8	5	2	2	31	29%	110	53%	
acquisition	1	2	4	-	-	-	7	7%	60	29%	
JV-acquisition	3	4	4	3	1	1	16	15%	43	19%	
JV-entry	6	9	5	14	2	8	44	41%	39	21%	
n. a.	3	-	1	2	-	3	9	8%	7	3%	
total	20	22	22	24	5	14	107	100%	215	100%	

Notes: a = Austria (34), France (34), Japan (7) and USA (41); b = Slovakia (9), Bulgaria (4), Ukraine (4), Kazakhstan (3) and Baltic States (3); c = Totals from Western and Eastern countries do not add to the same totals for unknown reasons; d = Bulgaria and Yugoslavia; e = typo in the original corrected. Sources: tables 10a to 10k in OECD [1994], table A1.17 in Gatling [1993], and table 5.9 above.

<sup>120</sup> Gatling [1993] and OECD [1994] do not explain their base population making any direct comparison of the data difficult. Their data sets are smaller than the one used here and have been collected in 1991 and 1993 respectively while the data set used in this analysis was collected in Winter 1994/95.

#### 5.4 Investment Motivations

In section 4.3, it was proposed that low labour costs may be an important motivation for DFI in the region, given the cost differential between Western and Eastern Europe. This is also suggested by Arva [1994], Acocella [1995] and UN [1995, chap. V]. The proposition can be analysed using descriptive statistics on questionnaire data only, without regression analysis. The questionnaire includes two direct<sup>121</sup> questions on the investment motivations:

- Q8. It is said that CEE offers interesting new market opportunities. Did you invest in the region to supply the local markets?
- Q9. It is said that CEE offers opportunities for low-cost production for export to Western markets because wages are substantially lower than in Western Europe. Did you invest in the region to utilize such opportunities?

The responses are tabulated in the third part of table 5.9. The data show that 97.2% of investors invested in view of the local markets. Almost three out of four projects are solely attracted by new markets, with 29.0% following simultaneously both motives combining the access to a new market with exports of goods.<sup>122</sup> It is quite remarkable, that only five companies (2.3%) are investing in the region solely to utilise the lower factor-costs.<sup>123</sup> These five exceptions are by different machinery firms, and include a company who wanted to use local scenery to cast a movie. They are by coincidence equally distributed with one case in each host country. Thus, the markets dominate investors objectives. The factor-cost motivation has been indicated by 31.3% of respondents, but mostly in combination with market orientation. Market orientation dominates, although the ratio is not as skewed as in other recent surveys. Factor-cost differences are only realised an attractive local market exists. Their utilisation appears a by-product of establishing a position in the market. It may only emerge once the local market is saturated, and local production operations develop competitive strength for world markets.

The share of companies with dual motivation is significantly higher for German (34.0%)

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<sup>121</sup> For a formal hypothesis test see Meyer [1995d].

<sup>122</sup> The dominance of market oriented motivations is well established through several survey studies (section 2.4.2).

<sup>123</sup> One respondent indicated 'no' on both questions.

than for British investors (19.2%). It varies insignificantly between the host country with the highest share for investors in the Czech Republic and lowest for Romania. The machinery industry makes significantly more use of factor cost differentials, as would be predicted because the food industry faces trade barriers for agriculture and higher transportation costs, and the chemical industry is capital and scale intensive.

A second indicator for the utilisation of factor-cost differences is the extent to which DFI projects are connected with imports to the Western home country. Only 25% of investors import from the region, compared with 83% exporting to CEE. As noted above, this difference may be a result of selecting manufacturing firms as base population. However, the variation of the import propensity confirms the pattern found for factor-cost orientation. Investors in machinery industry are far more likely to import from the region than either chemical or food industry. Also, large firms are significantly more likely to import. A higher propensity to import is found for German firms and projects in the Visegrad countries, which is however not significant.

In conclusion, most investors reporting factor-cost motivation also indicate the market motive. This suggests firstly, that only jointly with attractive markets, lower factor-costs draw inward DFI. Secondly, the importance of factor-costs is an industry specific phenomenon, as 41% of machinery industry DFI is motivated among other by low labour cost, but only 19% of projects in the chemical industry. Note that this study does not cover the textile and clothing industry, in which the low factor costs are likely to be important. Thirdly, no evidence emerges to suggest that the developmental model (chapter 4.3) would appropriately describe West-East European DFI during the early years of transition.

### **5.5 Directions for the Empirical Analysis**

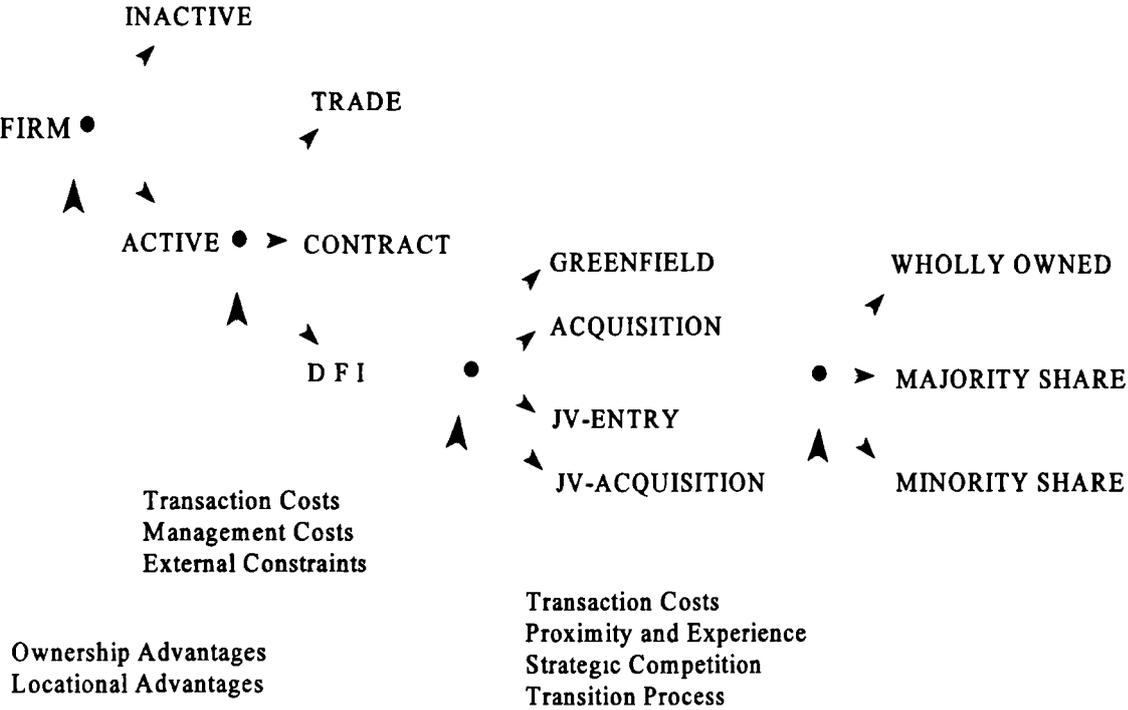
The empirical analysis focuses on the decision process of firms contemplating investment in a transition economy. The theoretical basis is the OLI paradigm (chapter 3) with special emphasis on the internalisation aspect since the labour cost proposition has already been rejected. Three stages of involvement are analysed separately. First, firms decide whether or not they wish to engage in business with the region. Secondly, they decide whether or not they wish to invest in the region, and finally their preferred mode of entry and ownership (figure 5.1).

At the first stage, firms consider their firm-specific advantages and how they would combine with the specific locational advantages of the host economy. These two

components of the OLI framework should explain the propensity to engage in West-East business. In chapter six, firm-level regression equations are estimated for the probability of a firm being active in the region, active in any of the selected countries, and active in multiple countries simultaneously. This should explain the pattern of activity observed in table 5.6. and, for host countries, in table 5.8.

The type of business activity is chosen at the second stage. The resulting pattern of trade, contractual and DFI relationships (table 5.8) is analysed in chapter seven. At this stage, internalisation incentives are predicted to determine the propensity to engage in DFI. The empirical tests on the level of firm-country relationships consider internal and external transaction costs as determinants for the choice between a market transaction (trade, contract) and internalisation by DFI.

**Figure 5.1.: Stages of the Empirical Analysis**



At the third stage, firms decide the equity ownership and mode of entry of the investment project summarised in table 5.9. This decision is again influenced by transaction costs, but also by other firm and industry effects such as experience and proximity, and the specific conditions of economic transition. A separate section in chapter eight analyses the

involvement of investors in the privatisation process in the transition economies, which is the main strategy for acquiring local firms or for forming JV-acquisitions in the region.

This analysis of DFI decisions is novel in that multiple decisions in the entry process are analysed with the same data set. By using a three-step approach, the determinants of business activity are explicitly separated from the determinants of DFI, and the determinants of entry mode and ownership. For this analysis, it has to be assumed that the decisions at the three stages are independent. This assumption can be rationalised by arguing that decisions over involvement (stage 1) and over DFI (stage 2) are made at different times in the internationalisation process of the firm. However, it is sufficient if they are distinct decisions, which is a less exposed assumption. The separation of decisions over DFI (stage 2) and mode of entry (stage 3) is implicit in the transaction cost dichotomy of markets and hierarchies.

**Appendix 5.1: Questionnaire**  
**CISME Centre, London Business School, 1994**

**Business with Central and Eastern Europe - Questionnaire**  
**U.K. version**

London ..... Business ..... School
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Company: \_\_\_\_\_

This questionnaire asks for characteristics of enterprises in the U.K. and Germany, and their business activities in Central and Eastern Europe (CEE). The countries considered are:

*Albania, Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia, Croatia, Slovenia and other states in the former Yugoslavia, Estonia, Latvia and Lithuania, Russia, Ukraine, Belarus, Moldova, as well as the Central Asian and Caucasian states of the former Soviet Union*

The information obtained for this research will be used for research purposes only.  
Do you have any specific requests with respect to confidentiality?

The questionnaire has three sections:

1. Business in and with Central and Eastern Europe
2. Motivations and obstacles to investment in Central and Eastern Europe
3. General information on your company

If you have any questions about this questionnaire, please contact me under the telephone or fax numbers listed below:

Tel.: (071) 262 5050, Extension 3485

Fax: (071) 724 7875

When completed, please return this questionnaire in the provided envelope to:

Klaus Meyer  
CISME-Centre  
London Business School  
Sussex Place, Regent's Park  
London NW1 4SA

Thank you very much for your cooperation

**Section 1: Business in and with Central and Eastern Europe**

*If you do not have business with the region, please start on page 5.*

Please respond to the following questions in respect to your business in Poland, Hungary, the Czech Republic, Russia, and Romania. Additionally, please use the 'write in' column to add another country in Central and Eastern Europe (CEE) where your company has business interests.

**1. What type of business links do you have with in Central and Eastern Europe?**

**Please tick:**

**write in**

	Poland	Hungary	Czech R.	Russia	Romania	_____
1. exporting to CEE	<input type="checkbox"/>					
2. importing from CEE	<input type="checkbox"/>					
3. licensing to CEE,	<input type="checkbox"/>					
4. franchising to CEE,	<input type="checkbox"/>					
5. outward processing or 'subcontracting' to CEE	<input type="checkbox"/>					
6. management contract	<input type="checkbox"/>					
7. turnkey project	<input type="checkbox"/>					
8. other contractual forms of cooperation or technology transfer	<input type="checkbox"/>					
9. minority share in joint-venture (5-50%)	<input type="checkbox"/>					
10. majority owned joint- venture (51-95%)	<input type="checkbox"/>					
11. wholly owned subsidiary or branch (more than 95% share in equity)	<input type="checkbox"/>					

**2. When did you first establish your business links with Central and Eastern Europe?**

**Please give year:**

Poland	Hungary	Czech R.	Russia	Romania	write in...
_____	_____	_____	_____	_____	_____

**3. What kinds of transfers is your Western company supplying to its Central and East European partner or subsidiary? (please tick)**

	Poland	Hungary	Czech R	Russia	Romania	write in____
a. final goods	<input type="checkbox"/>					
b. intermediate goods	<input type="checkbox"/>					
c. raw materials	<input type="checkbox"/>					
d. technology transfer						
(I) patented technology	<input type="checkbox"/>					
(ii) unprotected technology	<input type="checkbox"/>					
e. marketing know-how	<input type="checkbox"/>					
f. general management know-how	<input type="checkbox"/>					
g. permission for using brand names	<input type="checkbox"/>					
i. other, please specify _____	<input type="checkbox"/>					

**4. What kinds of transfers does the Western company receive from its Eastern European subsidiary or partner? (please tick)**

	Poland	Hungary	Czech R	Russia	Romania	write in____
a. final goods	<input type="checkbox"/>					
b. intermediate goods	<input type="checkbox"/>					
c. raw materials	<input type="checkbox"/>					
d. technology transfer						
(I) patented technology	<input type="checkbox"/>					
(ii) unprotected technology	<input type="checkbox"/>					
h. 'consultancy' on the local environment	<input type="checkbox"/>					
e.g. information on legal or cultural aspects of doing business in the partner country.						
i. other, specify _____	<input type="checkbox"/>					

**5 What characterises your investment projects (wholly owned and joint-ventures)?**

(please tick, or give the number of projects if more than 1)

	Poland	Hungary	Czech R	Russia	Romania	write in _____
a. Greenfield (Start-up venture, more than 95% foreign owned)	<input type="checkbox"/>					
b. Acquisition (purchase of all or part of an existing enterprise)	<input type="checkbox"/>					
c. Joint-venture acquisition (the formation of a new entity where the local partner contributed assets from the existing enterprise)	<input type="checkbox"/>					
d. Joint-venture (where a new entity was set up with one or more local partners)	<input type="checkbox"/>					
e. Representative office	<input type="checkbox"/>					
f. Investment, other than any of the above	<input type="checkbox"/>					
g. No investment	<input type="checkbox"/>					

*If acquisition or joint-venture acquisition.*

**6. Was the acquisition part of a privatisation program?**

(please tick)	yes	<input type="checkbox"/>					
	no	<input type="checkbox"/>					

**7. How important is your business in Central and Eastern Europe relative to your worldwide activities? (please tick)**

By investments:

- no investments in the region
- up to 2% of total assets
- 2% - 5% of total assets
- 5% - 10% of total assets
- 10% - 20% of total assets
- more than 20% of total assets

By sales:

- no sales in the region
- up to 2% of total sales
- 2% - 5% of total sales
- 5% - 10% of total sales
- 10% - 20% of total sales
- more than 20% of total sales

## **Section 2: Motivation and Obstacles to Direct Investment in Central and Eastern Europe**

*Please tick the most appropriate responses (maximum: 5) for these questions, and briefly explain your situation or possible other reasons. Please, use the back pages if the you need more space.*

**8. It is said that CEE offers interesting new market opportunities. Did you invest in the region to supply the local markets?**

- Yes       No

**8a. if yes, in which countries:** \_\_\_\_\_

**what was important for your choice of the country for investment in the local market?**

- |  |   |
|--|---|
| <input type="checkbox"/> availability of information                 | <input type="checkbox"/> level of income, indicating demand for your goods    |
| <input type="checkbox"/> prior contacts to future partner            | <input type="checkbox"/> size of population of the country, indicating demand |
| <input type="checkbox"/> physical infrastructure                     | <input type="checkbox"/> few competitors present in the market                |
| <input type="checkbox"/> political environment                       | <input type="checkbox"/> entry by competitors                                 |
| <input type="checkbox"/> development of the legal system             | <input type="checkbox"/> protection of trademarks                             |
| <input type="checkbox"/> offers by privatisation agencies            | <input type="checkbox"/> trade barriers of CEE countries                      |
| <input type="checkbox"/> ease of negotiations with local authorities |   |
| <input type="checkbox"/> presence of other foreign investors         |   |
| <input type="checkbox"/> other, <i>please explain:</i>               |   |

**8b. if no, why have you not invested to serve these markets?**

- |   |  |
|---|--|
| <input type="checkbox"/> economic risks are too high                      | <input type="checkbox"/> markets can be served from facilities outside CEE |
| <input type="checkbox"/> insufficient information                         | <input type="checkbox"/> expected demand for your goods too low            |
| <input type="checkbox"/> no appropriate partner was found                 | <input type="checkbox"/> insufficient protection of trademarks             |
| <input type="checkbox"/> financial constraints                            | <input type="checkbox"/> competition too intense                           |
| <input type="checkbox"/> political environment too uncertain              | <input type="checkbox"/> trade barriers of CEE countries                   |
| <input type="checkbox"/> lack of physical infrastructure                  | <input type="checkbox"/> costs of local production too high                |
| <input type="checkbox"/> legal system is too ambiguous                    |  |
| <input type="checkbox"/> negotiation with local authorities too difficult |  |

*please explain your situation:*

9. It is said that CEE offers opportunities for low-cost production for export to Western markets because wages are substantially lower than in Western Europe. Did you invest in the region to utilize such opportunities?

- Yes       No

9a. if yes, in which countries: \_\_\_\_\_

what was important for your choice of the country to locate your production facilities?

- |  |   |
|--|---|
| <input type="checkbox"/> availability of information                 | <input type="checkbox"/> labour costs                     |
| <input type="checkbox"/> prior contacts to future partner            | <input type="checkbox"/> costs of raw materials           |
| <input type="checkbox"/> physical infrastructure                     | <input type="checkbox"/> quality of local suppliers       |
| <input type="checkbox"/> political environment                       | <input type="checkbox"/> qualification of local workforce |
| <input type="checkbox"/> development of the legal system             | <input type="checkbox"/> incentives for exports           |
| <input type="checkbox"/> presence of other foreign investors         | <input type="checkbox"/> access to regional markets       |
| <input type="checkbox"/> offers by privatisation agencies            | <input type="checkbox"/> access to European Union markets |
| <input type="checkbox"/> ease of negotiations with local authorities | <input type="checkbox"/> Europe Agreements with the EU    |
| <input type="checkbox"/> other, <i>please explain:</i>               |   |

9b. if no, why does your company not produce in Central and Eastern Europe for export?

- |   |   |
|---|---|
| <input type="checkbox"/> economic risks are too high                      | <input type="checkbox"/> production processes cannot be relocated         |
| <input type="checkbox"/> insufficient information                         | <input type="checkbox"/> qualification of local workforce insufficient    |
| <input type="checkbox"/> no appropriate partner was found                 | <input type="checkbox"/> labour costs too high                            |
| <input type="checkbox"/> financial constraints                            | <input type="checkbox"/> predicted future labour costs too high           |
| <input type="checkbox"/> political environment too uncertain              | <input type="checkbox"/> quality of local suppliers is insufficient       |
| <input type="checkbox"/> lack of physical infrastructure                  | <input type="checkbox"/> long-term development of costs too uncertain     |
| <input type="checkbox"/> legal system is too ambiguous                    | <input type="checkbox"/> trade barriers for important markets             |
| <input type="checkbox"/> negotiation with local authorities too difficult | <input type="checkbox"/> environmental liabilities                        |
|   | <input type="checkbox"/> restructuring costs of local facilities too high |

*please explain your situation:*

10. Did you have business relationships in the past that have been terminated?

- Yes       No

*if yes, please briefly explain why:*

**Section 3: General Information on your (British) company**

**11. Is your company itself a subsidiary of a multinational enterprise?** Yes  No

If yes, which unit, and at which location, within your multinational enterprise is coordinating business with Central and Eastern Europe?

**12. Please give an approximate international breakdown for 1993 of the number of persons employed by your company, and of the proportions of your turnover in %:**

	no. employed	turnover
a. UK	_____	_____%
b. other Western Europe	_____	_____%
c. OECD countries outside Europe	_____	_____%
d. developing countries	_____	_____%
e. Central and Eastern Europe	_____	_____%
total =	_____	100%

**13. How much does your company spend on the following activities? Please give as an (estimated) percentage of turnover 1993:**

- a. research and development \_\_\_\_\_%
- b. advertising and promotion \_\_\_\_\_%
- c. training of personnel \_\_\_\_\_%

*Thank you very much for completing this questionnaire!*

*In the second stage, this research shall deepen the analysis of business in Central and Eastern Europe in a series of interviews with managers. These interviews with individuals actively involved in business with the region will take about 30 minutes and focus on your actual business activities and investment motivations. We would very much appreciate your cooperation in this research, and will provide participants with its results.*

**Would you or a suitable colleague be willing to participate in an interview for this research?**

Yes  No  If yes, please provide your details:

company: \_\_\_\_\_  
contact person: \_\_\_\_\_  
title: \_\_\_\_\_  
address: \_\_\_\_\_  
telephone: \_\_\_\_\_  
fax: \_\_\_\_\_

If you do not want to participate in an interview, you do not need to provide this information!

## **Appendix 5.2: Related Studies**

### *Authors and sponsors*

- a) time of study*
- b) method of survey and response rate*
- c) respondents*
- d) main focus of the study*

### Pfohl, Trethon, Freichel, Hegedüs and Schultz 1992

- a) 1990
- b) questionnaire, D 51%, HU 30%
- c) 18 German & 40 Hungarian JV partners
- d) characteristics and motivations of German JVs in Hungary

### Wang 1993

- a) 1991 (?)
- b) questionnaire, 30%
- c) 90 Western firms "reported to be investors" in Hungary
- d) characteristics, motivations, of DFI; comparison with China

### McMillan 1991 (Canadian-USSR Business Council)

- a) summer 1991
- b) interviews
- c) 34 Canadian partners with 52 operational JVs in the former SU
- d) motivations, negotiations, operations, and future prospects

### Wimmer and Wesnitzer 1993

- a) summer 1991
- b) interviews
- c) 29 German producers of consumer goods
- d) determinants of mode of entry

### Genco, Taurelli and Viezzoli 1993

- a) September 1991 - March 1992
- b) questionnaire, 27%
- c) 87 Western firms (incl. 48 investors with 107 projects)
- d) obstacles to and problems of DFI

### Gatling 1993 (Business International {now EIU} and Creditanstalt Vienna)

- a) July 1992
- b) questionnaire, return rate unknown, plus interviews
- c) 34 Western firms operating 82 projects in CEE
- d) characteristics of investment projects, business strategies

Engelhard and Eckert 1994

- a) second half of 1992
- b) questionnaire, return presumably 19% of 1417 firms contacted
- c) German companies known to be active from Chamber of Commerce directory
- d) entry processes: sequence of organisational modes

Lyles 1993

- a) 1991 - 93
- b) interviews
- c) managers of 201 JVs in Hungary
- d) performance of JVs

Dresdner Bank Ost West Consult GmbH (DOWC) 1993

- a) presumably 1993
- b) questionnaire, 30 %, and interviews
- c) 150 German companies for questionnaire, 115 projects for interviews
- d) characteristics, motivations, obstacles, investment processes

Möllering et al. 1994 (German-Czech Chamber of Commerce)

- a) August - September 1993
- b) questionnaire, 20 %
- c) 300 German firms, 149 investors in Czech Republic
- d) German business in Czech Republic

OECD 1994 (prepared by Arthur Andersen)

- a) November 1993
- b) interviews
- c) 291 managers of Western companies (162 investors) and professionals
- d) characteristics, motivations, obstacles, support by institutions.

Hoesch and Lehmann 1994 (Ifo-Institut für Wirtschaftsforschung, Munich)

- a) February 1994
- b) specific question within a periodic survey
- c) 2141 companies, 308 with DFI
- d) partner countries, sales or production operations

Ali and Mirza 1996

- a) January 1995
- b) mail questionnaire with 54 questions
- c) 67 active British firms, 15%
- d) entry mode, performance in Poland and Hungary

### Appendix 5.3: Definitions of Variables

BALTIC	Dummy, taking the value of one if the firm is located with 100 km from the Baltic Sea. From the contact address of the firm.
BAVARIA	Dummy, taking the value of one if the firm is located in Bavaria. From the contact address of the firm.
CEE_TO	Percentage share of turnover in CEE in total turnover of the firm. From (i) annual reports of the firm, (ii) question 12, (iii) follow-up questionnaires, (iv) question 7 using interval means.
CHEM	Dummy, taking the value of one if the firm has its main activity in the chemical or petroleum industry (USSIC codes 28, 29). From the Fame and Amadeus database.
COC-L	Dummy, taking the value of one if the firm has been added to the base population from the list of firms known to be active from chamber of commerce sources.
CZECH	Dummy, taking the value of one for responses referring to business with the Czech Republic.
DIVER_TO	Number of USSIC codes plus UK-CIS codes reported in the AMADEUS database, divided over turnover. This variable neutralises some bias that any one coding system may have, and is adjusted to size to avoid multicollinearity with the SIZE variable.
EMPLOYM	Number of employees of the firm, from (i) Fame and Amadeus database (ii) annual reports (iii) Dun Bradstreet and Hoppensteadt directories, (iv) follow-up questionnaires. For regression analysis divided by $10^5$ .
EMPL_SQ	Square of EMPLOYM. For regression analysis divided by $10^{10}$ .
EMPL_TO	Ratio of employment over turnover in 1000 £ sterling, calculated with the data from the Fame and Amadeus database.
EUROPEAN	Dummy, taking the value of one if the firm is an affiliate of a multinational with headquarters in a European country other than the firm contacted, (i) question 11, (ii) from the Fame Amadeus database.
FACTOR_C	Dummy, taking the value one if respondent answered 'yes' in question 9.

FIRST	Dummy, taking the value of one if turnover in CEE accounts for more than 40% of the firm's international turnover, calculated from CEE_TO and INTL_TO.
FOOD	Dummy, taking the value of one if the firm has its main activity in the food and beverage industry (USSIC code 20). From the Fame and Amadeus database.
GERMAN	Dummy, taking the value of one if the contacted firm is in Germany.
GROWTH	Percentage change of company turnover in 1993 over 1992, calculated from Fame and Amadeus database and annual reports.
H_GROWTH	Percentage growth of the industry in the Eastern Country from 1991 to 1994, standardised for each country with mean zero and standard deviation one. Calculated from Polish Central Statistical Office, PlanEcon (for CR and RO), Hungarian Central Statistical Office, and IMF Economic Review Russia. <sup>124</sup>
H_GROW_D	Deviation of H_GROWTH from its country specific average.
H_RECESS	Percentage growth of the industry in the Eastern Country from 1989 to 1991, standardised for each country with mean zero and standard deviation one. Source: UN Industrial Statistics Yearbook 1991, Vol. 1.
HUNGARY	Dummy, taking the value of one for responses referring to business with Hungary.
INTL_EMPL	Percentage share of employment outside the home country in total employment, from (i) annual reports, (ii) Dun Bradstreet and Hoppensteadt directories, (iii) question 12.
INTL_TO	Percentage share of employment outside the home country in total employment, from (i) annual reports, (ii) Fame and Amadeus, (iii) Dun Bradstreet and Hoppensteadt directories, (iv) question 12.

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<sup>124</sup> The original variable for industry growth was highly correlated to the country dummies for Poland (+0.6) and Russia (-0.6). The differences are attributable to different growth pattern as well as differences in data collection. By standardisation of the variable to have zero mean and unit standard deviation for each host country, industry and country specific effects can be separated.

MACH	Dummy, taking the value of one if the firm has its main activity in the machinery industry (USSIC codes 35, 36, 37). From the Fame and Amadeus database. Usually used as base case.
NF_CONS	Dummy, taking the value of one if the main activity of the firm is in consumer goods industries including pharmaceuticals but not food and beverages. From the activity description in the Fame and Amadeus database and annual reports.
NONEUR	Dummy, taking the value of one if the firm is an affiliate of a multinational with headquarters in a country outside Europe other than the firm contacted, from (i) question 11, (ii) from the Fame and Amadeus database.
ONLY_PROJ	Dummy, taking the value of one if the DFI project is the only project the respondent reported in the questionnaire.
PHARMA	Dummy, taking the value of one if the firm is in the pharmaceutical industry (USSIC code 283).
PLC	Dummy, taking the value of one if the firm is in the legal form of PLC in the UK or AG in Germany, as opposed to Ltd in the UK and GmbH, KG, OHG and eG in Germany. From the Fame and Amadeus database.
POLAND	Dummy, taking the value of one for responses referring to business with Poland.
ROMANIA	Dummy, taking the value of one for responses referring to business with Romania. Usually used as base case.
RUSSIA	Dummy, taking the value of one for responses referring to business with Russia.
R&D	Percentage ratio of research and development expenditures over turnover, from (i) annual reports, (ii) "The 1993 UK R&D Scoreboard" [Company Reporting Limited], (iii) question 13 of the questionnaire, (iv) follow-up questionnaires, (v) predicted values of a regression equation using only variables not employed elsewhere in this research.
SLOVAK_BG	Dummy, taking the value of one for write-in responses referring to DFI in Slovakia or Bulgaria.

SLOVENIA	Dummy, taking the value of one for write-in responses referring to DFI in Slovenia.
STAFF_EM	Ratio of personnel expenditures in £ sterling over employment, from (i) Fame /Amadeus database (ii) calculated from annual reports or (iii) follow up questionnaire.
T_FIN_ETAL	If the firm has downstream business (see section 7.2) and transfers final good in combination with intermediate goods or raw materials, then this dummy takes the value of one.
T_MANAG	Dummy, taking the value of one if the respondent indicated transfer of managerial and or marketing know-how to the Eastern partner and affiliate. From question 3.
T_NONE	If the firm has downstream business (see section 7.2), but does not transfer any goods to the partner country, then this dummy takes the value of one.
T_O_FIN	If the firm has downstream business (see section 7.2) and transfers final goods, but no intermediate goods or raw materials, then this dummy takes the value of one.
T_TECHN	Dummy, taking the value of one if the respondent indicated transfer of patented and/or unprotected technological know-how to the Eastern partner/affiliate, from question 3.
UP&DOWN	If the firm has both upstream and downstream business (see section 7.2), this dummy takes the value of one.
UPSTREAM	If the firm has only upstream and no downstream business (see section 7.2), this dummy takes the value of one.
YEARS	Number of years since the firm established its first business contacts with the partner country, calculated from question 2.

General notes:

1. multiple sources with Arabic numerals indicate the priority of sources if multiple sources were used to obtain data on a variable.
2. All accounting data refer to 1993 - the year preceding the survey, unless otherwise indicated.
3. Short follow-up questionnaires have been sent to firms with missing values for important variables. Some thirty companies have been contacted in two rounds, with about 8 useful responses together.

# Chapter 6

## The Determinants of West-East Business

### 6.1 Introduction

This is the first of the three chapters analysing the entry process of Western businesses into Central and Eastern Europe (CEE). The first step is to analyse the propensity to engage in West-East business. The determinants of activity in CEE are a function of firm-specific assets that enable firms to internationalise, and their interaction with the special condition of the transition economies.

West-East business is a part of firms' international business. Special features emerge due to the relatively recent entry, or major upgrading of activity, after 1989 and the special economic conditions of the transition economies. Firms engage in international business if they have some kind of asset demanded elsewhere such as physical and intangible resources. These would enable them to manufacture goods for export or to set up production facilities locally. In terms of Dunning's OLI paradigm, Western firms are active if they have some kind of ownership advantage (O) which they can combine with locational (L) attraction of the Eastern partner country (section 3.6). The locational attraction includes demand for goods and services, as well as favourable conditions for local production, e.g. for licensing or DFI projects. This chapter is exclusively concerned about firms likelihood to engage in international business, without consideration of different forms of business. Therefore, internalisation advantages (I), which would favour direct investment over other forms of business, will only be discussed in the subsequent chapters.

The concept 'West-East business' is analysed as a dependent variable of the empirical analysis using four alternative definitions:

- the incidence of a firm having business anywhere in CEE,
- the incidence of a firm having business with a particular country of CEE,
- the number of countries in which a firm is active, and
- as the categorical variable 'not active - some activity - active in all countries'.

The data set for the analysis has been introduced in chapter 5, especially tables 5.6 and 5.8. As discussed, the propensity to be active varies significantly across home and host countries, industries, and firm size. This chapter is structured as follows: in the next section, hypotheses are developed from a review of relevant ownership advantages and their interaction with the local environment in CEE. Section 6.3 explains the methods of empirical analysis and discusses the regression equations. Section 6.4 reviews the evidence of the regression analysis for each hypothesis, and section 6.5 concludes.

## **6.2 Theoretical Background and Hypotheses**

### **6.2.1 Ownership Advantages**

Dunning [1993] uses a very comprehensive definition of ownership advantages that includes property rights and intangible asset advantages as well as economies of common governance [section 3.6]. In addition, relative advantages of psychic proximity, and threats to existing O-advantages due to barriers to corporate growth are considered.

#### **Property rights and intangible asset advantages**

O-advantages arise from specific assets in possession of the firm, such as superior production technology, product innovations and innovative capabilities. Any firm with superior technological capabilities would aspire to exploit these by serving the largest accessible markets, or combining them with a wide range of complementary assets found at other locations. As markets and complementary assets are found abroad, this becomes a motive for international business. Technology intensive firms can be expected to be more active. In line

with prior empirical research on exports [Ito and Pucik 1993] and DFI (section 3.4.1), technology is proxied by R&D expenditures and predicted to increase activity:

*H1: The more technology intensive a firm, the more likely it has business with CEE.*

The second major group of intangible assets relates to marketing and strategic competition. O-advantages exist as property rights on established brand names and the intellectual organisational capacities to design and implement successful marketing strategies. CEE had virgin markets previously not supplied with many Western Goods. Their opening may induce early activities especially by firms in internationally oligopolistic industries, because the timing of their entry may determine the position *vis-à-vis* their main competitors and thus the value of their O-advantages. Strategic entry would include foothold strategies to establish a market share early, entry deterrence and follow the leader (see section 3.4.2).<sup>124</sup>

Foremost, the advantages of early moving strategies are important in consumer goods industries. Large unsaturated demand surfaced at the time of liberalisation, and early establishment of a market share could, though brand loyalty, ensure a leading position in the long-run and deter potential later entrants. Consumer goods manufacturers would thus move into the new markets sooner than producers of industrial products and investment goods. Thus, the dummies for the food and beverage industry (FOOD) and for non-food consumer good manufacturers (NF\_CONS) are predicted to have a positive effect.

*H2: Consumer goods manufacturers are likely to be more active*

Marketing related assets and capabilities are often measured by advertising expenditures [e.g. Caves 1974, Pugel 1981]. This measure is not available for the sample.<sup>125</sup> Therefore, a broader concept of human capital is used as a proxy. Managers in marketing or other highly

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<sup>124</sup> Most specific strategic motivations cannot be analysed at the level of aggregation of this study, as detailed information on the competition in the market for each firm and country would be needed.

<sup>125</sup> It had been requested in the questionnaire but too many respondents did not provide it.

qualified positions such as finance are paid higher salaries. They are the human capital that is a major intangible asset of the modern firm. Thus, the average remuneration, or staff costs per employee (STAFF\_EM) are used as a proxy for the qualification of employees and thus the existence of human capital.<sup>126</sup>

*H3: The higher the average staff costs per employees, the more likely it is to expand its business to CEE.*

### **Advantages of Common Governance**

Advantages of common governance arise from multi-plant economies of the established firm over a de novo entrant, and from international experience as such. They emerge in particular if the new business is an extension of a product specialisation strategy.

Industries with large economies of scale are more internationalised. This applies to both economies of scale at the plant level, and common governance of multiple plants. Plant level economies of scale relative to transportation costs imply fewer locations of production and thus more international trade of their output. At firm level, a large corporation can economise on headquarters functions, such as marketing and finance. It can also establish central facilities for R&D. In this way, economies of common governance of multi-plant firms create advantages for MNE that rise directly in relation to their size.

Firms using advantages of common governance can integrate new operations in CEE into their organisation at low additional costs. Thus, large firms can be predicted be more active in CEE and smaller firms. All other measures of intangible assets have been controlled for size such as to separate this size effect. Size is measured by the employment of the firm, which enters the equations in linear and quadratic form (EMPLOYM and EMPL\_SQ). These proxies have been frequently significant in previous research [e.g. Ito and Pucik 1993, Wagner and Schnabel 1994].

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<sup>126</sup> Svensson [1996] uses a similar measure and found a significant effect on DFI.

*H4: Large firms are more likely to be active*

Multinational firms have competitive advantages that arise from the fact that they are multinational. These advantages include, for instance, international accumulation of know how, arbitrage opportunities, flexibility for production shifting, superior recognition of opportunities, and international diversification of risk. Following the arguments in section 3.4.1, firms with international experiences thus can be expected to

- know better how to make best use of new opportunities in CEE,
- have lower costs of entry as they utilise synergies with other international business,
- may increase the value of their network by covering more countries, in addition to the value enhancing effect that the network makes to a given local operation.

International experience of firms is measured by the share of turnover obtained outside the home country (INTL\_TO), and expected to increase firms propensity to engage in West-East business.

*H5: Internationally experienced firms are more likely to be active in CEE*

The nature of core competencies determines corporate strategy. The technological and managerial capacities of a firm may be very specific to a specialised range of goods. Many small and medium German firms are successful through their product specialisation and a worldwide market leader strategy [Simon 1996]. Their core competencies are highly product specific, with two implications for their international strategy:

- Specialised firms have a marketing strategy based on worldwide presence, or leadership, in their narrow product range. Thus they would enter CEE early once local demand emerges.
- If they face competitive pressures, they will consider strategies of redesigning or relocating the production process rather than changing to different kinds of productive activity. They would thus be more likely to utilise lower labour costs in CEE by

sourcing or relocation [section 4.3].

In contrast, diversified companies have core managerial competencies in the coordination of different activities, often specific to the economy in which they produce or distribute a wide range of products. If they face competitive pressures for a product, they may primarily consider redesigning their product portfolio. Uncompetitive products are phased out as new competitors gain market shares. Thus, for two reasons, a negative association between diversification, adjusted for size (DIVER\_TO), and the propensity to engage in CEE business is to be expected.<sup>127</sup>

*H6: Diversified firms are less likely to be active in CEE*

Complementary, this hypothesis can be developed from a perspective of risk management: diversification across product groups and across regional markets are alternative strategies to diversify financial risk. As firms choose either strategy or a mix thereof, product and international diversification should be negatively related.

### **Proximity**

The arguments for the need of O-advantages originally arose from the view of Stephen Hymer [1976] that without them foreign firms would be at a competitive disadvantage *vis-à-vis* local competitors. This competitive disadvantage of foreignness is however lower for firms based in nearby or similar countries in "psychic proximity". They are therefore more active, *ceteris paribus*, than their counterparts from distant origins. It is a common strategy for internationalising firms to enter markets in close psychic proximity first [section 3.5.2]. For the countries of origin selected for this research, this suggest that:

*H7: German firms are more active in the region than British firms.*

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<sup>127</sup> The interaction between international and product diversification has been discussed for instance by Hitt, Hoskisson and Ireland [1994], Sambharya [1995] and Tallman and Li [1996]. On diversification strategies also see Markides [1996] and references therein

The GERMAN dummy captures the proximity effect along with other home country effects. The hypothesis can be extended by including the location within the home country in the analysis. More personal or cultural contacts exist in areas close to the border. They are strengthened by the pattern of post World War II refugees within Germany, in particular Sudetendeutsche in Bavaria and Ostpreußen in the Northern parts. Dummies named BAVARIA and BALTIC are used to capture the effects. Within country proximity has not been considered in previous research.

*H8: Firms from an area close to Germany's Eastern borders are more likely to establish business relationships eastwards.*

### **Barriers to Growth**

Threats to existing ownership advantages can be as much driving force of internalisation as expansion based of growing advantages. Firms facing constraints to growth, or threats to survival, with their present strategic configuration are forcefully pushed into exploring opportunities. Barriers to growth rise in current markets as well as procurement sources and production locations. If markets are saturated or a recession reduces competitiveness in established markets, this constrains firms' growth paths and creates strong factors towards restructuring, relocation and search for new markets. This suggests that firms most affected by the 1993 recession and experiencing slow growth are more likely to engage in new activities.

The developmental model [appendix 3.1] emphasised push factors arising from barriers to growth on the supply side and loss of competitiveness. Firms reaching growth barriers with their present strategic configuration, are more likely to restructure their sourcing strategy. This applies to firms with declining sales during the German post-unification recession. Both effects affect the sales turnover of the firm. The change of turnover in 1993 over the previous year is used as a proxy for growth during the recession (GROWTH).

*H9: Firms with slow growth of sales are more likely to engage in new business with CEE, be it in search of new markets or lower production costs.*

On the other hand, rapidly growing firms have opportunities to accumulate internal cash flow and have better access to financial markets. They have more resources to redeploy and thus would be more likely to expand to new regions. This provides an alternative to the above hypothesis.

The theory of comparative advantages in international trade would suggest that both export and import opportunities emerge depending on the factor endowment of the partner countries. This implies that both labour and capital intensive firms have opportunities to engage in international business albeit in different types. The relative comparative advantages of the region are labour intensive production processes, especially medium skilled because labour costs are far below West European levels. Russia, and to some extent Poland, also has natural resources that can be explored, processed and exported.

The developmental model [section 4.3] stressed the importance of local production for export. If the model is applicable to CEE, sourcing of intermediate inputs and even relocation of production would be a major motivation for business activity. Firms with labour intensive production processes are most likely to procure in the region and to set up local productions for exports. At this stage, arm-length imports, subcontracting, and investment in upstream production are considered equally. If relocation was a major force to international business, the net effect on the propensity of having business would be positive. Thus, following literature emphasising the importance of labour costs for decisions over location of production to CEE, the following hypothesis tested:

*H10: Firms with labour intensive production processes are more likely to import from the region, with a positive effect on the probability of being active.*

### **Control Variables**

Economies of scale and transportation costs are at the centre of the new theory of international trade [section 3.4.3]. This literature would suggest differences across the three sectors of industry considered in the analysis: food and beverages, chemicals, and machinery. These are captured by two industry dummies, FOOD and CHEM. The food and beverage

industry has high transportation costs and tariff barriers while, in many sectors, producing with relative unsophisticated technology. The chemical industry is scale and research intensive. Therefore, the chemical industry can be expected to be more, and food industry less, active in trade with CEE.

*H11: The food and beverage industry has a low propensity, the chemicals industry has a high propensity of being active in CEE.*

Firms with foreign parents have access to more resources and their business development would exceed that of a domestic firm of equal size (which is implicit in using the local firms accounting data for size). For instance, an American MNE may instruct its British affiliate to undertake business in CEE. On the other hand, firms may be restricted in their international business by constraints imposed by the global strategy of the parent, in particular not to compete with other affiliates of the company. The predicted signs for dummies for foreign parents therefore are not clear, be they from outside Europe (NONEUR) or a different European country (EUROPEAN).

The sample contains some firms that were not sampled randomly but drawn from a chamber-of-commerce-list of active firms. To control for any bias arising from this sub-sample, dummy COC\_L is included. It should be positively signed since it was known *ex ante* that these firms had business with at least one country of the region.

### **6.2.2. Matching Ownership and Locational Advantages**

The OLI paradigm suggests that ownership advantages combining with locational advantages of the host economy are necessary conditions for international business. Therefore it should be possible, albeit never done before, to develop specific hypotheses about which O-advantages would be relatively more important in which country. The five countries considered in this study vary by several aspects relevant to potential Western business partners [section 2.1 especially table 2.1]. This includes markets, production costs, technological capabilities, administrative structures and political risks as well as cultural and geographic proximity to Western Europe. This section relates the O-advantages to the

specific local environments.

Market size and growth are major determinants of international business [section 3.3.1]. The largest market, in terms of number of potential customers, is surely Russia. However, the level of income was low and declining at the time of the survey. Only a small proportion of 148 million people were able to buy Western consumer goods. The Czech Republic and Hungary have the highest per capita income. Poland combines a large market with relatively high income. In addition, she is the first country to overcome the transition recession and enter a positive growth path. Market oriented businesses would thus primarily focus on Poland, followed by Hungary, Czech Republic and Russia.

Market attraction is most relevant for firms with intangible assets to sell in the region, primarily consumer goods manufacturers (NF\_CONS, FOOD) and firm with high human capital (STAFF\_EM). Firms facing barriers to growth in existing markets (GROWTH) would also consider the largest markets first. Thus, first the interaction hypothesis is

*I1: Consumer goods manufacturers, human capital intensive firms, and firms with slow growth prefer larger markets and thus Poland.*

The level of local education is a major determinant of productivity. It is particular important for technology intensive firms who need to train their local employees. The better the general education and industry specific training the lower are the costs of technology transfer. In the region, the Czech region has a tradition in industrial production that dates back pre 1939 and has the highest secondary school enrolment. Technology intensive firms thus would locate there to utilise the trained workforce.

*I2: Research intensive firms prefer the Czech Republic.*

All five countries made progress in the process of systemic transformation from socialist to market economy. The three Central European countries advanced further. Russia is lagging behind, for instance with the reform of the legal and institutional framework and the banking

sector. Delayed reforms increase business risk. Also other types of environmental risk are high in the region, which deters foreign investment [section 3.3.3]. The inflation rate and the Euromoney index suggest that business risk would be highest in Russia. It would affect especially capital intensive firms. They would avoid any capital commitment to business with Russia at this time.

On the other hand, Russia has the lowest labour costs in the region, which theoretically would attract procurement of labour intensive products and production relocation. The labour costs in the region are highest in Hungary, followed by Poland and the Czech Republic. If labour costs were the only determinant of production costs, this would imply a preference for relocation to Russia and Romania.<sup>128</sup> Both effects, high risk and low labour costs would imply that low skilled and labour intensive firms are relatively more active in Russia, whereas capital intensive firms are more active in Central Europe.

*13: Low skill and labour intensive firms prefer locations in Russia and Romania.*

Firms who are internationally diversified or have a large volume of business would more capable to cope with country risk as they can hedge with other international operations. Firms specialised in a narrow range of products would be more willing to accept the risk as their product specific ownership advantages can best be exploited by penetrating all accessible markets. These firms would also be more capable in overcoming the costs of psychic distance of their home and the investment location.

*14: Firms with advantages of common governance as indicated by international experience, size or low diversification are relatively more active in Russia.*

The speed of the privatisation process accelerates the emergence of new entrepreneurs as well as specific opportunities in the privatisation process. Hungary has focused on privatisation by sale to individual investors including foreigners. A small private sector existed prior to

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<sup>128</sup> Productivity also varies across the region due to, among other, differences in infrastructure, capital stock, training. However, no measure of unit labour costs are available for all countries.

1989, even outside agriculture. Privatisation started quickest, though other countries have been catching up by 1994. This private sector is particularly important to firms in need of local partners, i.e. firms with little prior international experience and small firms. Thus complementary to the above, it is predicted that:

*I5: Small firms and firms without international experience prefer Hungary.*

Psychic proximity would favour in particular the countries bordering to Germany or related to her by historical relationships. German firms would thus be relatively more active in Poland, Czech Republic and Hungary. As the relations with Poland historically were subject to tensions, and British prefer Poland, the sign of the coefficient for Poland becomes ambiguous. If the role of proximity also applies to regional rather than national level, then specific effects would also be observed for BALTIC or BAVARIA firms.

*I6: German firms are more active than British in the Czech Republic and in Hungary.*

*I7: Firms from Bavaria prefer the Czech Republic and Hungary, while firms from regions near the Baltic Sea inclusive Hamburg prefer Poland and Russia.*

Table 6.1 summarises the variables proposed for the empirical analysis, and their expected signs. If some effects are expected to be stronger in some equations than in others it is indicated by double-plus or double-minus signs. The table also distinguishes effects on the probability to be active in CEE, and the probability to establish business everywhere in the region. For instance, consumer goods manufacturers have good incentives to establish a presence throughout the region, whereas labour intensive firms may be looking for one or a small number of local suppliers or production relocations.

**Table 6.1: Expected Coefficients**

	Active	Every	CR	HU	PL	R	RO	Hypotheses
	where	where						
<i>Intangible Asset Advantages</i>								
R&D	+	+	++	+	+	+	+	H1, I2
STAFF_EM	+	+	+	+	++	+	+	H3, I1
NF_CONS	+	++	+	+	++	+	0	H2, I1
FOOD	?	?	+	+	++	+	0	H2, H11, I1
<i>Common Governance Advantages</i>								
EMPLOYM	+	++	+	0	+	++	+	H4, I4, I5
EMPL_SQ	-	--	-	0	-	--	-	
INTL_TO	+	++	+	+	+	++	+	H5, I4, I5
DIVER_TO	-	-	-	-	-	-	-	H6, I4
<i>Barriers to Growth</i>								
GROWTH	-	-	-	-	--	-	-	H9, I1
EMPL_TO	++	+	+	+	+	++	++	H10, I3
<i>Proximity</i>								
GERMAN	++	+	++	++	?	0	0	H7, I6
BALTIC	+	0	0	0	++	++	0	H8, I7
BAVARIA	+	0	++	+	0	0	0	H8, I7
<i>Controls</i>								
CHEM	+	+	+	+	+	+	+	H11
NONEUR	?	?	?	?	?	?	?	
EUROPEAN	?	?	?	?	?	?	?	
COC_L	+	+	+	+	+	+	+	

### 6.3. Methods of Empirical Analysis

The empirical tests analyse different conceptualisations of 'active business relationships':

- Who is active in CEE?
- Who is active in any of the five countries?
- Who is active in several or all countries?

For the first two concepts, the dependent variable is binary, taking the value of one if the firm has any business relationships with the region, or the particular country considered. In the third case, the dependent variable is the number of countries in which a firm is active, which takes the values of zero to five, and a categorical variable taking three values.

For binary dependent variables, both Logit and Probit models are commonly used. They have replaced the linear probability model used at times when iterative estimation techniques faced computational limits. A binary dependent variable model needs to approach the values of zero and one for very small and very large values of predictors  $\beta'x$ . This condition is fulfilled by the Logit and the Probit model, which are density functions of a logistic and a normal distribution respectively. Their empirical results do usually not differ substantially, in particular for values of  $\beta'x$  near zero, i.e.  $P=0.5$ .<sup>129</sup> Greene [1993, p. 638] suggests that they give similar probabilities for values of  $\beta'x$  between -1.2 and +1.2. For this research, a Probit specification is used because the subsequent ordered dependent variable model was not estimable using a Logit specification.

Limited dependent variable models, such as the Probit, are rationalised using index functions. Decision makers have a utility function with an unobservable variable  $y^*$  as the dependent variable and  $x$  as independent variables. If the unobserved utility obtained from a positive choice passes a threshold limit, the decision is in favour of one, here in favour of engaging in business with CEE. Thus,

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<sup>129</sup> For this research, all binary models have been run with Logit and Probit specifications and no substantive differences were found with respect to the chi-square-statistic, correct predictions, nor level of significance of particular variables.

$$(6.1) \quad \text{ACTIVE} = \begin{cases} 1 & \text{if } y^* > 0 \\ 0 & \text{if } y^* \leq 0 \end{cases}$$

with  $y^* = \beta'x + \epsilon$

where  $y^*$  is the unobserved utility and  $\epsilon$  is the residual, which in the case of a Probit are assumed to be normal distributed.  $\beta'x$  is called the index function. The Probit is modelled as the density function of a normal distribution [Greene 1993, p. 637]:

$$(6.2) \quad P(\text{ACTIVE}=1) = \int_{-\infty}^{\beta'x} \phi(t) dt = \Phi(\beta'x)$$

where  $x$  is a vector containing firm and industry specific variables. The marginal effects of the Probit vary with the independent variables  $x$ . If the predicted value is close to 0.5, then a given change in any variable in  $x$  will induce a larger change in the estimated probability than if the predicted value is already in one of the tails. The marginal effects are given by [Greene 1993, p. 639]:

$$(6.3) \quad dE(y)/dx = \phi(\beta'x)\beta$$

In this chapter, the binomial Probit is used to analyse the firms' propensity to engage in the region in general (model 1), and in each of five countries (models 4-9). They show whether or not, and how, determinants of activity vary within the region.

If the dependent variable takes more than two values that are ordinal but not cardinal, then the utility function contains several thresholds. As the utility from activity in CEE increases, firms would engage in a higher order of business activity, i.e. start business with more countries. The observed dependent variable NO\_COUNTR thus takes six different values from zero to five that stand in an ordinal relationship.<sup>130</sup> For the Ordered Probit model, it is presumed that they are related through an unobserved utility  $y^*$  as follows:

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<sup>130</sup> This is not a cardinal relationship as the variable is truncated at zero and the selection of countries has been constraint in the questionnaire.

$$\begin{aligned}
(6.4) \quad \text{NO\_COUNTR} &= 0 && \text{if } y^* < 0 \\
&= 1 && \text{if } 0 \leq y^* < \mu_1 \\
&= 2 && \text{if } \mu_1 \leq y^* < \mu_2 \\
&= 3 && \text{if } \mu_2 \leq y^* < \mu_3 \\
&= 4 && \text{if } \mu_3 \leq y^* < \mu_4 \\
&= 5 && \text{if } \mu_4 \leq y^*
\end{aligned}$$

with

$$y^* = \beta'x + \epsilon .$$

The threshold parameters  $\mu_j$  have to be estimated with the model. It has always two less threshold parameters than categories, as the first threshold is set at zero. In the present case with the dependent variable taking six values, four threshold parameters are estimated. If the dependent variable takes three different values, then only one threshold parameter is estimated. As before, error terms  $\epsilon$  are assumed to be normal distributed. The marginal effects have to be calculated in a similar manner as for the binary Probit model, but separately for each category [Greene 1993, p. 674].

The second regression model estimates the Ordered Probit with 6 categories for NO\_COUNTR. The same relationship is estimated with a standard linear OLS regression in model 4. The latter approach assumes a cardinal nature of the dependent variable that leads to an overstatement of statistical significance. However, it is possible to estimate this model for sub-samples with a small number of observations. It is estimated for sub-samples of German and British firms and by industry. For Probit estimation there would not be sufficient observations in the sample.

The model is subsequently simplified by defining a new dependent variable:

$$\begin{aligned}
\text{ACTIVE\_3CAT} &= 0 && \text{if the firm is not active (NO\_COUNTR} = 0) \\
&= 1 && \text{otherwise (} 0 < \text{NO\_COUNTR} < 5) \\
&= 2 && \text{if the firm is active in all countries (NO\_COUNTR} = 5)
\end{aligned}$$

This variable captures the same ordinal relationship as the NO\_COUNTR variable with a more parsimonious model. Table 6.2 summarises the empirical models and the tables reporting the results.

Table 6.3 reports the descriptive statistics for the independent and alternative dependent variables. Note that employment and employment-square have been scaled for readability of the results tables. Table 6.4 shows the correlations of the independent variables. The human capital proxy STAFF\_EM is highly correlated to both the GERMAN dummy ( $r=0.60$ ) and to EMPL\_TO ( $r=-0.50$ ), and moderately to BALTIC and CHEM. It therefore has to be excluded from the analysis, and analysed separately in a subsequent test (table 6.11). CHEM and NF\_CONS are naturally related as most chemicals firms are producing consumer goods. The effects of these two dummies thus have to be interpreted together.

The regression models were first estimated with the full set of independent variables, excluding only STAFF\_EM (tables 6.5 and 6.6).<sup>131</sup> In this analysis, five variables are consistently insignificant. These were removed in a second round of regressions of a more parsimonious model (tables 6.7 and 6.8). This also removed some moderate collinearities.

**Table 6.2: Empirical Models used in the Analysis**

<i>No.</i>	<i>Dependent Var.</i>	<i>Method</i>	<i>Independent variables</i>		<i>Sub-samples</i>
			<i>Full set</i>	<i>reduced</i>	
<i>General Activity</i>					
1	ACTIVE	Binomial Probit	table 6.5	table 6.7	=
2	NO_COUNTR	Ordered Probit	" 6.5	" 6.7	=
3	ACTIVE_3CAT	Ordered Probit	" 6.5	" 6.7	table 6.10
4	NO_COUNTRIES	Linear	" 6.5	" 6.7	table 6.9
<i>Activity by Country</i>					
5	Czech	Binomial Probit	" 6.6	" 6.8	=
6	Poland	Binomial Probit	" 6.6	" 6.8	=
7	Hungary	Binomial Probit	" 6.6	" 6.8	=
8	Russia	Binomial Probit	" 6.6	" 6.8	=
9	Romania	Binomial Probit	" 6.6	" 6.8	=

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<sup>131</sup> For the Probit estimation, a maximum likelihood estimation method has been used from the statistical packages of SPSS and LIMDEP. The linear model has been estimated using an OLS routine.

**Table 6.3: Descriptive Statistics**

	<i>Unit of Measurement</i>	<i>Mean</i>	<i>Standard Error</i>	<i>Median</i>
<i>Dependent</i>				
NO_COUNTR	count	2.99	1.98	4
ACTIVE_3CAT	3 categories	1.14	.75	1
<i>Independent</i>				
EMPLOYM	10 <sup>-5</sup>	.1113	.1898	.0361
EMPL_SQ	10 <sup>-10</sup>	.0484	.1584	.0013
R&D	per cent	3.55	3.66	2.82
STAFF_EM	£ per employee	25.79	10.49	25.14
INTL_TO	ratio	.4204	.2937	.4348
GROWTH	per cent	5.35	15.86	3.34
DIVER_TO	ratio	.00012	.00024	.00001
EMPL_TO	ratio	10.73	6.87	9.90

The median of binary independent variables is always zero. For binary dependent variables see table 5.6. Details of variable definitions are in appendix 5.3.

**Table 6.4: Correlations of the independent variables**

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	EMPLOYM	1.0															
2	EMPL_SQ	.92	1.0														
3	R&D	.03	-.01	1.0													
4	STAFF_EM	.03	.05	.22	1.0												
5	NF_CONS	.19	.17	.17	.13	1.0											
6	INTL_TO	.33	.25	.25	.07	.17	1.0										
7	GROWTH	.00	.01	-.13	-.18	.01	-.01	1.0									
8	DIVER_TO	-.28	-.15	-.02	-.28	-.11	-.24	.03	1.0								
9	NONEUR	.01	.02	.03	.09	.04	.08	.05	-.09	1.0							
10	EUROPEAN	-.09	.02	.03	.01	-.05	.04	-.08	.06	-.09	1.0						
11	BALTIC	-.09	.06	.06	.30	.13	.21	-.01	-.07	.02	-.05	1.0					
12	BAVARIA	-.01	.04	.08	.10	.08	.02	-.09	-.08	-.08	.04	-.04	1.0				
13	COC_L	-.12	.08	.01	-.10	.05	-.04	-.05	.10	.06	.08	.14	-.07	1.0			
14	GERMAN	-.12	-.08	.01	.60	.04	-.04	-.22	-.22	-.17	.04	.21	.25	-.06	1.0		
15	FOOD	-.10	-.07	-.26	-.16	-.23	-.38	-.01	.01	-.10	-.01	-.03	.06	-.11	-.04	1.0	
16	CHEM	.15	.14	.20	.34	.44	.20	-.07	-.12	.13	-.08	.09	-.07	-.04	-.04	-.28	1.0
17	EMPL_TO	.03	-.04	.02	-.50	-.10	-.05	-.07	.30	-.14	.03	-.11	-.02	.10	-.22	-.20	-.21

Correlations are significant at 5% level if they are > 0.14.

The overall performance of the empirical models is quite satisfactory. The  $\chi^2$ -statistics of the Binomial and Ordered Probit models are highly significant. The critical values at 1% are 24.725 for 11 degrees of freedom (df) and 32.000 for 16 df. The reported  $\chi^2$ -statistics are substantially higher indicating that the models as a whole make a significant contribution to explain the dependent variable.

The correct predictions are very high for all models (table 6.5, 6.6, 6.8). They should be seen relative to the proportions prediction that would be correct using a random draw. These are given by

$$\text{random predictions} = a^2 + b^2 + c^2 + d^2 + e^2 + f^2$$

where a, b, c, d, e, f are the proportions of actual observations in each of the six categories. For the binomial Probit this formula reduces to  $a^2 + (1-a)^2$ . Relative to this benchmark, the share of correct predictions of the model is more than 20 percentage-points higher in each model-specification including the general and the country specific models.

The ACTIVE and ACTIVE\_3CAT models show a very good predictive ability of the model and for each actual value, the majority of predictions are correct.<sup>132</sup> This does not hold for the NO\_COUNTRIES model. Almost all observations in category zero or five are correctly predicted. Yet the model is unable to provide a reasonable prediction for the four intermediate categories. The statistical reason for this is that most observations are in the tails of the distribution of the unobserved utility function  $y^*$  and the intermediate intervals are very narrow. Therefore, the ACTIVE\_3CAT model has been developed.

The parsimonious models perform similarly well (table 6.).<sup>133</sup> The proportions of correct

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<sup>132</sup> One firm had business with the CEE region reported in the questionnaire but not in any of the five countries for which specific information was requested. Therefore the zero category of not-active firms has 42 and 43 observations respectively in different models.

<sup>133</sup> Note that in probability models, omitted variables will bias estimated effects towards zero [Cramer 1991, p. 37].

predictions is even higher than in the general version. The difference of  $\chi^2$ -statistic is significant (at 10% level, 5 df) only for the Czech and the Polish model. However, the Czech model delivers much smaller coefficients in the parsimonious model which suggests some form of overspecification. For the Ordered Probits, the squared expression of the employment variable has been taken out because otherwise the model would not deliver sensible results.<sup>134</sup>

The linear model performs very well too, with adjusted  $R^2$  statistics of 49% in both the full model (table 6.5) and the parsimonious version (table 6.6). All coefficients that are significant in either of the Probit specifications are also significant in the linear model. It has been estimated separately for German and British firms and by industry (table 6.7). The statistical significance of these models is lower due to the smaller sample sizes. Surprisingly, the food & chemicals industries model has a high adjusted  $R^2$  of 52% with only two significant coefficients.

The sub-samples have also been analysed with the 3-categories Ordered Probit model (table 6.8). This approach was less successful: although the reduced data set was used, only few significant effects can be shown except for the machinery industry. The small number of observations in the sub-samples does not permit to obtain significance in Ordered Probit estimation. Nevertheless, the  $\chi^2$ -statistics were significant and the correct predictions were high for all sub-samples.

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<sup>134</sup> For the binomial Probit models, a better fit was obtained with a complementary squared employment variable. Coefficients to EMPLOYM are reported multiplied by  $10^5$ , and EMPL\_SQ by  $10^{10}$  to facilitate readability of the tables.

**Table 6.5: Four models for Activity**

<i>Dependent Method</i>	<i>ACTIVE Probit</i>	<i>NO_COUNTR Ordered Probit</i>	<i>ACTIVE_3CAT Ordered Probit</i>	<i>NO_COUNTRIES Linear</i>
<i>No of Categories</i>	2	6	3	6
EMPLOYM	3.8204 (2.55)	<b>2.7478 (.591)*****</b>	<b>3.0280 (.648)*****</b>	<b>5.3494 (1.64)*****</b>
EMPL_SQ	-3.8967 (2.73)	=	=	<b>-4.7404 (1.85)**</b>
R&D	.0479 (.064)	.0434 (.037)	.0499 (.391)	.0248 (.031)
EMPL_TO	-.0006 (.023)	-.0196 (.016)	-.0160 (.017)	-.0282 (.018)
NF_CONS	.1317 (.547)	.2194 (.325)	.2124 (.330)	.0954 (.311)
INTL_TO	<b>1.7018 (.598)*****</b>	<b>1.8750 (.375)*****</b>	<b>1.9601 (.403)*****</b>	<b>2.1963 (.428)*****</b>
GROWTH	<b>-.0279 (.010)*****</b>	<b>-.0157 (.007)**</b>	<b>-.0143 (.007)**</b>	<b>-.0208 (.007)*****</b>
DIVER_TO	<b>-2750.7 (873.5)*****</b>	-600.35 (579.7)	-600.49 (607.4)	<b>-1578.9 (515.6)*****</b>
NONEUR	2.0774 (1.46)	.2323 (.303)	.3993 (.362)	.2646 (.335)
EUROPEAN	.8373 (.727)	-.3991 (.463)	-.1495 (.529)	-.7315 (.453)
BALTIC	.2790 (.866)	.1839 (.731)	.1106 (.823)	.2240 (.597)
BAVARIA	.0480 (.818)	.7158 (.582)	.5402 (.592)	.6456 (.489)
COC_L	5.0186 (38.1)	<b>.8020 (.395)**</b>	.8508 (.543)	<b>1.1263 (.377)*****</b>
GERMAN	<b>.8167 (.358)**</b>	<b>.7947 (.211)*****</b>	<b>.7896 (.223)*****</b>	<b>.8501 (.251)*****</b>
FOOD	-.2863 (.387)	-.1351 (.262)	-.0794 (.290)	-.3430 (.308)
CHEM	.5273 (.541)	.2323 (.275)	.1886 (.300)	.2539 (.287)
Constant	-.0984 (.548)	-.1956 (.373)	-.3485 (.402)	<b>1.6924 (.400)*****</b>
MU(1)	=	.3952 (.104)*****	<b>1.7762 (.190)*****</b>	=
MU(2)	=	.7503 (.132)*****	=	=
MU(3)	=	1.1694 (.149)*****	=	=
MU(4)	=	1.7662 (.168)*****	=	=
Observations	198	198	198	198
Variables	16	19	16	16
$\chi^2$ -statistic	106.220	143.933	137.873	R <sup>2</sup> = 53.15%
Log-Likelihood	-49.21	-251.29	-141.57	R <sup>2</sup> , adj. = 49.01%

**Table 6.5, continued: Predicted versus Actual Outcome in Probit and Ordered Probit Models**

ACTIVE:	Predicted	Total	
Actual	0 1	42	
0 not-active	25 17	42	predicted by model: 87.37% correct
1 active	8 148	156	predicted by random draw:
Total	33 165	198	66.57% correct
NO_COUNTNTR	Predicted	Total	
Actual	0 1 2 3 4 5	Total	
0 not-active	35 0 0 0 2 6	43	predicted by model:
1 country	11 0 0 0 1 3	15	51.01% correct
2 countries	6 0 0 0 1 9	16	
3 countries	10 0 0 0 0 12	22	predicted by random draw:
4 countries	7 0 0 0 2 22	31	19.73% correct
5 all countries	6 0 0 0 1 64	71	
Total	75 0 0 0 7 116	198	
ACTIVE_3CAT	Predicted	Total	
Actual	0 1 2	Total	
0 not-active	26 16 1	43	predicted by model: 67.17% correct
1 active	5 60 19	84	predicted by random draw:
2 active in all	1 23 47	71	35.57% correct
Total	32 99 67	198	

**Table 6.6: Four models for Activity: Parsimonious Version**

<i>Dependent Method</i>	<i>ACTIVE</i>	<i>NO_COUNTR</i>	<i>ACTIVE_3CAT</i>	<i>NO_COUNTRIES</i>
<i>No of Categories</i>	<i>Probit</i>	<i>Ordered Probit</i>	<i>Ordered Probit</i>	<i>Linear</i>
	2	6	3	6
EMPLOYM	3.6609 (2.30)	2.4942 (.561)*****	2.8303 (.627)*****	4.5567 (1.56)*****
EMPL_SQ	-3.7410 (2.47)	=	=	-3.8867 (1.77)**
R&D	.0645 (.061)	.0402 (.035)	.0468 (.036)	.0278 (.031)
NF_CONS	.4627 (.489)	.4158 (.313)	.3677 (.319)	.3448 (.280)
INTL_TO	1.8523 (.538)*****	1.9771 (.341)*****	2.0261 (.365)*****	2.4150 (.391)*****
GROWTH	-.0272 (.009)*****	-.0142 (.006)**	-.0133 (.007)**	-.0199 (.007)*****
DIVER_TO	-2771.5 (850.0)*****	-589.13 (550.1)	-588.91 (577.5)	-1799.8 (490.6)*****
NONEUR	2.1795 (1.42)	.3532 (.276)	.4920 (.328)	.4045 (.328)
EUROPEAN	.8302 (.698)	-.4171 (.424)	-.1586 (.487)	-.7670 (.452)*
COC_L	4.9980 (38.2)	.7176 (.377)*	.7784 (.513)	1.0784 (.370)*****
GERMAN	.8759 (.320)***	.9617 (.199)*****	.9206 (.213)*****	1.0506 (.233)*****
Constant	-.2649 (.340)	-.4076 (.330)	-.5731 (.247)**	1.2445 (.270)*****
MU(1)	=	.3927 (.101)*****	1.7535 (.181)*****	=
MU(2)	=	.7390 (.127)*****	=	=
MU(3)	=	1.1415 (.143)*****	=	=
MU(4)	=	1.7279 (.163)*****	=	=
Observations	198	198	198	198
Variables	11	15	11	11
$\chi^2$ -statistic	103.915	137.858	135.544	R <sup>2</sup> = 51.58%
Log-Likelihood	-50.36	-254.32	-142.73	R <sup>2</sup> , adj. = 48.71%

**Table 6.6, continued: Predicted versus Actual Outcome in the Probit Models**

<b>ACTIVE:</b>	<b>Predicted</b>								
Actual	0	1	Total						
0 not-active	25	17	42						predicted by model: 87.88% correct
1 active	7	149	156						predicted by random draw: 66.57% correct
Total	34	164	198						
<b>NO_COUNTR</b>	<b>Predicted</b>								
Actual	0	1	2	3	4	5	Total		
0 not-active	37	0	0	0	0	6	43		predicted by model: 52.02% correct
1 country	11	0	0	0	0	4	15		
2 countries	5	0	0	0	1	10	16		
3 countries	11	0	0	0	0	11	22		predicted by random draw: 19.73% correct
4 countries	9	0	0	0	1	21	31		
5 all countries	6	0	0	0	0	65	71		
Total	77	0	0	0	2	117	198		
<b>ACTIVE_3CAT</b>	<b>Predicted</b>								
Actual	0	1	2	Total					
0 not-active	26	16	1	43					correct predicted by model: 68.18%
1 active	4	60	20	84					correct predicted by random draw: 35.57%
2 active in all	1	21	49	71					
Total	32	99	67	198					

**Table 6.7: Linear model: Sub-samples by Home Country and Industry**  
*Dependent: NO COUNTRIES, full set of independent variables*

	German	British	Food&Chem	Machinery
EMPLOYM	9.9992 (4.77)**	5.2343 (2.26)**	2.4784 (2.62)	7.9273 (2.59)****
EMPL_SQ	-16.514 (9.13)*	-4.4848 (2.39)*	-2.3703 (2.59)	-7.8393 (3.45)**
R&D	.0399 (.039)	.0080 (.053)	.0351 (.046)	.0367 (.046)
EMPL_TO	-.0084 (.050)	-.0337 (.022)	-.0501 (.034)	-.0223 (.023)
NF_CONS	.2702 (.464)	-.0248 (.444)	-.2900 (.470)	.2218 (.489)
INTL_TO	2.0821 (.668)****	2.2096 (.629)****	2.9475 (.684)****	1.8426 (.578)****
GROWTH	-.0225 (.010)**	-.0194 (.010)*	-.0243 (.020)	-.0212 (.008)****
DIVER_TO	-1231.2 (1139)	-1492.3 (637.6)**	-2007.2 (871.0)**	-1165.5 (696.4)*
NONEUR	-.6532 (.671)	.4896 (.418)	-.4129 (.518)	.5468 (.476)
EUROPEAN	-.4893 (.589)	-.9617 (.741)	-1.3735 (.875)	-.5356 (.557)
BALTIC	.4431 (.618)	=	1.2845 (.848)	-.6117 (.916)
BAVARIA	.4027 (.484)	=	.4040 (.766)	.5541 (.700)
COC_L	.7888 (.621)	1.2682 (.521)**	.8387 (.788)	1.1794 (.467)**
GERMAN		=	.3685 (.409)	1.1302 (.343)****
FOOD	-.3832 (.443)	-.1987 (.458)	-.6718 (.421)	=
CHEM	.2028 (.441)	.4638 (.417)	=	=
Constant	2.2458 (.517)****	1.6716 (.568)****	2.5099 (.618)****	1.3741 (.541)**
Observations	90	108	86	112
Variables	15	13	15	16
R <sup>2</sup>	47.88%	51.43%	60.23%	52.21%
R <sup>2</sup> , adj.	37.31%	44.71%	51.70%	45.31%

**Table 6.8: Ordered Logit Model with 3 Categories: Home Country and Industry Samples**  
*reduced version of the model*

	<i>German</i>	<i>British</i>	<i>Food&amp;Chem</i>	<i>Machinery</i>
EMPLOYM	<b>12.153 (4.29)****</b>	<b>2.0069 (.783)**</b>	<b>2.6908 (1.53)*</b>	<b>2.8798 (.843)****</b>
R&D	.0592 (.073)	.0266 (.046)	.1405 (.095)	.0180 (.555)
NF_CONS	1.0541 (.960)	-.0816 (.401)	-.1410 (.588)	.6382 (.484)
INTL_TO	<b>2.1697 (.693)****</b>	<b>1.9920 (.467)****</b>	<b>2.2078 (.655)****</b>	<b>1.9677 (.569)****</b>
GROWTH	-.0165 (.014)	-.0138 (.010)	-.0068 (.024)	<b>-.0148 (.008)**</b>
DIVER_TO	-193.01 (1201)	-660.14 (743.7)	-728.95 (1197)	-491.41 (786.6)
GERMAN	=	=	<b>.7448 (.383)*</b>	<b>1.0690 (.299)****</b>
NONEUR	-.1604 (.707)	.6920 (.435)	.6676 (.486)	.3551 (.534)
EUROPEAN	.4864 (1.06)	-.3300 (.586)	-.5051 (.943)	-.1518 (.724)
COC_L	1.1554 (.805)	.6363 (.811)	.9263 (1.06)	.7829 (.596)
Constant	.0569 (.414)	-.4415 (.302)	-.5717 (.392)	-.5973 (.422)**
MU(1)	<b>2.3539 (.403)****</b>	<b>1.6076 (.246)****</b>	<b>1.8815 (.333)****</b>	<b>1.7272 (.243)****</b>
Observations	90	108	86	112
Variables	10	10	15	16
$\chi^2$ -statistic	68.265	67.911	69.785	70.995
log-likelihood	-51.214	-82.867	-56.777	-83.328
correct predictions	70.00%	65.74%	66.28%	68.75%
random predictions	41.56%	34.45%	35.40%	35.71%
zeros/ones/twos	9/39/42	34/45/29	19/36/31	24/48/40

**Table 6.9: Introducing STAFF into the Model***new coefficients, with standard errors, based on the parsimonious model version*

<i>Model</i>	<i>GERMAN</i>	<i>STAFF_EM</i>	<i>new <math>\chi^2</math> <sup>a</sup></i>	<i>difference <sup>a</sup></i>
Probit (ACTIVE)	.4196 (.421)	.0330 (.021)	106.439	2.524
Ordered P. (6 cat.)	.7446 (.223)****	.0190 (.012)	141.264	3.406***
Ordered P. (3 cat.)	.7482 (.240)***	.0142 (.012)	135.791	.247
Linear (6 cat.)	.6929 (.280)**	.0291 (.013)**	n.a.	n.a.
Czech Rep.	1.0656 (.334)****	.0177 (.016)	100.748	1.231
Hungary	.8409 (.303)***	.0072 (.013)	92.214	.290
Poland	-.0205 (.355)	.0662 (.019)****	109.886	14.377***
Russia	-.0365 (.310)	.0244 (.015)*	88.868	2.852*
Romania	.2726 (.291)	.0326 (.013)**	84.617	6.041**

For the corresponding models without STAFF\_EM see tables 7.6 and 6.13. <sup>a</sup> The *new*  $\chi^2$ -statistics have 12 degrees of freedom, the differences have one degree of freedom.

## 6.4. Empirical Hypotheses Tests

### 6.4.1. Intangible Asset Advantages

Ownership advantages of intangible assets were hypothesised to arise with R&D intensity (H1: R&D), for consumer goods manufacturers (H2: FOOD, NF\_CONS) and human capital intensive firms (H3: STAFF\_EM).

Research-based intangibles increase the propensity of firms' activity, but are not statistically significant. The effect of the R&D variable is positive but insignificant in each of the general models, using the full data set or parsimonious one (tables 6.5, 6.7), and for both home countries and both industries (6.9, 6.10). The alternative hypothesis of no contribution cannot be rejected although the coefficient is not small considering that R&D is measured in percent.

Consumer goods manufacturers show no persistent pattern of higher activity. The empirical evidence shows few significant effects for either the FOOD or the NF\_CONS dummy.

FOOD includes some highly internationalised sectors with branded goods and high internationalisation of the industry, but also others with high transportation costs and low internationalisation. These opposite effects lead in aggregate to small negative effects for the FOOD dummy. The NF\_CONS dummy is mostly positive but insignificant. Negative coefficients emerge for sub-samples of British firms and the food and chemicals industry with correspondingly larger effects for German firms and the machinery industry in sub-sample regressions of the linear model (6.7) and especially the Ordered Probit (6.8). This indicates an interesting country and industry difference that, however, is statistically not significant and thus would require further research. Thus, non-food consumer goods manufacturers appear to be more active in the region, with some interesting differences across countries and industries: among German and machinery industry firms, non-food consumer goods manufacturers have a higher level of activity.

The broader defined concept of human capital could not be tested in the original set of empirical models because of multi-collinearity. The proxy STAFF\_EM has therefore been tested separately by adding it to the parsimonious model. Here, it is correlated with the GERMAN dummy as labour costs per employee are substantially higher in Germany than in the UK. In this way, STAFF\_EM should account for the effect of human capital after controlling for home country differences. The contribution of STAFF\_EM can be seen from the change in the  $\chi^2$ -statistic between the base model and the new model (table 6.9). The coefficient on STAFF\_EM is significant only for the linear model, but the 6-categories model also is significantly improved according to the chi-square test. Human capital thus does increase the propensity of a firm to be active, particularly in Poland.

Overall, it is possible to detect significance for the intangible asset coefficients, but they appear to be dominated by other influences. The hypothesis that intangible assets increase firms' propensity to engage in East-West business cannot be rejected but does not receive statistically significant support either.

#### 6.4.2 Advantages of Common Governance

Ownership advantages arising from economies of common governance were hypothesised to increase firms' propensity to be active. As a measure of common governance, firm size (H4: EMPLOYM), international experience (H5: INTL\_TO) and diversification (H6: DIVER\_TO) are tested. All hypotheses receive strong support.

The size variable is usually highly significant. In some cases, a quadratic expression has been more successful in capturing the influence than a linear variable. On the other hand, the Ordered Probit performed better without a quadratic term such that the squared component has been omitted. All measures of assets have been controlled by firm size. Even so, larger firms have advantages of common governance that reduce the costs of engaging in business with CEE. Surprisingly, the size effect is larger for German than for British firms, which is contrary to the expectation that size would help in overcoming distance. It may be caused by a few very large British firms in the sample without activity in the region. In contrast, hardly any major company in Germany is not present.

The variable INTL\_TO is significantly positive throughout all model specifications. It reaches the highest levels of significance of 0.005%, marked by 5 \*s, in several model specifications. The coefficients show little variation between the models but are slightly higher in the parsimonious model where, among others, the FOOD variable (which has a negative correlation of -0.38 with INTL\_TO) has been removed. Across home countries and industries, no significant differences emerge either. For the food and chemicals industries, the effect is substantially larger in the linear model, and insignificantly so in the Ordered Probit. This suggests that clearer distinctions between international and national firms exist in the food and chemicals industries.

The coefficient on the diversification proxy is always negative, as hypothesised. However, the size of this effect varies for the different models. ACTIVE is negative related to diversification, but this effect does not translate to the decision to become active in several or all countries considered. The coefficients in the Ordered Probit are less than a fourth that of the binomial model, and statistically insignificantly different from zero. This result

emerges from both the full and the parsimonious model. In the linear model, this effect is also significant because outliers on the lower tail carry more weight than in the Ordered Probit. The result suggests that specialised firms are more likely to enter at least some countries of the region, but that they are not seeking a presence in every single market. British firms and the food and chemicals industries show a stronger relationship than German firms and the machinery industry. However, coefficients in sub-samples are rarely statistically significant due to the small sample size. Thus, the inverse relationship between product and regional diversification is confirmed. The relationship is more important for British firms and the food and chemicals industries. It is also more important in inducing firms to engage in business than to induce them to become active throughout the region.

In conclusion, significant effects are found for all proxies suggested for common governance ownership advantages. Size and international experience are the most important determinants of firms' activity, more important than various measures of intangible assets. Product specialisation favours involvement in West-East business, and interesting differences are shown as it matters more for the decision to be active than for activity throughout the region.

### **6.4.3 Proximity**

German firms, in particular those located near Germany's Eastern border, are predicted to be more active due to their psychic proximity to the region (H7, H8). Also, priorities within the region would be expected to vary according to country and region of origin (I6, I7), and firm capabilities, in overcoming psychic distance (I4, I5). Thus, ownership and interaction hypotheses both should be considered to assess the impact of proximity. Most hypotheses receive support, although the pattern of psychic proximity is more complex than hypothesised.

The GERMAN dummy is significant in all general models. The coefficients are slightly larger in the parsimonious models as these exclude the special dummies for regions within Germany. In the machinery industry, this home country effect is larger than in the food and chemicals industries. The home country effect is in most cases larger than the impact of any other dummy variable, except COC\_L.

The proximity effect is also visible across the five host countries: the specific German effect is largest in the Czech Republic,<sup>135</sup> followed by Hungary. Poland and Romania take an intermediate position, while in Russia the coefficient is very small and insignificant. This general pattern is confirmed by the tests, including the human capital proxy STAFF\_EM (table 6.9). Thus, the psychic distance between the two home countries differs most *vis-à-vis* the Czech Republic and Hungary. In Poland the difference is smaller, presumably as a result of a combination of the British preference for Poland and tensions in the German-Polish political and economic relations. This is an example of diverging patterns of psychic and geographic proximity.

The two dummies for regions within Germany, BALTIC and BAVARIA, are not significant in any model. However, an interesting result emerges for the business relationship of North German firms which have a relative preference for Russia (hypothesis I7). The coefficient for BALTIC is large and positive in the Russia equation, but small or negative in the others. Thus these firms are not more active in the region. If they were then they would be relatively more likely to engage in business with Russia. However, the number of BALTIC firms in the sample is too small to obtain a significant effect to prove the proposition. On the other hand, no such preference exists by BALTIC firms for Poland nor by Bavarian firms for the Czech Republic. In fact, the BAVARIA coefficient is positive for all five CEE countries, but *smallest* in the Czech model. However, the sample does not contain firms from the Bavarian Forest region close to the Czech border, courtesy of the random sampling. Thus, a special border effect cannot be tested with this data set.

Furthermore, it was proposed that firms with advantages of common governance arising from size, international experience and product specialisation would be better equipped to enter distant and uncertain markets in Russia (I4) while small and inexperienced firms would prefer Hungary (I5). The empirical results in tables 6.10 and 6.11 do not give much support for these hypotheses: the size effects (EMPLOYM) are of a similar magnitude across host countries. International experience even has a pattern opposite to that hypothesised: it is not

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<sup>135</sup> though not in the parsimonious version which appears distorted.

more relevant for longer psychic distance and high risk countries. The coefficient in the Russia model is *smaller* than for all other countries, both in the full and the parsimonious models. This difference is indeed significant between Russia and Poland.<sup>136</sup> This surprising effect suggests that internationally experienced firms are expanding to both Central Europe and Russia. However, the experience is relatively less important for Russia where thus a different kind of ownership advantage must therefore be more important. This might be product specialisation: the third asset easing entry over long distance is found to be more important for Russia. The effect of DIVER\_TO is twice as large with respect to business with Russia as it is for Central European countries, and lowest and insignificant for Romania. This confirms that a product specific leadership strategy may induce firms to accommodate high costs and risk in Russia.

Thus, evidence in favour of the proximity hypothesis is found by the GERMAN dummy, and its variation across the five CEE countries. There may be other reasons for British-German differences, but only psychic proximity would explain this pattern. Regional differences within Germany show a special preference of Northern firms for Russia that is not significant. Psychic distance is not better overcome by large or internationally experienced firms, but by those specialising in a narrow product range. Their strategy of disseminating a narrow range of products world-wide takes them even into Russia.

#### **6.4.4 Barriers to Growth and Control Variables**

Firms facing barriers to growth in their established strategic configuration were hypothesised to be more active in the region. These firms would be characterised by low growth of turnover (H9: GROWTH) or labour intensive production (H10: EMPL\_TO).

The GROWTH variable is consistently negatively signed and significant for all models, except for table 6.10 where sample sizes are small. The variation of the coefficient across models is small with a stronger effect for the machinery industry. Thus, firms experiencing

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<sup>136</sup> Using the values of the parsimonious model (table 6.8), the difference of the coefficients in the Russian and Polish model is  $2.0013 - .8149 = 1.1864$ . The standard error of the difference is the square root of the sum of the variances of the coefficients which is .5782. Thus the t-statistic for the difference is 2.25.

slow growth, or even a fall in output in recent years, are more likely to be active in CEE. Business with CEE appears to offer an opportunity to overcome barriers to growth, though to a different extent across the region.

The production relocation argument suggested that labour intensive firms would be more active because they can use labour cost differences. The results show no support for this hypothesis. The coefficient on EMPL\_TO is negative, though insignificant, in every single model specification. Thus, capital and human capital intensive firms are relatively more active. Exports based on comparative advantages dominate over procurement and relocation in labour-intensive production. The negative effect is smaller for the ACTIVE model than for the other models in table 6.5. This would, plausibly, suggest that capital or human capital intensive firms are active throughout the region, while labour intensive firms are also active but in fewer countries. Production relocation requires only one new location while market oriented firms are more likely to spread to supply all markets. This confirms the analysis of descriptive statistics on motives for DFI (section 5.4): labour cost seeking is not a major force inducing firms to engage in East-West business.

Taking the two variables on barriers to growth together, there is little evidence that constraints on the supply side, in particular labour cost, would account for a major wave of business in CEE. However, barriers to growth in present markets are being overcome by entering the new markets in the East.

In addition, the analysis includes four control variables. The industry dummy CHEM is mostly insignificant, despite significant variation in the descriptive statistics (section 5.2). Two parent dummies, NONEUR and EUROPEAN, account for differences in corporate strategy imposed by parent firms. NONEUR has a positive effect while EUROPEAN has a negative effect; both are mostly insignificant. The COC\_L dummy controls for a mixed sampling framework. These firms have been added to the sample with the prior knowledge that they are active in the region, and the coefficients thus are positive.

#### 6.4.5 Locational effects

The OLI paradigm suggests that ownership advantages would combine with the locational advantages of the host economy to induce multinational business. Therefore, some hypotheses have been developed in section 6.2.2, in a novel fashion, on how the impact of ownership advantages varies for DFI across host countries. A Probit has been regressed for each country with the dependent variable taking the value 1 if the firm is active in the country and zero otherwise (tables 6.10, 6.11). The results are generally quite satisfactory apart from the parsimonious version of the Czech model, which has high explanatory power but suspiciously small coefficients for all variables.

The larger market in Poland was predicted to attract more market oriented business than Hungary or the Czech Republic. This effect would lead to larger effects of consumer goods, human capital intensity and barriers to growth in established markets. In the full model, the coefficients of NF\_CONS are largest for business with the Czech Republic and Poland, and significant in the parsimonious model. Russia here has a larger coefficient than the Czech Republic but remains insignificant due to higher variation. The FOOD dummy is negative in both the Polish and the Czech model, in the latter case significantly, which is contrary to the hypothesis. Thus, a special preference of consumer good manufacturers emerges only for non-food products, and the differences between countries are not significant.

Firms facing barriers to growth and those with high human capital have more business with all five CEE countries, but most likely with Poland and least likely with Hungary (where the coefficients of GROWTH and STAFF\_EM are smallest and insignificant). In both cases, the difference between Poland and Hungary is statistically significant and supports the view that large markets are a prime attraction for slow growing firms.<sup>137</sup> Thus, as proposed in I1, the larger market in Poland attracts some firms more than others. These are human capital intensive firms, firms facing barriers to growth in existing markets, and, though with weaker evidence, non-food consumer goods manufacturers.

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<sup>137</sup> In the full model, for GROWTH, the difference is .0242, its standard error .0120 and  $t=2.01$ .

Surprisingly, the effect of R&D is larger and positive than in all other equations, and statistically significant for business with Russia and Romania (6.10 and 6.11). This suggests that business with these two more distant countries is driven by the kind of intangible assets that have frequently been found important for business around the world. However, the business relationships with the Central European countries are driven by other determinants. Note that the coefficient even turns negative for the Czech Republic. This is surprising given that it was hypothesised that R&D-intensive enterprises would primarily engage in business with countries of high technological standards as the need for local training and adaptation is lower.

Labour intensive and low skill firms were expected to exhibit a relative preference for Russia, where labour is cheap and where capital intensive firms are rare due to higher risks. However, the variable EMPL\_TO is insignificant throughout with small variations not in line with the hypothesis, as the negative coefficient is smallest in Hungary. Thus, labour intensity appears to be of little or no importance.

In conclusion, the analysis reveals few significant differences in the investment pattern other than those of psychic distance and firms' ability to overcome distance. While the evidence suggests that slow-growing firms focused primarily on Poland as the largest market, surprisingly, research-intensive firms appear to prefer Russia and Romania.

## **6.5. Conclusions**

Evidence is found in favour of all four groups of hypotheses suggesting that intangible assets, common governance, barriers to growth and proximity all have a role in determining firms' propensity to engage in business in CEE. The common governance variables show the strongest performance in terms of statistical significance. Thus, large, internationally experienced and specialised firms are more active in the region. German firms are more active, as predicted, especially in the Czech Republic and in Hungary. Consistent support emerges for the negative association of sales growth and propensity to engage in West-East business. Barriers to growth at home thus appear important in inducing firms to seek new opportunities in the East. This result is somewhat surprising since the alternative hypothesis

that growing firms are more active because of better access to financial resources is a strong argument from a resource-based or financial perspective.<sup>138</sup>

Interaction of locational and ownership advantages have been shown empirically. Diversification and proximity effects vary as predicted, and market related assets are attracted to the largest market, Poland. The effects of progress in transition and political risk could however not be traced in this analysis.

The dominance of common governance variables over intangible assets suggests that international business is primarily a matter of multinational enterprise from industrialised countries. Corporations acquire firm specific advantages across their locations rather than specifically from their home country. Their capabilities are increasingly of an organisational rather than a technological nature.

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<sup>138</sup> Haiss and Fink [1995] also report that weaker firms would be more actively investing in CEE.

**Table 6.10: Activity by Host Country**

<i>Dependent Method</i>	<i>Czech Probit</i>	<i>Hungary Probit</i>	<i>Poland Probit</i>	<i>Russia Probit</i>	<i>Romania Probit</i>
<i>No of Categories</i>	2	2	2	2	2
EMPLOYM	5.1807 (2.21)**	5.1272 (2.01)**	5.3162 (2.20)**	5.4996 (2.01)**	3.5874 (1.89)*
EMPL_SQ	-4.4771 (2.49)*	-4.5026 (2.11)**	-5.6448 (2.36)**	-5.1808 (2.11)**	-2.2960 (2.17)
R&D	-.0250 (.041)	.0412 (.040)	.0049 (.045)	.1194 (.045)**	.0854 (.038)**
EMPL_TO	-.0242 (.021)	-.0071 (.019)	-.0430 (.026)	-.0180 (.018)	-.0391 (.026)
NF_CONS	.5291 (.400)	-.0832 (.371)	.5137 (.453)	.1932 (.394)	-.0690 (.349)
INTL_TO	1.4645 (.487)****	1.6843 (.468)****	1.7898 (.493)****	.9968 (.462)**	1.6402 (.461)****
GROWTH	-.0216 (.008)**	-.0096 (.008)	-.0338 (.009)****	-.0165 (.008)**	-.0172 (.008)**
DIVER_TO	-1027.0 (736.4)	-1467.6 (722.3)**	-1497.0 (788.6)*	-2909.7 (842.2)****	-872.57 (750.5)
NONEUR	.4293 (.409)	.2614 (.345)	-.0357 (.403)	.0763 (.357)	-.2939 (.346)
EUROPEAN	-.3769 (.468)	-.8227 (.510)	-.3129 (.448)	.0021 (.496)	-.8630 (.517)*
BALTIC	-.2888 (.726)	-.1867 (.587)	.0109 (.742)	1.1729 (.735)	.1659 (.610)
BAVARIA	.0772 (.657)	.8325 (.720)	.5464 (.724)	.8842 (.716)	.7455 (.552)
COC_L	.8531 (.424)**	.6832 (.376)*	1.4070 (.499)****	.7047 (.421)*	.9868 (.385)**
GERMAN	1.2110 (.304)****	.8338 (.275)****	.5266 (.299)*	.0612 (.265)	.4706 (.259)*
FOOD	-.6825 (.337)**	-.2144 (.331)	-.0827 (.347)	.0657 (.330)	-.0593 (.333)
CHEM	.2854 (.364)	.0927 (.322)	-.5776 (.403)	.2763 (.327)	-.0317 (.302)
Constant	-.4692 (.469)	-1.0092 (.441)**	-.1676 (.496)	-.5001 (.438)	-1.0998 (.466)**
Observations	198	198	198	198	198
Variables	16	16	16	16	16
$\chi^2$ -statistic	106.337	93.883	103.889	92.655	83.664
Log-Likelihood	-74.84	-86.63	-72.65	-85.98	-94.592
correct prediction:	87.37%	77.27%	83.33%	78.79%	74.24%
random prediction:	54.59%	56.25%	51.84%	52.47%	50.41%
ones/zeros:	129/69	134/64	118/80	121/198	90/108

Table 6.11: Activity by Host Country: Parsimonious Version

<i>Dependent Method</i>	<i>Czech</i>	<i>Hungary</i>	<i>Poland</i>	<i>Russia</i>	<i>Romania</i>
<i>No of Categories</i>	<i>Probit</i>	<i>Probit</i>	<i>Probit</i>	<i>Probit</i>	<i>Probit</i>
	2	2	2	2	2
EMPLOYM	.8362 (.414)**	4.8539 (1.84)***	3.3358 (1.90)*	4.3091 (1.81)**	2.4941 (1.74)
EMPL_SQ	-.6755 (.470)	-4.2693 (1.98)**	-3.4678 (2.09)*	-4.0410 (1.94)**	-1.1921 (2.05)
R&D	-.0070 (.008)	.0442 (.039)	-.0094 (.041)	.1055 (.042)**	.0740 (.036)**
NF_CONS	.1374 (.074)*	.0328 (.321)	.8186 (.400)**	.4418 (.345)	.0880 (.301)
INTL_TO	.5278 (.104)***	1.8198 (.426)***	2.0013 (.447)***	.8749 (.407)**	1.6651 (.415)***
GROWTH	-.0045 (.002)**	-.0090 (.007)	-.0299 (.009)***	-.0136 (.007)*	-.0143 (.008)*
DIVER_TO	-286.66 (130.3)**	-1513.4 (701.4)**	-1878.3 (770.9)**	-3243.3 (835.9)***	-1180.7 (718.6)
NONEUR	.1618 (.087)*	.3003 (.337)	.2674 (.376)	.2010 (.342)	-.1896 (.334)
EUROPEAN	-.1228 (.120)	-.7921 (.491)	-.3671 (.460)	-.0337 (.477)	-.8220 (.492)*
COC_L	.2157 (.098)**	.6593 (.369)*	1.2108 (.484)**	.6495 (.406)	.8703 (.372)**
GERMAN	.3126 (.062)***	.9294 (.255)***	.7560 (.272)***	.2792 (.242)	.6543 (.238)***
Constant	.2561 (.072)***	-1.1894 (.306)***	-.5921 (.297)**	.5207 (.290)*	-1.4664 (.298)***
Observations	198	198	198	198	198
Variables	11	11	11	11	11
$\chi^2$ -statistic	99.517	91.924	95.509	86.016	78.576
Log-Likelihood	-78.25	-87.61	-76.84	-89.31	-97.136
correct prediction:	84.34%	77.78%	82.32%	78.79%	74.24%
random prediction:	54.59%	51.84%	56.25%	52.47%	50.41%
ones/zeros:	129/69	118/80	134/198	121/198	90/108

## Chapter 7

# Determinants of Direct Investment: Testing Transaction Cost Theory

### 7.1 Introduction

Having in chapter six established which firms are active in CEE, the analysis focuses in this chapter on the choice between DFI and other forms of business. The transaction cost (TC) model developed in chapter four is applied, and subjected to empirical tests.

In the theoretical model, the choice between DFI and market transactions depends on the relative TC of internal and external organisation. Both are functions of product sensitivity, i.e. their information content (IC) and asset specificity (AS). The internal TC curve has a fixed cost component independent of the sensitivity, and a flatter slope. DFI would be preferred if sensitivity exceeds a benchmark set by the intersection of the two TC curves. The model illustrates how the pattern of the curves over sensitivity is influenced by several environmental and firm variables, including uncertainty (u), psychic distance (d), and international experience (e). Thus, the probability of choosing DFI over an alternative mode can be expressed as,

$$(7.1) \quad P(\text{DFI} = 1) = f(\text{IC}^+, \text{AS}^+, \text{u}^+, \text{d}^?, \text{e}^+)$$

Equation (7.1) is a simplified version of equation (4.9). It is tested empirically in section 7.3. The product and environmental variables interact such that in an uncertain environment

sensitive products are predicted to be more likely internalised than in a more certain environment. Similarly, the model predicts an interaction with psychic distance and experience. Section 7.4 reports an empirical test for these interaction effects. In section 7.5, the view that contracts can be analysed as an intermediate form between markets and hierarchies is discussed and tested by comparing a multinomial and an ordered Logit model. Section 7.6 concludes.

## 7.2. the Data-set

The theoretical model considers the choice of organisational form for a *given* transaction. An empirical test of the model thus has to focus on transactions of similar character by all but internalisation criteria. To control for other influences, two basic strategies are followed: firstly reduction of the data-set to include only one type of transaction, secondly, introduction of control variables.

**Table 7.1 Types of Business, by number of observations**

	<i>Downstream</i>	<i>Upstream</i>	<i>Both</i>	<i>Full sample</i>
Export & Import	259	11	28	298
Contracts	53	4	27	84
DFI	99	2	93	194
Total	<b>411</b>	17	148	<b>576</b>
<i>in %</i>				
Export & Import	63.0%	64.7%	18.9%	51.7%
Contracts	12.9%	23.5%	18.2%	14.6%
DFI	24.1%	11.8%	62.8%	33.7%
Total	100	100	100	100

The data-set obtained with the questionnaire survey contains 576 observations of active business relationships which can be used for the analysis. Of these, 411 business relationships are downstream i.e. supplying local markets, 17 are upstream, i.e. importing local produce from the region, and 148 are both up- and downstream (table 7.1). To separate the types,

these definitions have been adopted: downstream business have any of the following:

- DFI, motivated by markets (question 8 of the survey),
- exports, except intermediate goods in connection with subcontracting (question 1),
- contractual forms of business other than subcontracting (question 1),

but *not* imports, subcontracting (question 1), or DFI motivated by factor costs (question 9).

Upstream business has the opposite characteristics. Observations with businesses of both kinds of business fall in the third category.

**Table 7.2: Market oriented business: Type of goods transferred**

	final goods only	final and other goods	interm. goods only	interm. goods & raw mat.	raw materials only	knowhow based only	goods transfer n.a.	Total
Export	192	13	17	7	14	-- <sup>a</sup>	16	259
Contracts	27	4	9	2	3	7	1	53
DFI	54 <sup>b</sup>	17	2	0	6	16	4	99 <sup>b</sup>
Total	<b>273</b>	34	28	9	23	23	21	<b>411</b>
in %								
Export	70.3	38.2	60.7	77.8	60.9	--	76.2	63
Contracts	9.9	11.8	32.1	22.2	13.0	30.4	4.8	12.9
DFI	19.8	50.0	7.1	0.0	26.1	69.6	19.0	24.1
Total	100	100	100	100	100	100	100	100

a = none, by definition

b = DFI includes cases of DFI and contracts, 8 of 54 in the 273-data-set, and 19 of 99 in the 411-data-set.

n.a. = firms reporting no information for Q3 are probably transferring final goods if only exporting, but probably not so in the cases of licensing and DFI.

The downstream business relationships can be further subdivided using the information provided in question 3 of the survey. Crucially, businesses vary by the extent of local production (section 4.9). This analysis focuses on those businesses without local production, which thus export final goods for sale in local markets. The Western firm may export by selling to an agent or directly to a customer, it may have a contractual arrangement with a distributor, or it may have invested directly into a local distribution network, or at least a

central sales unit. 273 such business relationships are in the sample (table 7.2). The other business relations include mostly transfer of intermediate goods and raw materials, exclusively or along with final goods. For 23 incidences of contracts or DFI, no exports are reported, which implies that only know how is transferred. 32 incidences had no information in question 3 although they reported exports.

The tests of theory are primarily based on the sample of downstream businesses with only final goods transferred. This sample of 273 observations is henceforth referred to as 'base' sample. Since the empirical test of the theoretical model needs to focus on one kind of transaction, it is necessary to use transaction specific criteria. The emphasis here is on testing a theory, thus compromises have to be made with respect to comprehensiveness. The focus is on the base sample, despite the selection biases that are unavoidable, and are reported next. To verify the results, part of the analysis is also reported for other samples (table 7.3).

By focussing on the downstream businesses without local production, almost half of all observations are eliminated. This changes the distribution across organisational modes, with the share of DFI falling from 33.9% to 19.8%. This is because the more business operations a firm has in a country, the more likely they are operated internally. Tables 7.1. and 7.2 show that this applies to the joint operation of downstream and upstream business as well as local production for local markets. The pattern gives first support to the economies-of-common-governance argument.

Table 7.4 explores some proportions in the samples. The base sample includes market oriented business transferring only final goods. In the food industry, this form of business appears relatively common increasing the share of this industry from 11.6% to 15.0%. This shows that the machinery industry has more local production and sourcing activities which are deselected from the smaller sample. Similarly, the share of the Visegrad countries in the sample falls from 64.4% to 54.9% as more production is located there than in Russia and Romania. The change of home countries in the sample is modest as British share increases from 42.9% to 46.2%. In a later stage of the analysis, the sample is divided in subgroups by international experience. By this criterion, the base sample over-represents less experienced firms (see also table 7.8).

**Table 7.3: Definitions of Samples**

<i>Samples</i>	<i>Short name</i>	<i>number of observations</i>	<i>No<sup>a</sup></i>
Downstream, with only final goods transferred	Base sample	273	1
Downstream, not only final goods transferred	Down/prod. sample	138	6
All downstream businesses	Downstream sample	411	4
Upstream business, mostly combined with downstream business	Up&down sample	165	7
full sample	Full sample	576	5
NOT turnkey and management contracts	Base, excl. turnkey	263	3
NOT pharmaceuticals industry	Base, excl. pharma	236	2

a = number of the empirical model in section 7.3.

#### 7.4. Some Descriptive Data on the Samples

<i>a) industries</i>	<i>Food</i>	<i>Chemicals</i>	<i>Machinery</i>		
base sample	41 (15.0%)	84 (30.8%)	148 (54.2%)		
downstream	61 (14.8%)	132 (32.1%)	218 (53.0%)		
full sample	67 (11.6%)	177 (30.7%)	332 (57.6%)		
<i>b) hosts</i>	<i>Czech</i>	<i>Hungary</i>	<i>Poland</i>	<i>Rumania</i>	<i>Russia</i>
base sample	45 (16.5%)	50 (18.3%)	55 (20.1%)	58 (21.2%)	65 (23.8%)
downstream	76 (18.5%)	78 (19.0%)	90 (21.9%)	80 (19.5%)	87 (21.2%)
full sample	125 (21.7%)	116 (20.1%)	130 (22.6%)	88 (15.3%)	117 (20.3%)
	<i>c) home countries</i>		<i>d) experience<sup>a</sup></i>		
	<i>German</i>	<i>British</i>	<i>International</i>	<i>Less international</i>	
base sample	147 (53.8%)	126 (46.2%)	137 (50.2%) <sup>b</sup>	136 (49.8%) <sup>b</sup>	
downstream	209 (50.9%)	202 (49.1%)	227 (55.2%)	184 (44.8%)	
full sample	329 (57.1%)	247 (42.9%)	329 (57.1%)	247 (42.9%)	

a = (Less) International firms: firms with more (less) than 24.2% of turnover abroad.

b = groups are defined by the median of the 273-sample, for which thus has 50-50 shares.

So far, different forms of contractual business were reported in aggregate. Table 7.5 shows the types of contracts included in the construct ‘contracts’. The reduced sample includes most of the franchising and turnkey contracts, plus some other contracts including combinations of several contracts. The small number of observations does not allow to separate them in the main empirical analysis. Therefore a test is conducted with a reduced data-set which excludes turnkey projects and management contracts.

**Table 7.5: Type of Contracts**

	<i>L</i>	<i>F</i>	<i>M</i>	<i>T</i>	<i>S</i>	<i>other</i>	<i>mult.</i>	<i>total</i>
base, ex. turnkey	3	7	-- <sup>a</sup>	-- <sup>a</sup>	-- <sup>a</sup>	5	2	17
base sample	3	7	1	6	-- <sup>a</sup>	5	5	27
downstream	12	12	3	6	-- <sup>a</sup>	11	9	53
full sample	16	12	6	6	14	12	18	84

L = licensing, F = franchising, M = management contract, T = turnkey project, S = subcontracting, other = other form of contractual cooperation or technology transfer, mult.: firm reported several contracts, in all but one case including licensing. <sup>a</sup> = none, by definition

### 7.3. Testing Transaction Costs

#### 7.3.1. Propositions

The first stage of the empirical analysis considers the impact of variables proposed in the TC model on the propensity of DFI. This section introduces the variables and their proxies based on the theoretical arguments in chapter four. Variables include information intensity, uncertainty, psychic distance, common governance and experience, and asset specificity. Since part of the analysis focuses on the final stages of the product chain, the arguments focus on characteristics of the interfaces between production and sales.

#### Information Intensity

A major cause of market failure is asymmetric information on properties of the product to be transferred (section 4.2.1). This applies especially to knowledge transfer, but also to physical goods whose properties are not easily observable. Therefore, the first hypothesis is:

*H1: Firms potentially subject to information asymmetry are more likely to internalise downstream business in CEE.*

Ownership advantages based on knowledge are a motivation both for becoming international and for internalising the business. Therefore, firms with knowledge-based assets are more active *and* more likely to internalise as they would prefer to control their produce until it reaches the customer. This includes research and human capital intensive firms: research intensive industries face information asymmetries in particular for the transfer of production technology. At interfaces further downstream, information asymmetry concern the market opportunities for innovative products and the training of sales and service personnel. Other forms of human-capital, such as finance and marketing, similarly affect all transactions. Their relative importance can be expected to vary for different interfaces along the product chain. Research intensity is proxied by R&D expenditures over turnover (R&D), and human capital intensity by personnel costs per employee (STAFF\_EM).

Secondly, the marketing and distribution of consumer goods is more information intensive due to the importance of reputation effects. The downstream distributor needs to be integrated in the marketing strategy, and controlling the quality of his service is important to maintain the reputation of a brand name. Therefore, it is expected that manufacturers of non-food consumer goods (NF\_CONS) and food (FOOD) are more likely to internalise at least the central unit of their local distribution.

### **Uncertainty**

Uncertainty over the outcome of an operation increases the need for ex-post adjustments. The costs of adjustments are one component of TC (section 4.2.2.). Hierarchical structures allow smoother adjustment as the need to coordinate different agents' interest is reduced. Therefore, more internalisation can be expected in industries, where the outcome of a venture is more uncertain. The exact nature of industry specific uncertainty is difficult to assess in CEE. Concentration ratios are not available, and may not be applicable because the industry structure is influenced by import competition. Most uncertainties arise from government policy including the privatisation process. Uncertainty is higher in sectors with high growth and in

those most affected by transition recession in CEE. The latter have highly negative growth rates and are most in need of restructuring. Thus, the larger the difference between an industry growth rate and the average growth (H\_GROW\_D), the higher is uncertainty, and the higher is the expected propensity to internalise.<sup>139</sup>

*H2: Industrial sectors with average growth have a lower degree of internalisation.*

### **Psychic Distance**

Psychic distance has a theoretically ambiguous effect in the TC model because it increases both costs of internal and external organisational forms (section 4.2.3). The variation of distance in the sample is controlled for by country dummies. They include the home country dummy GERMAN and the host country dummies CZECH, HUNGARY, POLAND and RUSSIA. Accordingly, UK firms and Romania are the base case. The hypothesis can only suggest an effect, without giving its direction:

*H3: Psychic distance affects the propensity of internalisation.*

If distance favoured internalisation, then the GERMAN, CZECH, HUNGARY, and POLAND dummies should all have a negative sign. If proximity favoured internalisation, then the signs would be opposite. The latter case would imply that management costs are reduced by more than external TC by proximity.

By the distance argument, the coefficient for the RUSSIA dummy should be opposite to those for the Visegrad countries. In addition, it may have a positive effect due to higher potential opportunism. The scope for opportunistic behaviour can be constrained by ethical business practice, social networks, and the development of the legal code. By all three criteria, Visegrad countries are more advanced than Russia. Table 2.1 shows the EBRD assessment of the lagging position of Russia in the legal and banking reform. This implies that foreign businesses in Russia have high incentives to maintain control over their local operations.

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<sup>139</sup>Caves and Mehra [1986], and Hennart and Park [1993] used a similar proxy.

### **Economies of Common Governance and Experience**

Experience and economies of common governance reduce internal TC in the model (section 4.2.3). Firms with related activities and experiences thus are more likely to choose DFI:

*H4: Firms that can utilise experience or economies of common governance are more likely to internalise their downstream business.*

A first support for this hypothesis is observed in the differences between the three samples. Experienced firms have a stronger representation in the full sample that includes multiple activity relationships. In the regression analysis, the effects of firm size, as well as international and regional experience are analysed. Firstly, large firms are more likely to engage in DFI than small firms because the marginal costs of adding a new operation are lower. Thus, the larger the parent firm the more likely it internalises the business. Firm size is proxied by its employment (EMPLOYM).

Secondly, the more international experience a firm has, the lower are the internal TC of the CEE operations. Experience can be gathered by operating international production overall, measured as the share of employment outside the home country (INTL\_EMPL). This experience is more relevant for new investments than would international turnover which was used in chapter 6. Thirdly, common governance effects can be utilised with other business operations in the region, which are proxied by the share of turnover in CEE in total sales (CEE\_TO). Due to the nature of the available proxies, experience and common governance effects cannot be separated: A firm with extensive international business has both experience in such business and can utilise certain headquarters function for multiple business activities.

### **Asset Specificity**

The final hypothesis in this section is also derived in section 4.2.1:

*H5: Transactions that require high transaction specific investment are more likely to be internalised.*

The asset specificity of an interface depends on the set-up of the transaction, and is difficult to proxy using firm-level variables. The common proxy 'resource industry' does not apply in the base sample as it covers market-oriented businesses without local production. The interaction between production and sales activities would require high partner specific investment, (a) if sales personnel needs product specific training, (b) if sales outlets need to adapt to the corporate identity associated with a brand name, and (c) if the performance of the parent company is highly dependent on the region.

These cases can be proxied using variables already introduced. Sales-staff training needs are related to research intensity (R&D). Specific sales outlets are required for non-food consumer goods (NF\_CONS). Dependence on the region is associated with a high share of CEE in company sales (CEE\_TO). Since these are only weak proxies, the main discussion focuses on hypotheses one to four.

### **Control Variables**

In addition, some control variables are required. To test the effect of research intensity, controlling for the pharmaceuticals industry (PHARMA) is necessary. This industry has the highest R&D ratios, but their know how is, at least in CEE markets, more codifiable at the time new products are brought to the market. Pharmaceuticals can only be sold if they pass comprehensive approval procedures which follow patenting. Thus, copying is more observable and can be prevented by enforcing the patent, less by keeping production know-how internal. Furthermore, the industry is highly dependent on government policy as the health sector, its predominant customer, is a highly regulated service. Therefore, investment may be primarily determined by the outcomes of government-industry negotiations.

Another control dummy deemed necessary is for firms affiliated to non-European MNEs (NONEUR). In addition to the firm-level variables, it is necessary to introduce variables to control for the different kinds of transactions included in the sample. In the base sample, only two control dummies are used based on the kinds of knowledge transfers reported in the questionnaire. These are management and marketing know how (T\_MANAG) and patented and unprotected technological know how (T\_TECHN).

In the downstream sample, the different kinds of goods transferred need to be controlled for. Thus, dummies for only final goods (T\_O\_FIN), final and other goods (T\_FIN\_ETAL), and for market seeking business without exports (T\_NONE) are added. In the full sample, dummies for upstream business (UPSTREAM) and for business with both upstream and downstream orientation (UP&DOWN) are added.

All hypotheses, their respective proxies and the expected signs on DFI are summarised in table 7.6. Some of the independent variables have proxies also used in chapter six. However, their role in this model differs. Rather than considering their value as ownership advantage, now the analysis focuses on their sensitivity to asset specificity and information asymmetry. For instance, human capital intensity creates ownership advantages (O) that motivate a firm to engage in international business. This advantage is however intangible and thus difficult to sell through markets. Therefore, there is also an incentive for internalisation (I). The step-wise analysis enables to distinguish the O- and I-properties. Table 7.7 and 7.8 report the descriptive statistics and correlations of the independent variables.

**Table 7.6: Hypotheses and Variables**

<i>Hypothesis</i>	<i>Proxy</i>	<i>Expected Sign</i>	<i>Level of analysis</i>
H1: Information	R&D	+	firm
	STAFF_EM	+	firm
	PHARMA	- (control)	firm
	NF_CONS	+	firm
	FOOD	+	firm
H2: Uncertainty	H_GROW_D	+	host industry
H3: Distance	GERMAN	?	firm
	CZECH	?	host country
	HUNGARY	?	host country
	POLAND	?	host country
	RUSSIA	?	host country
H4: Experience & Common governance	EMPLOYM	+	firm
	INTL_EMPL	+	firm
	CEE_TO	+	firm
Controls	NONEUR	?	firm
	T_MANAG	+	observation
	T_TECHN	+	observation
	T_O_FIN	?	observation
	T_FIN_ETAL	+	observation
	T_NONE	?	observation
	UPSTREAM	?	observation
	UP&DOWN	+	observation

Note: observation refers to the firm to host country relationship, i.e. the basic unit of analysis.

**Table 7.7: Descriptive Statistics for Independent Variables**

	<i>Unit of measurement</i>	<i>base sample</i>	<i>Mean &amp; SD downstream</i>	<i>full sample</i>
R&D	percentage	4.85 (4.64)	4.34 (4.31)	4.24 (3.97)
STAFF_EM	£ sterling	27,941 (10,947)	27,977 (10,101)	28,385 (9,836)
H_GROW_D	s. appendix 5.3	.822 (.608)	.808 (.586)	.802 (.550)
EMPLOY	105	.101 (.153)	.124 (.198)	.147 (.211)
INTL_EMPL	ratio	.304 (.275)	.339 (.287)	.350 (.284)
CEE_TO	ratio	.025 (.024)	.025 (.025)	.026 (.026)

**Table 7.8: Correlations**

<i>a) Base Sample</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 R&D	1.0														
2 STAFF_EM	.19	1.0													
3 PHARMA	.56	.02	1.0												
4 NF_CONS	.20	.14	.52	1.0											
5 FOOD	-.23	-.09	-.17	-.25	1										
6 H_GROW_D	-.14	.00	-.23	-.07	.18	1.0									
7 GERMAN	.34	.54	.09	.07	.00	.05	1.0								
8 CZECH	-.02	.02	-.05	.05	-.02	.17	-.06	1.0							
9 HUNGARY	-.01	.14	.01	.00	.01	.11	.02	-.21	1.0						
10 POLAND	-.03	.02	-.01	-.01	-.01	-.15	-.12	-.22	-.24	1.0					
11 RUSSIA	.00	-.04	.00	-.04	.03	-.11	.05	-.25	-.26	-.28	1.0				
12 EMPLOYM	.07	-.06	.05	-.03	-.02	-.08	-.23	-.01	-.01	-.02	0.0	1.0			
13 INTL_EMPL	.14	-.19	.35	.16	-.12	-.14	-.28	.06	-.02	-.03	-.09	.36	1.0		
14 CEE_TO%	.11	.19	.08	.01	-.02	.05	.38	-.07	.01	-.10	.05	-.16	-.18	1.0	
15 NONEUR	.01	.13	.01	.05	-.11	.01	-.25	.02	.00	.00	.00	-.07	-.06	-.10	1.0

<i>b) Downstream Sample</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 R&D	1.0														
2 STAFF_EM	.20	1.0													
3 PHARMA	.51	.05	1.0												
4 NF_CONS	.21	.16	.55	1.0											
5 FOOD	-.21	-.09	-.16	-.23	1.0										
6 H_GROW_D	-.12	-.01	-.20	-.03	.16	1.0									
7 GERMAN	.31	.51	.07	.05	.07	.03	1.0								
8 CZECH	-.05	.01	-.02	.01	-.01	.16	-.04	1.0							
9 HUNGARY	.01	-.04	.01	-.01	.01	.10	.00	-.23	1.0						
10 POLAND	-.03	.02	-.02	.01	.01	-.12	-.08	-.25	-.25	1.0					
11 RUSSIA	.01	-.06	-.01	-.04	.05	-.07	.03	-.25	-.25	-.27	1.0				
12 EMPLOYM	.01	-.04	.14	.14	-.08	.00	-.28	-.01	.04	-.03	-.04	1.0			
13 INTL_EMPL	.07	-.18	.24	.12	-.12	-.11	-.39	.00	.01	-.03	-.04	.39	1.0		
14 CEE_TO%	.12	.22	.05	-.03	.05	.00	.37	-.04	-.01	-.06	.05	-.17	-.17	1.0	
15 NONEUR	.03	.10	.01	.06	-.10	.03	-.20	-.01	-.01	.01	.03	-.04	-.04	-.10	1.0

<i>c) Full Sample</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 R&D	1.0														
2 STAFF_EM	.18	1.0													
3 PHARMA	.50	.06	1.0												
4 NF_CONS	.21	.15	.57	1.0											
5 FOOD	-.20	-.10	-.14	-.19	1.0										
6 H_GROW_D	-.13	-.01	-.21	-.08	.13	1.0									
7 GERMAN	.26	.49	.09	.05	.02	.03	1.0								
8 CZECH	-.02	.00	-.02	.00	-.03	.16	.02	1.0							
9 HUNGARY	.00	-.03	.00	-.01	-.01	.12	.01	-.26	1.0						
10 POLAND	-.03	.01	-.01	-.01	.02	-.14	-.01	-.28	-.27	1.0					
11 RUSSIA	.01	-.01	.01	-.01	.03	-.10	-.02	-.27	-.25	-.27	1.0				
12 EMPLOYM	.01	-.03	-.16	.12	-.09	-.03	-.25	-.01	.00	-.03	.01	1.0			
13 INTL_EMPL	.10	-.15	.22	.13	-.11	-.11	-.32	.00	-.01	.00	-.02	.37	1.0		
14 CEE_TO%	.08	.21	.05	-.05	.03	-.07	.36	-.02	.01	-.01	.00	-.18	-.18	1.0	
15 NONEUR	.04	.10	.00	.08	-.08	.04	-.23	.01	.00	.00	.01	-.02	.03	-.11	1.0

Note: correlations are significant at 5% level if  $r > 0.12$  in the base sample,  $r > 0.10$  in the downstream sample, and  $r > 0.08$  in the full sample.

### 7.3.2. Regression Analysis

This empirical test analyses the type of business decision as a trilateral choice by the active firms. Western firms choose between DFI, trade and contracts in CEE.<sup>140</sup> The model analyses the probability of a firm choosing either mode over the two alternatives. The empirical model is a multinomial logit, an extension of the standard bilateral Logit. The latter is defined as the log of the odds ratio in the following form:

$$(7.2) \log (P/(1-P)) = \mathbf{B}'\mathbf{x}$$

where P stands for the probability of the dependent variable taking the value of one,  $\mathbf{x}$  for the independent variables, and  $\mathbf{B}$  for the regression coefficients. This can be transformed as follows

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<sup>140</sup> Chapter 6 established which firms are active and thus part of this sample. An alternative way of combining the analysis would be a nested Logit model. However, since the explanatory variables differ, and have different missing values. A degree of freedom problem evolves: more variables in a more complex model with less observations (because missing values affect different observations).

with the probability as the dependent variable [see Maddala 1983, DeMaris 1992, Cramer 1991, Greene 1993]:

$$(7.3) \quad P(Y=1) = \frac{e^{\beta'x}}{1 + e^{\beta'x}} = \Lambda(\beta'x)$$

The binomial Logit approach is enriched by using an independent multiple choice approach, a multinomial logistic regression. It is known in short as multinomial Logit (M-Logit) and has the following general form [DeMaris 1992, Greene 1993, p. 666]:

$$(7.4) \quad P(Y=k) = \frac{e^{\beta'x}}{\sum^k e^{\beta'x}} = \Lambda_k(\beta'x)$$

where  $k = 0, 1, \dots, K$  stands for the different choices available. The dependent variable ORG\_FORM is defined to capture different forms of business with CEE:

$$(7.5) \quad \begin{aligned} \text{ORG\_FORM} &= 0 \text{ if the business relationship involves only trade} \\ &= 1 \text{ if the business relationship involves contracts, but no DFI} \\ &= 2 \text{ if the business relationship involves DFI.} \end{aligned}$$

The present model thus can be expressed as:

$$(7.6) \quad P(\text{ORG\_FORM}=k) = \Lambda_k\{\beta'(\text{IC}, \text{AS}, \mathbf{u}, \mathbf{d}, \mathbf{e})\}$$

An important assumption of the M-Logit is that the choices are independent, i.e. the odds ratios of the model do not change with the introduction of additional choices. This property is known as "independence from irrelevant alternatives" (IIA) [Cramer 1991, p. 47, Green 1993, p. 671]. In other words, the M-Logit is indifferent to any similarities or dissimilarities of the  $k$  choices, or causal relationships between them.<sup>141</sup>

For  $k=0$ , the  $\beta$ 's are normalised such that the M-Logit returns  $\beta$  estimates for each of the

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<sup>141</sup> Multinomial Probit does account for interdependence of alternatives. Yet it is not available in any standard econometrics package.

remaining K-1 alternative choices.<sup>142</sup> Independent variables are the same as in equation (7.5). The models were estimated using the maximum likelihood procedure provided by LIMDEP. The regression coefficients  $\beta$  estimate the change in the log odds ratio between any pair of two alternatives.<sup>143</sup> The Logit regression routine provided by LIMDEP (or other software) provides  $\beta$ 's for the base case choice *vis-à-vis* each other alternative. The effects of independent variables on the choice between other alternatives can be calculated by taking the differences of the coefficients. The corresponding standard errors are more complex to calculate because the full covariance matrix needs to be taken into account [Cramer 1991, p. 64].<sup>144</sup>

The hypotheses have been set-up for the internalisation decision, thus the coefficients for the choice of DFI *vis-à-vis* both exports and contracts are of prime interest. The predictions of theory are less clear for the choice between contracts and trade. If contracts were an intermediate form between markets and hierarchies, as argued in some of the literature, then the signs should be the same for trade *vis-à-vis* contracts as contracts *vis-à-vis* DFI.

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<sup>142</sup> Note that the variables refer to attributes of the individual  $i$  and its environment. They are not attributes of the chosen mode. Therefore, the M-Logit rather than the discrete choice model is the appropriate model [see LIMDEP manual: Greene 1992, p. 473, 487, Maddala 1983, p. 42]. Note that Greene uses the letter  $j$  to refer to choices, whereas here the letter  $k$  is used because  $j$  already refers to host countries. A discrete choice model would also have to be used if information was given of, say, costs, time lags and tax regimes of contract and investment projects varying for each individual project. Also, the M-Logit is preferable over discriminant analysis as its results are more interpretable and there is no requirement that the predictor set has the multivariate normal distribution [Press and Winston 1978, DeMaris 1992].

<sup>143</sup> The marginal effect on the predicted probability  $P$  depends on the initial value of the probability. If  $P$  is close to 0.5 (odds ratio = 1), a small change in the odds ratio has a larger impact on predicted probability. Since this analysis is mainly concerned with relative effects of different variables or the same variable under different conditions, the discussion focuses on the  $\beta$ 's.

<sup>144</sup> A computationally easier method is to run the same model again, redefining the dependent variable with a different choice as base case.

**Table 7.9: Multinomial Model, Base Sample**

<i>(1) Base</i>	<i>Trade vs. Contract</i>	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>
<i>Information</i>			
R&D	.1343 (.075)*	<b>.1413 (.067)**</b>	.0070 (.093)
STAFF_EM	.0175 (.042)	.0329 (.027)	.0153 (.047)
PHARMA	-1.6679 (1.20)	<b>-4.4367(1.10)*****</b>	-2.7688 (1.50)*
NF_CONS	-.1992 (.732)	<b>1.3894 (.605)**</b>	1.5886 (.843)*
FOOD	-11.732 (148.1)	.3354 (.760)	11.960 (140.4)
<i>Uncertainty</i>			
H GROW DV	.0787 (.455)	-.0600 (.429)	-.1386 (.592)
<i>Distance</i>			
GERMAN	<b>-1.7466 (.841)**</b>	.4387 (.759)	<b>2.1853 (1.09)**</b>
CZECH	.3027 (.759)	<b>2.2653 (.777)****</b>	<b>1.9727 (.988)**</b>
HUNGARY	.4344 (.733)	<b>1.7292 (.761)**</b>	1.2948 (.980)
POLAND	-.3054 (.757)	<b>2.1688 (.785)***</b>	<b>2.4742 (1.00)**</b>
RUSSIA	-.4173 (.774)	.5753 (.769)	.9927 (1.02)
<i>Governance &amp; exp.</i>			
EMPLOYM	-2.1092 (1.59)	-1.4947 (1.46)	.6144 (1.99)
INTL_EMPL	.5258 (1.03)	<b>3.7946 (1.03)****</b>	<b>3.2688 (1.312)**</b>
CEE_TO	-31.383 (16.4)*	<b>24.536 (9.73)**</b>	<b>55.919 (18.34)****</b>
<i>Controls</i>			
NONEUR	-1.9888 (.799)**	- 1.2112 (.711)*	.7776 (.961)
T_TECHN	2.4323 (.801)****	-.0265 (.925)	-2.4588 (1.02)**
T_MANAG	.3655 (.629)	3.1375 (.529)****	2.7720 (.756)****
T_O_FIN	--	--	--
T_FIN_ETAL	--	--	--
T_NONE	--	--	--
UPSTREAM	--	--	--
UP&DOWN	--	--	--
Constant	-1.4320 (1.22)	<b>-7.5949 (1.37)*****</b>	<b>-6.1629 (1.72)****</b>
$\chi^2$	163.840 (34)		log-likelihood -135.634
correct predictions	82.42%	181-8-36	restricted log-likel. -217.554
random predictions	54.35%	of 273	p-statistic 37.66%

**Table 7.10: Multinomial Model, Reduced Samples**

	<i>(2) base, excluding pharmaceuticals</i>		<i>(3) base, excluding turnkey and MC</i>	
	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>
R&D	.1323 (.091)	-.0027 (.123)	<b>.1399 (.067)**</b>	-.0697 (.112)
STAFF_EM	.0391 (.029)	.0402 (.052)	.0314 (.027)	.0430 (.069)
PHARMA	--	--	<b>-4.6522(1.12)*****</b>	<b>-3.1762 (1.61)**</b>
NF_CONS	.5943 (.691)	1.3768 (.993)	<b>1.4747 (.630)**</b>	1.2977 (.938)
FOOD	.1633 (.833)	11.964 (138.1)	.3306 (.772)	11.012 (138.4)
H_GROW_D	-.0733 (.494)	-.2710 (.646)	-.1465 (.445)	.0014 (.834)
GERMAN	.8373 (.888)	<b>2.7603 (1.27)**</b>	.5513 (.768)	2.2663 (1.32)*
CZECH	<b>2.8077 (.893)****</b>	<b>2.6594 (1.09)**</b>	<b>2.1470 (.806)***</b>	.5788 (1.40)
HUNGARY	<b>1.9685 (.878)**</b>	1.9567 (1.10)*	<b>1.8169 (.784)**</b>	.27818 (1.37)
POLAND	<b>2.0952 (.908)**</b>	<b>2.6213 (1.11)**</b>	<b>2.0919 (.832)**</b>	1.5568 (1.45)
RUSSIA	1.0005 (.853)	1.6500 (1.11)	.3785 (.808)	-.5289 (1.44)
EMPLOYM	2.1165 (1.70)	.5627 (2.10)	-1.4995 (1.64)	3.0455 (3.39)
INTL_EMPL	<b>4.2817 (1.11)****</b>	<b>4.0174 (1.43)****</b>	<b>3.9208 (1.08)****</b>	2.8431 (1.59)*
CEE_TO	17.049 (12.5)	<b>65.466 (23.1)****</b>	<b>24.752 (9.84)**</b>	<b>60.210 (21.63)***</b>
NONEUR	-.6555 (.806)	1.7067 (1.07)	-1.2234 (.733)*	-.5436 (1.06)
T_TECHN	-.5323 (.956)	-2.8058 (1.06)***	-.2486 (.968)	-2.4024 (1.25)*
T_MANAG	<b>3.6369 (.607)*****</b>	<b>2.6238 (.832)****</b>	<b>3.2558 (.548)*****</b>	<b>3.9376 (.988)****</b>
T_O_FIN	--	--	--	--
T_FIN_ETAL	--	--	--	--
T_NONE	--	--	--	--
UPSTREAM	--	--	--	--
UP&DOWN	--	--	--	--
Constant	<b>-8.2565 (1.65)*****</b>	<b>-7.6680 (2.00)****</b>	<b>-7.5542 (1.38)*****</b>	<b>-5.1071 (2.16)**</b>
$\chi^2$	163.105 (32)		157.065 (34)	
correct pred.	83.47% 154-9-34 of 236		84.41% 182-4-36 of 263	
random pred.	53.38%		57.93%	
log-likelihood	-110.105		-113.935	
restricted log-l.	-191.657		-192.468	
p-statistic	42.55%		40.80%	

**Table 7.11: Multinomial Model, Enlarged Samples**

	<i>(4) Downstream Sample</i>		<i>(5) Full Sample</i>	
	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>
R&D	.0875 (.053)*	-.1161 (.066)*	<b>.1152 (.046)**</b>	-.0474 (.051)
STAFF_EM	.0324 (.023)	.0371 (.033)	.0261 (.018)	.0011 (.022)
PHARMA	<b>-3.6405(.828)*****</b>	-1.5763 (1.07)	<b>-2.9977(.677)*****</b>	-1.1662 (.766)
NF_CONS	<b>1.3717 (.532)***</b>	1.2039 (.701)*	<b>1.0967 (.442)**</b>	.4050 (.482)
FOOD	-.1464 (.596)	.1332 (.713)	.0596 (.540)	.2057 (.647)
H_GROW_D	-.0247 (.315)	-3.006 (.366)	-.0790 (.288)	-3.818 (.317)
GERMAN	<b>1.3703 (.601)**</b>	<b>2.9767 (.699)*****</b>	.7056 (.476)	<b>2.8194 (.500)*****</b>
CZECH	<b>1.9317 (.667)****</b>	<b>1.6368 (.765)**</b>	<b>1.5840 (.572)***</b>	1.2240 (.632)*
HUNGARY	<b>1.9075 (.646)****</b>	1.4587 (.763)*	<b>1.9893 (.574)****</b>	<b>1.4465 (.643)**</b>
POLAND	<b>2.0054 (.648)****</b>	<b>1.5887 (.748)**</b>	<b>1.5794 (.563)***</b>	1.1368 (.626)*
RUSSIA	.7932 (.648)	1.1347 (.773)	.5559 (.575)	.6149 (.645)
EMPLOYM	.7744 (1.05)	1.9267 (1.19)	1.2334 (.833)	<b>2.2505 (.871)***</b>
INTL_EMPL	<b>3.2803 (.824)****</b>	<b>2.2063 (.936)**</b>	<b>2.0780 (.636)****</b>	<b>1.4163 (.666)**</b>
CEE_TO	9.5717 (7.90)	21.118 (11.89)*	6.4358 (5.73)	2.8468 (6.69)
NONEUR	-.9850 (.605)	1.0976 (.736)	-.7889 (.498)	1.1174 (.573)*
T_TECHN	1.1462 (.587)*	-.6564 (.585)	1.8359 (.477)****	.0271 (.417)
T_MANAG	3.2637 (.440)*****	1.8646 (.522)****	3.3070 (.366)*****	2.2353 (.378)*****
T_O_FIN	.1329 (.544)	.3439 (.625)	-.5601 (.225)**	-.3735 (.234)
T_FIN_ETAL	.7947 (.728)	.6778 (.861)	.5605 (.225)**	.3657 (.234)
T_NONE	15.225 (170.6)	.9478 (.792)	2.8024 (.726)****	1.1895 (.631)*
UPSTREAM	--	--	-1.9140 (1.05)*	-1.4688 (1.13)
UP&DOWN	--	--	4.1679 (1.10)****	1.2781 (1.15)
Constant	<b>-7.9564 (1.24)*****</b>	<b>-5.5529 (1.44)****</b>	<b>-6.5218 (.905)*****</b>	<b>-3.5478 (.997)****</b>
$\chi^2$	306.999 (40)		470.744 (44)	
correct pred.	80.05% 242-14-73 of 411		76.22% 263-21-155 of 576	
random pred.	45.51%		40.24%	
log-likelihood	-215.581		-333.859	
restricted log-l.	-369.081		-569.231	
$\rho$ -statistic	41.59%		41.35%	

**Table 7.12: Multinomial Model, Residual Samples**

	<i>(6) up &amp; down</i>		<i>(7) down / production</i>	
	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>
R&D	.2198 (1.63)	-.0231 (.108)	<b>.9630 (.436)**</b>	-.3373 (.245)
STAFF_EM	-.0297 (.045)	<b>-.0636 (.036)*</b>	<b>.5243 (.204)**</b>	.1264 (.083)
PHARMA	-.7413 (1.64)	.5394 (1.27)	<b>-20.642(7.10)****</b>	-5.4134 (3.51)
NF_CONS	-.6148 (1.21)	<b>-1.6287 (.881)*</b>	<b>8.3899 (4.90)*</b>	2.4656 (2.95)
FOOD	13.233 (611.4)	11.942 (763.3)	4.0748 (3.11)	-1.3842 (1.41)
H_GROW_D	-.9222 (.986)	-1.0327 (.778)	-2.5066 (1.56)	<b>-2.1582 (1.21)*</b>
GERMAN	-1.5494 (1.22)	<b>2.9236 (.929)****</b>	1.8284 (2.53)	<b>4.7886 (1.76)***</b>
CZECH	1.8213 (1.90)	.5935 (1.61)	2.1198 (2.55)	2.2607 (2.11)
HUNGARY	<b>3.2742 (1.87)*</b>	1.8414 (1.62)	<b>4.7403 (2.32)**</b>	<b>4.4101 (2.21)**</b>
POLAND	2.1027 (1.88)	.7053 (1.64)	<b>3.7147 (2.17)*</b>	<b>2.3245 (1.97)*</b>
RUSSIA	.6034 (1.85)	.0344 (1.60)	.5559 (.575)	3.4999 (2.15)
EMPLOYM	2.6882 (2.44)	<b>2.5292 (1.52)*</b>	<b>15.711 (5.69)***</b>	<b>5.2905 (2.65)**</b>
INTL_EMPL	1.7078 (1.57)	1.2253 (1.29)	<b>9.8410 (4.44)**</b>	.3220 (2.85)
CEE_TO	12.812 (10.67)	-3.7689 (9.97)	<b>-102.29 (45.8)**</b>	-7.7942 (28.3)
NONEUR	11.677 (294.8)	1.8138 (1.19)	-1.4445 (10.6)	13.577 (667.8)
T_TECHN	14.968 (193.8)	1.6878 (.796)**	3.0835 (1.72)*	1.6811 (1.43)
T_MANAG	3.1967 (.961)****	3.2473 (.796)*****	9.5989 (2.81)****	4.0031 (1.50)***
T_O_FIN	--	--	--	--
T_FIN_ETAL	--	--	-.3784 (1.79)	.3229 (1.50)
T_NONE	--	--	22.502 (220.9)	1.1593 (1.47)
UPSTREAM	--	--	--	--
UP&DOWN	1.7081 (1.17)	.2941 (1.18)	--	--
Constant	-3.6241 (2.54)	-1.1247 (2.22)	<b>-29.670 (9.00)****</b>	<b>-8.4352 (4.36)*</b>
$\chi^2$	152.797 (36)		206.857 (38)	
correct pred.	76.97% 30-15-82 of 165		91.30% 41-19-66 of 138	
random pred.	42.27%		37.75%	
log-likelihood	-84.132		-38.808	
restricted log-l.	-160.53		-142.236	
$\rho$ -statistic	47.59%		72.72%	

### 7.3.3. Results

Tables 7.9 to 7.10 report the results of the M-Logit for various sample definitions. The interpretation and hypothesis evaluation focuses on the base sample (table 7.9) which fully controls for type of business. The regression in table 7.10 takes out two groups of observations suspected to distort the result. These are firstly pharmaceuticals companies, and secondly turnkey projects and management contracts. Table 7.11 reports the regressions over the larger samples with 576 and 411 observations respectively. In table 7.12, the observations excluded in the base sample are analysed. These are firstly businesses with upstream business, that are excluded in the downstream sample. Secondly, there are downstream businesses with local production, i.e. who are not based on the transfer of final goods.

The hypotheses are discussed based on the regression using the base sample. Internalisation preferences are reflected in the second and third column which report the coefficients on the odds ratios of DFI versus other available choices. Subsequently, the differences observed in other samples are discussed. Note that tables 7.10 and 7.12 show two regressions omitting the trade-versus-contracts column which is not relevant for the research questions.

#### Information Intensity

Exchanges with higher information intensity are subject to potential information asymmetry and thus predicted to be more likely to be organised internally (H1). The empirical evidence supports this hypothesis only with respect to the choice of DFI *vis-à-vis* trade.

Research intensity (R&D) has the predicted coefficient on DFI versus contracts in the base sample, but it is very insignificant. Human capital intensity (STAFF\_EM) is correctly signed but insignificant throughout. Not even the actual transfer of technology, introduced as control variable T\_TECHN, leads to a higher propensity of DFI: firms transferring technology appear, significantly, to prefer contracts over DFI. Note that pharmaceuticals companies significantly abstain from DFI. Without this dummy the R&D coefficient would become negative.<sup>145</sup>

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<sup>145</sup> A number of regressions have been run without this dummy which frequently resulted in significant negative coefficients of the R&D variable. This effect can be explained by the behaviour of pharmaceuticals companies.

Support for the hypothesis emerges with the marketing knowhow and goodwill effects predicted for consumer goods. Non-food consumer good manufacturers (NF\_CONS) prefer DFI over both trade and contracts in all samples, significant at 5% level in the former case. The food industry dummy (FOOD) has insignificant coefficients. Thus, knowledge intensive firms appear more likely to internalise their local sales operations instead of exports to independent agents. Yet, except for the case of non-food consumer goods, no evidence is found of knowledge-based firms preferring DFI over contracts.

The pattern is further examined by excluding pharmaceutical companies, because the PHARMA dummy is correlated with NF\_CONS in this sample (model 2). As a result, not only NF\_CONS becomes insignificant, but also the positive effect of R&D intensity on the DFI versus trade choice disappears. Thus none of the information variables receives statistical support. A possible source for the insignificance is the different internalisation in, say, franchising and turnkey contracts. Therefore, turnkey projects and management contracts have been excluded in model 3. Yet the results for the information variables remain insignificant. Note that the R&D coefficient is negative in all but the base sample.

In the larger samples (models 4 and 5), the pattern of the information proxies hardly changes over the base case. The analysis of market seeking investment with local production (model 7) shows a significant positive association of both R&D and STAFF\_EM with the choice of DFI over trade. This reflects the more sensitive nature of the interface if production is located abroad. Business with upstream components (model 6) shows negative coefficients for the information proxies, other than food. The effect is significant, and surprising, in the case of STAFF\_EM. The consumer goods argument would not apply to this sample as these business activities are not focussing on marketing only. Also, models 4 to 7 do not show the surprising negative sign for T\_TECHN.

Thus, despite extensive examination of the data-set (almost data-mining), no positive association can be established between research<sup>146</sup> and human capital intensity and the

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<sup>146</sup> If a proxy is insignificant throughout, it always includes the possibility of poor quality of the data. However, the R&D data do show some pattern that would be expected, e.g. correlations

preference for DFI *vis-à-vis* contracts. For non-food consumer goods (NF\_CONS) a significant positive effect was found in the base model, but only at 10% and influenced by multicollinearity. However, information intensity of the firm is shown to favour DFI over trade as market serving mode.

### **Uncertainty**

The empirical results give no support to hypothesis 2 on the impact of uncertainty. The coefficients on H\_GROW\_D almost all have signs contrary to predictions (except model 3) and are insignificant (except model 7). Thus no relationship between the industry uncertainty and internalisation can be established in any of the equations. The explanation for this failure could lie other influences related to industry growth affecting mode choice or the weak proxies. In section 7.4, uncertainty will be further investigated with respect to interaction effects.

### **Distance**

The pattern of country dummies in the base sample clearly suggests that psychic distance reduces internalisation. German firms have a higher preference for DFI over both trade and contracts than their British counterparts. Business in the Visegrad countries is more likely to be internalised than business in either Russia or Romania. The Russia dummy does not fit the pattern as Russia should be more distant to both Germany and Britain than is Romania. The positive, yet insignificant, effect may be caused by internalisation increased to cope with higher opportunism in Russia. It could also be a reaction to market size.

The country pattern is fairly consistent across models. An exception is the larger HUNGARY dummy relative to POLAND and CZECH in models (6) and (7). It suggests a higher propensity to internalise *production* in Hungary, which could be a result of the specific policy environment. Yet the statistical difference is not significant.

Theory could not give a clear prediction on the direction of the distance effect. However, the

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with PHARMA, and significant impact on greenfield entry in chapter 8. Measurement differences between German and British accounting systems are controlled for by the GERMAN dummy, and in the sub-sample regressions by home country which also show no significant effects. See appendix 5.3 for data definitions.

empirical result is fairly clear despite the relatively unsophisticated measures used. It implies that psychic proximity reduces the costs of internal organisation more than it reduces the costs of market transactions. In terms of the curves in figure 4.3, the TC(i) curves turns down more than the TC(e) curve turns, shifting the critical value to the left and thus enlarging the range where internalisation is preferred.

### **Experience and Common Governance**

Firms with extensive business worldwide, and in the region itself, are more likely to prefer a DFI over either trade or contracts. The coefficients on INTL\_EMPL and on CEE\_TO have the predicted signs and are highly significant. This gives support to the hypothesis that experience and common governance effects reduce the costs of internal organisation of the new operation, and thus favour internalisation. However, for firm size (EMPLOY), the alternative hypothesis of no impact cannot be rejected. Large firms appear to prefer trade over DFI over contracts to serve local markets. In the full sample, the predicted positive effect in favour of DFI over contracting is observed and highly significant. However, in that sample the kind of local activity is not well controlled for, such that it needs to be considered carefully. A possibility is that the common governance of large firms is very important for production operations, but not for sales operations. This may have caused the insignificant effect, as size is measured here by general employment rather than a more marketing related proxy such as sales force.

### **Asset Specificity**

Two proxies with an asset specificity implication have insignificant effects. Although sales of high-tech products may require more product specific training, no effect could be shown for the R&D proxy. Secondly, local distributors have to incur high specific investment to sell many non-food consumer goods, but less so for food. In the downstream sample, the effect is as predicted, positive for NF\_CONS and insignificant for food. In the base sample, the NF\_CONS dummy has a positive and significant sign. The signs for the food industry dummy are insignificant but the coefficient is very large impeding the interpretation. Considering that the significance disappears after excluding pharmaceuticals, this cannot be interpreted as support for the hypothesis.

Dependence on the region seems to affect the propensity for internalisation. Yet this result is significant only in the base sample, but diluted in the larger samples. Thus, it is possible to detect effects in support of the asset specificity argument but the proxies used do not permit a strong argument.

### **Control Variables**

The NONEUR control variable indicates a preference of firms with non-European parents for DFI over contracts over trade. This pattern is partly significant, and is presumably a result of the scale of their worldwide operations which is not appropriately represented in the accounting data for the UK or German affiliate in the sample.

The activity dummies should be positive whenever they indicate more interactions between the parent firm and the country. This includes all but the T\_O\_FIN and the UPSTREAM dummy. The pattern holds with the exception of the T\_TECHN dummy in the base and downstream samples. In models 5 and 6, business with both up- *and* downstream components are more likely to be internalised, while firms only sourcing from the region show a relative preference for imports rather than DFI.

### **General Observations and Summary**

Apart from the hypothesis tests, two further interesting observations can be made in table 7.9 to 7.12. Firstly, trade and contracts are preferred by different kinds of businesses, although they are both market transactions. The regression results suggest that contracts are preferred by British and industrial goods manufacturers,<sup>147</sup> and firms with small exposure to the region (CEE\_TO). Thus, firms use contracts for their peripheral business if their capabilities are suitable for contractual transfer but not for trade, explain why.

Secondly, some differences can be observed between the alternative samples. Most remarkable is the insignificance of the size variable (EMPLOY) in the base sample along with the

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<sup>147</sup>FOOD shows the effect only in models 4 to 7 where the first column is not tabulated. Note that the food industry faces high transportation costs and tariff barriers, but some technologies and brand names can be transferred, e.g. by several brewers in the sample.

insignificance of INTL\_EMPL in models 6 and 7. Apparently, different kinds of common governance and experience are relevant for different types of business. The detailed sample reduction was thus necessary as such differences can be crucial for the evaluation of crucial hypotheses.

To sum up, strong support emerges for the positive impact of psychic distance and of experience and governance effects on the propensity of internalisation. The asset specificity and information variables receive some support for the choice of DFI over trade. Yet, despite extensive cross-examination of the data-set, no statistical support can be found for a positive relationship between research and human capital intensity and the choice of DFI over contracts.

## 7.4. Testing Interaction Effects

### 7.4.1. Propositions

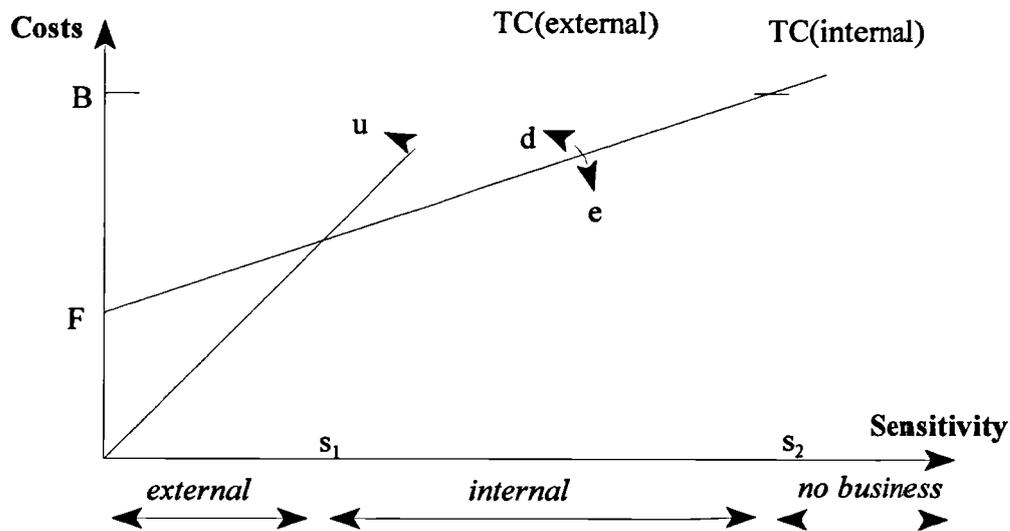
The theoretical model in chapter 4 suggests positive interaction effects of product sensitivity with firm and environmental characteristics. Three such effects are illustrated in figure 7.1. The slope of the TC(e) and TC(i) curves are affected by changes in uncertainty (u), distance (d) and experiences (e). These variables thus influence the position of the critical value  $s_1$  and the gap between the two TC curves. The larger the estimated difference  $\{TC(e)-TC(i)\}$ , the more likely firms choose an internal organisational mode.<sup>148</sup> Hence, in an environment of high industry uncertainty, the YC(e) curve is steeper. This implies that decisions over internalisation are more influenced by product sensitivity, i.e. asset specificity or information asymmetry. Thus,

*H6: The impact of information asymmetry and asset specificity increase with industry uncertainty.*

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<sup>48</sup> The graphical model shows a clear cut-off point,  $s_1$ . In the empirical analysis, many components are not precisely measurable. Therefore the probability of a given observation fulfilling the conditions for internalisation is positively related to the *measured, or estimated*, difference between (TC(e) and TC(i).

**Figure 7.1: Interaction Effects**



Based on figure 4.3

On the other hand, the cost of internal organisation are subject to, among others, experience and psychic distance. Hence two more hypotheses can be suggested for interaction effects:

*H7: The impact of information asymmetry and asset specificity increase with firms' international experience.*

*H8: The impact of information asymmetry and asset specificity decrease with psychic distance.*

The eighth hypothesis takes into account the results of the previous section which showed that distance has a stronger effect on internal than on external TC.

#### **7.4.2. Regression Analysis**

Following a method similar to Walker and Weber [1987], the sample is split into sub-samples by different criteria. The sub-samples for uncertainty are defined as follows: The sample has been split in two, based on industry-level data from the CEE countries. Since they are subject

to high measurement errors, two alternative concepts are used complementary.<sup>149</sup>

Definition 1 is based on output growth in the period of 1989 to 1991, when a very deep transition recession hit the region. A large fall in output would suggest a major need for industrial restructuring and thus high uncertainty. Definition 2 is based on output growth in the period of 1992 to 1994, when the economies, at least in Poland, the Czech Republic and Hungary, started to recover. Industries with very rapid recovery or continued depression are considered high risk. Average growth rates relative to their country's performance would indicate low uncertainty industries.

The two dummies for uncertainty are almost orthogonal with a correlation of  $r=-0.01$ . This is by default but welcome: if hypotheses could be confirmed for two unrelated concepts of uncertainty, the results would carry substantial weight, despite the arguably weak measures.

The sub-samples for the other criteria are more straight downstream. The effects of distance are tested by separating the observation firstly by the home country of the Western firm, and secondly by the host country. As there is only a limited number of observations available, the separation is in Visegrad countries on the one hand, and Russia and Romania on the other. The latter two countries are very different, but both are more distant from the two home countries in the sample. The experience effects are tested by slitting the sample in two almost equal halves using international employment (INTL\_EMPL) of the firms.

### **7.4.3. Results**

The results of the M-Logit for sub-samples are tabulated in tables 7.13 to 7.17. The variable H\_GROW\_D was taken out because of its insignificant throughout. This simplifies the model, and avoids problems of insufficient degrees of freedom. In some cases, country dummies also become redundant. Comparing the preferences for DFI versus trade and DFI versus contracts, pair-wise between sub-sample regressions, inferences can be made on the relative importance

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<sup>149</sup> Standardised definitions of H\_RECESS and H\_GROWTH were used to focus on industry effects only, isolated from country effects. In calculating the categories, the cut-off value was taken by several observations resulting in sub-samples of unequal size. This is because the value is identical for firms in the same industries, which for lack of data had to be defined broadly.

of determinants under different conditions.

The main observation is that no consistent evidence emerges to support any of the proposed interaction effects. In each table, only a few coefficients show distinctly different patterns of impact between the two sub-samples. In part, this is because of the small sample sizes. However, a similar analysis of the 576-sample did not yield substantially different results. The latter may be biased by interaction with locational decisions and are not reported.

Differences across sub-samples can be observed, firstly, for non-food consumer goods (NF\_CONS). They are more internalised by British firms (table 7.13), business in the Visegrad countries (table 7.14), industries with lower risk (tables 7.15 and 7.16), and by less internationalised firms (table 7.17). Apart from the British firms, this is *opposite* to the prediction. These goods are even *less* likely to be internalised among German firms which suggests a difference in management and marketing culture.

Secondly, GERMAN firms are more likely to internalise in high uncertainty industries, Visegrad countries, and among internationally experienced firms. Thirdly, firm size (EMPLOY) is in contrast to the aggregate positively related to internalisation for German firms and internationally experienced firms. Fourth, international experience (INTL\_EMPL) appears more important for firms with large experience, but not among the less experienced ones. This suggests a U-shaped relationship between experience and propensity for internalisation. Fifth, region specific experience and exposure (CEE\_TO) increases the propensity of internalisation among British firms, but not among German firms.

Although there are explanations for each of these observations, they do not correspond in any way to the initially proposed interaction effects. For the two variables of most interest, the proxies for research and human capital intensity (R&D, STAFF\_EM), no statistically significant variation can be found in any case. Thus, the alternative hypothesis of no interaction effects cannot be rejected.

**Table 7.13: Sub-samples - Home Countries**

	<i>German</i>		<i>British</i>	
	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>
R&D	- .0049 (.103)	- .0811 (.198)	.3757 (.334)	- .0853 (.368)
STAFF_EM	<b>.0784 (.039)**</b>	- .0041 (.094)	.2169 (.135)	.1725 (.167)
PHARMA	-2.8392 (1.74)	-2.1541 (2.65)	<b>-13.701(6.64)**</b>	2.2609 (367.4)
NF_CONS	1.0945 (.916)	<b>-4.2395 (2.40)*</b>	<b>6.9579 (3.47)**</b>	<b>9.4840 (3.55)***</b>
FOOD	1.0121 (1.02)	10.678 (275.8)	-7.0507 (347.3)	6.9573 (496.1)
GERMAN	--	--	--	--
CZECH	<b>3.4777 (1.15)****</b>	13.890 (278.9)	2.7100 (1.96)	1.9933 (2.07)
HUNGARY	<b>3.1000 (1.05)****</b>	.7462 (1.58)	1.1939 (1.99)	1.1941 (2.20)
POLAND	<b>2.7617 (1.15)**</b>	13.526 (274.3)	<b>3.3114 (1.92)*</b>	<b>3.5983 (2.06)*</b>
RUSSIA	.2523 (1.01)	- .1619 (1.53)	2.6224 (1.92)	3.0151 (2.15)
EMPLOYM	<b>13.091 (5.89)**</b>	1.0755 (128.0)	<b>- 8.0135 (4.71)*</b>	-4.8327 (4.85)
INTL_EMPL	<b>4.6174 (1.96)**</b>	<b>9.0560 (4.71)*</b>	<b>10.481 (4.56)**</b>	<b>11.464 (4.83)**</b>
CEE_TO	<b>24.536 (14.0)*</b>	34.850 (34.91)	<b>154.25 (62.5)**</b>	<b>248.45 (75.13)****</b>
NONEUR	- 4.3602 (2.15)**	11.035 (269.1)	.5898 (1.75)	4.0520 (2.10)*
T_TECHN	-13.211 (857.9)	-21.806 (857.9)	- .1336 (1.83)	-3.1608 (2.00)
T_MANAG	<b>3.2808 (.781)*****</b>	<b>6.1640 (2.36)***</b>	<b>5.0535 (2.03)**</b>	<b>4.2662 (2.10)**</b>
Constant	<b>-9.8053 (2.43)****</b>	<b>-1.7575 (4.79)</b>	<b>-20.746 (7.57)***</b>	<b>-19.510 (7.73)**</b>
$\chi^2$	116.682 (30)		103.800 (30)	
correct pred.	87.76%		84.92%	
random pred.	55.66%		54.23%	
observations	147		126	

**Table 7.14: Sub-samples - Host Countries**

	<i>Czech R./ Hungary / Poland</i>		<i>Russia / Romania</i>	
	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>
R&D	<b>.1913 (.088)**</b>	.0060 (.120)	.1083 (.130)	-.0447 (.174)
STAFF_EM	.0229 (.038)	.0132 (.068)	.0421 (.042)	.0161 (.081)
PHARMA	<b>-5.6392 (1.59)****</b>	-2.8853 (2.17)	-3.8004 (1.95)*	-2.2437 (2.49)
NF_CONS	<b>2.2972 (.942)**</b>	<b>2.1955 (1.20)*</b>	.4800 (.969)	.1919 (1.43)
FOOD	-.2551 (1.09)	11.388 (192.2)	.8616 (1.31)	11.895 (204.5)
GERMAN	.8348 (.997)	2.9588 (1.54)*	-.3435 (1.29)	.9454 (1.80)
CZECH	--	--	--	--
HUNGARY	-.7173 (.754)	-.8942 (.964)	--	--
POLAND	-.7539 (.677)	.5437 (.891)	--	--
RUSSIA	--	--	.4327 (.791)	.8841 (1.15)
EMPLOYM	<b>-1.7005 (2.01)</b>	-.4375 (2.445)	-1.8292 (2.67)*	4.9422 (5.22)
INTL_EMPL	<b>3.9897 (1.42)***</b>	<b>3.6881 (1.77)**</b>	<b>3.6856 (1.70)**</b>	<b>2.0367(2.30)**</b>
CEE_TO	<b>27.583 (13.1)**</b>	<b>70.643 (27.43)**</b>	29.471 (18.3)	<b>66.388 (32.89)**</b>
NONEUR	-1.7397 (1.01)*	.7362 (1.29)	.4282 (1.12)	1.2940 (1.67)*
T_TECHN	.4819 (1.22)	-1.0213 (1.32)	-.7364 (1.62)	-4.3533 (1.88)**
T_MANAG	<b>3.1403 (.707)*****</b>	1.7440 (.993)*	<b>3.7126 (1.08)****</b>	<b>4.5784 (1.56)****</b>
Constant	<b>-5.5824 (1.36)*****</b>	<b>-4.5985 (1.86)**</b>	<b>-7.5461 (2.13)****</b>	<b>-5.7066 (1.43)**</b>
$\chi^2$	110.112 (28)		56.645 (26)	
correct pred.	82.00%		87.80%	
random pred.	46.84%		66.08%	
observations	150		123	

**Table 7.15: Sub-samples - Uncertainty, definition 1**

	<i>Low</i>		<i>High</i>	
	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>
R&D	<b>.1578 (.091)*</b>	.0440 (.118)	.1368 (.113)	- .0954 (.203)
STAFF_EM	.0468 (.039)	.00002 (.067)	.0431 (.045)	.0047 (.102)
PHARMA	<b>-4.8284 (1.51)****</b>	<b>-3.8292 (1.94)**</b>	- 3.4374 (2.11)	-2.1682 (653.5)
NF_CONS	<b>1.6059 (.864)*</b>	1.4485 (1.14)	.8607 (1.05)	.4743 (1.72)
FOOD	1.2903 (2.72)	12.605 (572.6)	.1270 (1.09)	12.444 (210.2)
GERMAN	.4851 (1.05)	2.0679 (1.60)	.9474 (1.30)	<b>3.9003 (2.00)*</b>
CZECH	<b>2.4311 (1.30)*</b>	-10.296 (205.8)	2.5235 (1.30)	15.355 (280.8)
HUNGARY	1.7713 (1.24)	-10.579 (205.8)	2.2379 (1.38)	2.9304 (1.82)
POLAND	1.9284 (1.31)	-10.059 (205.8)	1.9142 (1.68)	15.989 (383.6)
RUSSIA	.1595 (1.42)	-10.644 (205.8)	.8113 (1.05)	3.0151 (2.15)
EMPLOYM	- .9336 (2.02)	- 1.0325 (2.52)	<b>- 2.1847(2.70)*</b>	2.5003 (4.25)
INTL_EMPL	<b>2.8134 (1.33)**</b>	<b>2.8692 (1.74)*</b>	<b>5.7958 (2.17)***</b>	2.842 (2.73)
CEE_TO	<b>35.932 (16.0)**</b>	55.393 (25.3)	22.566 (15.3)	<b>62.445 (37.71)*</b>
NONEUR	- 1.0747 (.919)**	1.2100 (1.31)	-2.1958 (1.37)	- .4663 (1.90)
T_TECHN	1.0276 (1.24)	-1.8195 (1.38)	-2.1346 (1.82)	-4.9588 (2.16)**
T_MANAG	2.4646 (.707)****	2.4070 (1.01)**	4.0620 (.945)*****	4.4224 (1.47)****
Constant	<b>-7.5805 (1.87)*****</b>	6.4960 (205.8)	<b>-9.1970 (2.52)****</b>	<b>-7.3670 (3.34)**</b>
$\chi^2$	78.489 (32)		104.643 (32)	
correct pred.	78.46%		88.11%	
random pred.	48.59%		60.45%	
observations	130		143	

**Table 7.16: Sub-samples - Uncertainty, definition 2**

	<i>Low</i>		<i>High</i>	
	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>
R&D	.1431 (.094)*	-.0663 (.150)	.2197 (.132)*	.0003 (.149)
STAFF_EM	.0516 (.051)	.0449 (.087)	.0141 (.039)	-.0041 (.065)
PHARMA	<b>-4.3661 (1.63)***</b>	<b>-2.0586 (2.19)</b>	<b>-6.9678 (2.31)****</b>	<b>-4.5730 (2.61)*</b>
NF_CONS	<b>1.9488 (1.00)*</b>	1.7088 (1.34)	.7475 (1.09)	1.0518 (1.29)
FOOD	-.5308 (1.47)	9.4564 (212.6)	-2.7318 (1.80)	9.4986 (274.6)
GERMAN	-.0453 (1.19)	1.7072 (1.70)	1.3762 (1.29)	<b>3.3331 (1.67)**</b>
CZECH	<b>2.9084 (1.34)**</b>	13.570 (224.2)	<b>3.5755 (1.57)**</b>	2.7174 (1.93)
HUNGARY	--	--	<b>3.0635 (1.49)**</b>	2.4990 (1.83)
POLAND	<b>2.3553 (.955)**</b>	3.0860 (1.26)	-9.9806 (525.9)	-10.252 (525.9)
RUSSIA	-.3611 (.953)	.3091 (1.27)	<b>5.5546 (2.29)**</b>	13.452 (331.7)
EMPLOYM	-1.2706 (2.35)	2.5060 (3.34)	-.8302 (2.31)	1.1152 (2.70)
INTL_EMPL	<b>3.8723 (1.82)**</b>	<b>1.7568 (2.16)</b>	<b>4.8522 (1.80)***</b>	<b>5.1632 (2.15)**</b>
CEE_TO	<b>51.388 (16.9)****</b>	<b>85.101 (31.2)***</b>	15.433 (14.9)	<b>54.754 (2659)**</b>
NONEUR	-.1680 (1.36)	.5173 (1.62)	-2.1094 (1.27)*	.9907 (1.53)
T_TECHN	<b>3.5391 (.901)****</b>	<b>-3.7639 (1.77)**</b>	-.3828 (1.45)	-.9979 (1.52)
T_MANAG	<b>2.4646 (.707)****</b>	<b>4.6483 (1.37)****</b>	<b>4.3173 (1.06)*****</b>	<b>2.2425 (1.24)*</b>
Constant	<b>-8.9552 (2.27)*****</b>	<b>-7.3120 (2.71)***</b>	<b>-9.3463 (2.40)****</b>	<b>-7.8297 (2.83)****</b>
$\chi^2$	101.136 (32)		91.365 (32)	
correct pred.	86.39%		80.16%	
random pred.	56.41%		52.09%	
observations	147		126	

**Table 7.17: Sub-samples - International Experience**

	<i>Less international firms</i>		<i>International firms</i>	
	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>	<i>Trade vs. DFI</i>	<i>Contract vs. DFI</i>
R&D	<b>.3278 (.180)*</b>	- .0163 (.278)	<b>.4296 (.156)***</b>	.1698 (.350)
STAFF_EM	<b>.1433 (.062)**</b>	.3811 (.144)	- <b>.1616 (.082)**</b>	- <b>.2840 (.164)*</b>
PHARMA	-12.361 (1746)	2.4369 (2470)	- <b>6.6435 (1.93)*****</b>	-3.6915 (4.24)
NF_CONS	.4114 (1.40)	<b>4.6716 (2.41)*</b>	.4085 (.910)	- .3859 (1.32)
FOOD	-.8876 (1.72)	10.090 (300.2)	.0037 (1.21)	8.6019 (294.2)
GERMAN	<b>-3.5223 (1.85)*</b>	-2.6029 (2.70)	<b>2.9688 (1.16)**</b>	4.4032 (2.94)
CZECH	16.434 (270.1)	14.316 (270.1)	1.1209 (1.01)	.5052 (1.59)
HUNGARY	14.560 (270.1)	14.957 (270.1)	<b>1.6123 (.939)*</b>	- .2805 (1.47)
POLAND	15.246 (270.1)	16.389 (270.1)	<b>2.0179 (1.06)*</b>	2.6166 (1.67)
RUSSIA	13.610 (270.1)	16.038 (270.1)	-1.2272 (.877)	-1.1404 (1.42)
EMPLOYM	-4.6064 (3.51)	<b>-10.023 (4.55)**</b>	- 1.0789 (2.73)	<b>31.644 (13.9)**</b>
INTL_EMPL	-4.9912 (8.16)	-8.0185 (11.1)	<b>10.482 (3.00)*****</b>	8.2250 (5.31)
CEE_TO	<b>39.153 (19.4)**</b>	<b>120.44 (54.8)**</b>	<b>26.979 (13.8)*</b>	<b>89.646 (45.7)*</b>
NONEUR	-4.8973 (2.24)**	3.4680 (3.05)	-4.4456 (1.64)*****	9.7783 (295.9)
T_TECHN	-9.6977 (452.9)	-15.956 (452.9)	2.7772 (1.64)*	3.5297 (2.57)
T_MANAG	5.7596 (1.68)***	4.7858 (2.43)**	3.4486 (.844)*****	2.5919 (1.56)*
Constant	-22.372 (270.1)	-25.261 (270.1)	- 8.1928 (2.40)*****	- 4.3961 (3.51)**
$\chi^2$	127.094 (32)		115.131(32)	
correct pred.	89.78%		81.62%	
random pred.	59.70%		49.99%	
observations	137		136	

## 7.5. Testing for an Ordinal Relationship

### 7.5.1. Proposition and Method of Analysis

Williamson [1991], Hennart [1993] and others describe contracts as an intermediate organisational form between the two polar cases of markets and hierarchies (see section 4.8). Contracts combine elements of prices and arbitration as coordination mechanisms. Following this interpretation, ORG\_FORM should be an ordinal scale for the degree of internalisation:

*H9: Contracts are an intermediate form along an ordinal scale from markets to hierarchies.*

Exports are considered as a market mode, DFI as an hierarchical mode, and contracts as intermediate forms. Correspondingly, the internalisation should be tested using an ordered categorical data model instead of the M-Logit. In this section, an ordered Logit (O-Logit) is used to estimate the impact of proposed variables on internalisation. The performance of the ordered model is compared to the multinomial model (tables 7.9 and 7.11). In particular, the results of the M-Logit regression are discussed with respect to their consistency with the assumption of an ordinal relationship.

The M-Logit is the more general model as the assumption of an ordinal relationship is a restriction. It should be adopted if reasonable doubts persist about the restrictions of the more parsimonious ordered model. No formal test for categorical dependent variables can prove the ordinal nature of the scale, nor does a satisfactory measure of fit exist, comparable to the  $R^2$  in ordinary regression analysis. The  $\chi^2$ -test statistic commonly reported is a global test of the predictor set, an analogue to the global F-test used in linear least-squares regressions. However, it is not suitable for a comparison between different models, because the multinomial model has almost twice as many degrees of freedom as the O-Logit.

To control for this, DeMaris [1992], based on Hosmer and Lemeshow [1990], suggests a  $R^2$ -type measure of fit for logistic regression. Although it is not a measure of the variance of the

model, as is the  $R^2$  for linear regression, it can be used to compare different models.<sup>150</sup> This ratio is calculated as

$$(7.8) \quad \rho = (-2\log L_0 - (-2 \log L_1)) / (-2\log L_0)$$

where  $L_0$  stands for the restricted log likelihood for slopes = 0, and  $L_1$  for the log likelihood of the model.

Secondly, the predictive ability of the model can be compare using the ‘correct predictions’ of the model. This is not a precise measure but gives some indication of the fit. A third criterion is the consistency of the coefficients in the M-Logit with the hypothesis that the dependent variable is ordinal. If contracts are of a higher order than trade, and DFI of a higher order than contracts along the same ordinal scale, then the signs of coefficients for the choices between trade and contracts, and contracts and DFI should be in the same direction. Fourthly, the assumption of independence of irrelevant alternatives (IIA) underlying the M-Logit can be tested.

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<sup>150</sup> Chu and Anderson [1992, p. 157] propose a similar measure, the Akaike-Likelihood-Ratio Index, which uses the log likelihood of the equal probabilities model rather than the restricted log likelihood as a base.

**Table 7.18: Ordered Model**

	<i>base sample</i>	<i>downstream sample</i>	<i>full sample</i>
R&D	<b>.0784 (.035)**</b>	<b>.0492 (.024)**</b>	<b>.0491 (.021)**</b>
STAFF_EM	.0147 (.014)	.1114 (.011)	.0095 (.009)
PHARMA	<b>-2.0016(.572)****</b>	<b>-1.7577 (.381)*****</b>	<b>-1.1878 (.326)****</b>
NF_CONS	<b>.6732 (.322)**</b>	<b>.7547 (.257)****</b>	<b>.5267 (.203)***</b>
FOOD	-.1674 (.463)	-.1152 (.338)	-.0064 (.301)
H_GROW_DV	-.0425 (.194)	-.0478 (.154)	-.0545 (.144)
GERMAN	-.1236 (.327)	.3665 (.229)	.1211 (.177)
CZECH	<b>.8686 (.302)****</b>	<b>.7514 (.252)****</b>	<b>.6007 (.219)***</b>
HUNGARY	<b>.6827 (.294)**</b>	<b>.7431 (.246)****</b>	<b>.7819 (.219)****</b>
POLAND	<b>.7560 (.314)**</b>	<b>.7559 (.238)****</b>	<b>.5928 (.213)***</b>
RUSSIA	.2089 (.311)	.2295 (.248)	.1508 (.220)
EMPLOYM	-1.0574 (.766)	.3010 (.458)	.5503 (.399)
INTL_EMPL	<b>1.3987 (.474)****</b>	<b>1.2384 (.345)****</b>	<b>.7830 (.277)****</b>
CEE_TO	<b>7.7631 (4.37)*</b>	3.1652 (3.26)	2.9982 (2.62)
NONEUR	-.7350 (.319)**	-.5384 (.266)**	.5503 (.399)
T_TECHNOL	.4240 (.353)	.5196 (.235)**	<b>.7830 (.277)****</b>
T_MANAGM	1.3430 (.228)*****	1.4484 (.176)*****	2.9982 (2.62)
T_only_final	--	.0227 (.229)	-.2284 (.108)**
T_final et al.	--	.2722 (.353)	.2285 (.108)**
T_none	--	1.6336 (.455)****	1.0711 (.285)****
UPSTREAM	--	--	-.5425 (.335)
UP&DOWN	--	--	1.5338 (.350)*****
Constant	<b>-2.6091 (.498)*****</b>	<b>-2.7128 (.446)*****</b>	<b>-2.1724 (.341)*****</b>
$\mu_1$	<b>.4793 (.100)*****</b>	<b>.6385 (.089)*****</b>	<b>.6797 (.071)*****</b>
$\chi^2$	114.638 (17)	238.998 (20)	396.886 (22)
log-likelihood	-160.235	-249.582	-370.788
restr.log likel.	-217.554	-369.081	-569.231
$\rho$	26.35%	32.38%	34.96%
correct pred.	79.9% (181-0-37)	78.10% (145-0-76)	74.65% (270-0-160)

**Table 7.19: Comparative Statistics of M and O Logit**

	<i>base sample</i>	<i>downstream sample</i>	<i>full sample</i>
<i>ρ</i> -statistic			
M-Logit	37.66%	41.59%	41.35%
O-Logit	26.35%	32.38%	34.96%
<i>correct predictions</i>			
M-Logit	82.41%	80.05%	76.72%
O-Logit	79.90%	78.10%	74.65%
$\chi^2$ -test of IIA	1.3824 (36)	1.4451 (42)	6.3851 (46)

**Table 7.20: Implied Preference of M-Logit Models**

	<i>base sample</i>	<i>downstream sample</i>	<i>full sample</i>
R&D	<b>D &gt; C &gt;&gt; T</b>	C >> D >> T	C > D >> T
STAFF_EM	<b>D &gt; C &gt; T</b>	D > T > C	<b>D &gt; C &gt; T</b>
PHARMA	<b>T &gt; C &gt;&gt; D</b>	<b>T &gt;&gt; C &gt;&gt; D</b>	<b>T &gt; C &gt; D</b>
NF_CONS	D >> T > C	<b>D &gt;&gt; C &gt; T</b>	<b>D &gt; C &gt; T</b>
FOOD	D > T > C	T > D > C	D > T > C
H_GROW_DV	C > T > D	C > T > D	C > T > D
GERMAN	D > T >> C	D >> T >> C	D > T >> C
CZECH	<b>D &gt;&gt; C &gt; T</b>	<b>D &gt;&gt; C &gt; T</b>	<b>D &gt;&gt; C &gt; T</b>
HUNGARY	<b>D &gt; C &gt; T</b>	<b>D &gt;&gt; C &gt; T</b>	<b>D &gt;&gt; C &gt; T</b>
POLAND	D > T >> C	<b>D &gt;&gt; C &gt; T</b>	<b>D &gt;&gt; C &gt; T</b>
RUSSIA	D > T > C	D > T > C	D > T > C
EMPLOYM	T > D > C	D > T > C	D > T > C
INTL_EMPL	<b>D &gt;&gt; C &gt; T</b>	<b>D &gt;&gt; C &gt; T</b>	<b>D &gt; C &gt; T</b>
CEE_TO	D >> T >> C	D > T > C	<b>D &gt; C &gt; T</b>
NONEUR	T >> D > C	T > D > C	T > D >> C
T_TECHNOL	C >> T > D	T > D >> C	<b>D &gt; C &gt;&gt; T</b>
T_MANAGM	<b>D &gt;&gt; C &gt; T</b>	<b>D &gt; C &gt; T</b>	<b>D &gt;&gt; C &gt;&gt; T</b>
T_only_final	--	D > T > C	<b>T &gt; C &gt; D</b>
T_final et al.	--	<b>D &gt; C &gt; T</b>	<b>D &gt; C &gt; T</b>
T_none	--	<b>D &gt; C &gt; T</b>	<b>D &gt;&gt; C &gt;&gt; T</b>
UPSTREAM	--	--	<b>T &gt; C &gt; D</b>
UP&DOWN	--	--	<b>D &gt; C &gt; T</b>
correct order (C in the middle)	7 of 17 variables	9 of 20 variables	15 of 22 variables

notes: > = preferred over; >> = significantly preferred over. **Bold** indicates coefficients in line with the 'intermediate form' proposition.

### 7.5.3. Results

The results of the ordered model are reported in table 7.18 for all three samples. With an assumed ordinal relationship between trade, contracts and DFI, only one coefficient is estimated for each variable; and the model has only half as many coefficients, plus one: the parameter  $\mu_1$ . The overall contribution of the models is highly significant, as indicated by high  $\chi^2$ -statistics. More coefficients are signed as hypothesised, and significant, than in the multinomial model. This includes two of the product sensitivity proxies, R&D and NF\_CONS. Apparently, the model gives strong support to hypotheses H1, H3 and H4. However, does this more parsimonious model give a sensible depiction of the underlying organisational choices?

Table 7.19 reports the  $\rho$ -statistics and the correct predictions for the O- and M-Logit models. The  $\rho$ -statistic is substantially higher for the multinomial models, indicating a better explanation of the underlying variation. This evidence is clearest in the base sample, with  $\rho$  at 38% for the M-Logit, but only 26% for the O-Logit. The proportion of correct predictions is high in all cases, and slightly better for the M-Logit. The aggregate figures disguise however the fact that the ordered models do not correctly predict a single incidence of contracts. They merely separate well the endpoints of the scale, trade and DFI. The M-Logit predicts 8 of 27 contracts correctly in the base sample. Similarly high is the proportion for the other samples. Thus these two criteria favour the M-Logit over the O-Logit.

The choice between the models should furthermore take into account the consistency of the pattern of coefficients in the multinomial model with the premises of the ordered model. If the latter was correct, then the coefficient estimates in tables 7.9 to 7.12 should have the same sign for choices of trade versus contracts, and of contracts versus DFI. However, table 7.20 shows that this is not so: contracts appear in the middle position for only 7 of 17 variables in the base sample, and not much more in the larger samples, apart from additional control variables. On a positive note, they include, though insignificantly, R&D and STAFF\_EM. Thus the consistent-coefficient criterion does not lend support to the ordered model either.

In the base sample, contracts are preferred over both other modes for business relationships that are *not* NF\_CONS, FOOD, GERMAN, NONEUR, POLAND or RUSSIA, that have low

EMPLOY or CEE\_TO, but transfer technology (T\_TECHN). The patterns are mostly confirmed in the larger samples, although interaction with other decisions affects the priorities. Omitting turnkey and management contracts (table 7.10), the pattern is not confirmed for NF\_CONS and POLAND, but firms with high R&D and STAFF\_EM show a first priority for contracts.

Finally, a test of the underlying assumption of independence of irrelevant alternatives (IIA) verifies the suitability of the M-Logit. Appendix 7.1 shows the calculation of a test statistic for the null hypothesis of independence. The resulting  $\chi^2$ -statistic is very low for all samples (table 7.19) giving no evidence to reject the assumption.

In conclusion, all four criteria - consistency of the coefficients, predictive ability, p-ratio, and IIA-test - suggest rejecting the O-Logit in favour of the M-Logit. Thus the assumption is rejected that the categorical variable ORG\_FORM has an ordinal scale! This in turn implies that the simple markets to hierarchies scale in Williamson [1991] and Hennart [1993] should be rejected. Contractual businesses thus are unsatisfactorily described as an intermediate form on a scale of market to hierarchy. The multinomial model is upheld as best suited to analyse entry mode choice.

Using the ordered model can in fact lead to inappropriate inferences. The R&D coefficient is significant in the ordered model. Yet from the multinomial model it can be seen that this significance is mainly based on the difference between trade and the other two modes. Thus, R&D intensive firms have higher propensity for technology transfer, but not necessarily for its internalisation. On the other hand, the German preference for DFI over contracts is disguised by the ordered model.

## **7.6 Conclusions**

The propensity to internalise a business relationship is shown to depend on firm and country specific variables. The hypothesis on experience and common governance (H4) receives strong support. Psychic distance also decreases the propensity for internalisation, despite a theoretically ambiguous effect (H3). It appears to increase internal TC more than TC of the market. However, little support is found for uncertainty (H2), asset specificity (H5) and

information variables (H1). Of the latter, the dummy for non-food consumer good manufacturers has a positive effect on the choice between DFI and contracts, but only in the case of British firms. The specific variables found significant are dependent on the type of business analysed. Yet the general evidence is consistent for all samples: positive effects for experience / common governance and for distance, but weak or no support for product sensitivity effects and for uncertainty.<sup>151</sup>

Two other tests have been conducted on propositions derived from TC economics. Firstly, interaction effects between product sensitivity and other variables do not follow the hypothesised pattern. However, some interesting variation emerges across home and host countries. Finally, the proposition to treat trade-contracts-DFI as ordinal scale receives no statistical support.

Interpreting these results, three interesting inferences can be made:

1. Firms' capabilities to manage and integrate additional operations are more important than their sensitivity to market failure as determinants of DFI.
2. Contracts, international trade and DFI are distinct modes of serving a local market that are insufficiently described by the markets and hierarchies approach.
3. The policies followed by the three Visegrad countries, and their reported DFI capital inflows, do not seem to have major impact on foreign business' entry strategies. Entry modes vary however between Visegrad and less advanced transition countries.

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<sup>151</sup> This test differs from earlier research, which may account for the differences:

a) Some studies do not distinguish between technology intensity as O-advantage and as I-incentive. This applies to Horst [1972], Grubaugh [1987] and Denekamp [1995].

b) This study surveyed German and British firms, and investment in Eastern Europe. Most prior research focuses on investment in the US or by US firms. It is therefore possible that American culture has dominated empirical research. Davidson and McFetridge [1985], Gatignon and Anderson [1988] and Gomes-Casseres [1989] all used the same 'Harvard MNE project database' of US outward DFI. Interestingly, Hennart [1991a] found no support for the same hypothesis analysing Japanese DFI. Note that this study finds more favourable evidence for TC among the British sample (table 7.12), which is culturally closer to the US.

c) This study uses a broader base population than most studies surveying a random sample of companies and all projects in five selected countries. Earlier studies draw on lists of known projects, which may imply a bias towards large projects.

d) The studies by Gatignon and Anderson [1988], Gomes-Casseres [1989] and Hennart [1991a] analysed JV versus WOS choices. Although many determinants suggested by theoretical work are the same, some additional influences have to be considered (see chapter eight).

### **7.6.1. Managerial capabilities versus market failure**

Internalisation decisions are based on the trade-off between the costs of market transactions and those of internal organisation. TCE often focuses on potential market failure. Products sensitive to market failure are transferred internally by establishing a DFI to replace market transactions. Less attention is paid to the costs of internal organisation, and their variation across firms.

However, firm-specific variables for potential asset specificity or information-related market failures receive only weak, if any, empirical support in this study. Research and human capital intensity appear of secondary importance both as O-advantage (chapter six) and as I-incentive (chapter seven), although they do influence the preference for greenfield investment over acquisition in chapter eight. Neither are interaction effects with uncertainty supported.<sup>152</sup>

In contrast, experience and proximity are important. The decision to internalise a business relationship depends primarily on the firm's marginal costs of setting up the new affiliate. Corporations with experience in managing international operations, and firms in psychic proximity to the partner country, are best qualified to organise their business internally. They can also take advantage of economies of common governance, and internalise activities that inexperienced and distant competitors organise via markets. Thus aspects of management capabilities appear more important than characteristics of the transaction.

The relevant experiences vary however for different kinds of business activity. The empirical results suggest that international and region specific experience are important for the internalisation of marketing operations, whereas firm size in terms of employment favours internalisation of production. In a similar way, experiences in the use contracts would reduce the costs of subsequent contracts of similar kind.

This result, the importance of experience and common governance effects compared with

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<sup>152</sup> The analysis does not reject TCE empirically. In fact, some statistically significant effects have been shown. However, statistical significance does not translate into economic significance if the effect is small relative to other influences. The reviewed research (chapter four) may have placed too much emphasis on statistical significance rather than importance relative to other variables.

information and asset specificity aspects, may in part be specific to the transition economies.<sup>153</sup> Firms' capabilities to cope with this environment are therefore relatively important. On the other hand, the local demand may not be so sophisticated as to demand latest technology, but require affordable products. High-tech firms may thus transfer products at advanced stages of their product cycle, which do not require internalisation.

### **7.6.2. Contracts as a distinct mode of market transaction**

Under certain conditions, contractual arrangements appear superior to both trade and DFI. Thus, contracts are not just an intermediate form along a continuum, as implied by Williamson [1991] and Hennart [1993]. Trade, contracts and DFI differ by more than the relative importance of price and hierarchical coordination. Rather, different modes of market transactions allow adaptation to specific requirement of a business and a suitable contractual arrangement can substitute for internalisation.

The empirical analysis suggests that contracts are preferred by firms transferring technology and thus presumed to be sensitive to market failure. The pattern of coefficients in table 7.20 gives some indications under which conditions contracts become the first choice. Contracts are significantly preferred over trade for peripheral business (CEE\_TO), by the food industry and R&D intensive firms. A preference for contracts over both other forms of business is, in the base sample, observed for industrial goods manufacturers, British firms, businesses with Poland and Russia, and firms with little exposure to the region. If turnkey and management contracts are omitted, research and human capital intensive firms join this list.

The TC model can be applied to explain such preferences: contracts are used when the nature of the product makes exporting prohibitively expensive, but TC(i) of DFI are high relative to the TC(e) of the contract. Yet, what determines the choice between trade and contracts, and how does the choice of DFI differ *vis-à-vis* trade and contracts?

Firstly, the pattern suggests that fixed internal TC are more important as cause of the internalisation of contracts than in the case of trade. High fixed costs (F) of setting up an

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<sup>153</sup> Since the data-set covers only business with CEE it is not possible to separate empirically effects specific to the CEE region from those of international business at large.

affiliate discourage DFI. Fixed costs per internal transaction are high if the parent firm is small (low EMPLOY) or has only minor sales in the region (low CEE\_TO). Fixed costs also increase with the investment risk of the project, and with the psychic distance between host and home countries. Thus investment in RUSSIA and by UK firms is less likely. Investment goods are generally capital intensive and the capital outlays of a DFI-project are high. This encourages non-equity business activities such as turnkey projects and build-operate-transfer contracts. The fixed TC of internal organisation are particularly relevant in the CEE region because of the high investment risk and the high costs of setting up operations in an environment without established local industry and infrastructure. This adds to the costs of setting up business abroad *per se*.

Secondly, contracts enable firms to transfer their marketable capabilities even if their final goods are not tradeable. The location of production of their final good has to be close to the market as in the food industry or for high-technology firms producing bulky good such as industrial machinery. If the final good is not tradeable, the international interface affects an intermediate stage of the production chain. This is more sensitive to information asymmetry and thus market failure. Thus, tradeability of the final good and sensitivity of the interface are positively related. Thus, the TC of exporting increase with higher transportation costs, while TC of contracts and direct investment rise only little.

However, contracts are used primarily for technology transfer that is peripheral to the core markets served by the firm.<sup>154</sup> For this reason, firms with low exposure to the region (CEE\_TO) are more likely to use contracts. For their core markets, firms prefer DFI to control the operations. The internalisation threshold depends on TC(i) which in turn are determined by corporate capabilities such as experience (e) and common governance (cg). Since contracts are more sensitive to market failure than most exports, the threshold is lower for non-tradeable goods manufacturers and service firms.

The TC of all three modes increase the more important the market is, or the closer the transaction is to the core markets of the firm. However, the TC-curves differ by their fixed

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<sup>154</sup> This is the general pattern. Exceptions include a small high technology engineering firm among the respondents, who wrote that they would "not take equity as a matter of corporate policy".

cost element and their slope. In the case of no transportation costs, exports require little fixed TC but increase steeply. TC of DFI involve substantial fixed TC but rise gradually for core business. Compared with DFI, contracts have a lower fixed costs, but a steeper slope. Taking the arguments together, trade is preferred for tradeable goods, contracts for peripheral business in non-tradeable goods, and DFI for core business.

These observations are interpreted in figure 7.2. Three different cost-planes are drawn for the three modes of business. The TC of the cost-minimising mode are indicated by shading that part of the plane. As can be seen, DFI is preferred for important markets, contracts for goods with high transportation costs, and exports for low to medium important markets and tradeable goods. Note that this figure has been developed from the empirically observed pattern (inductive) rather than from theory (deductive). Thus, further theoretical work is encouraged.

This graph shows why contracts can be perceived as intermediate form, although they are ‘in the middle’ only in a specific sense. A diagonal line from point 0 to point B, may approximate the concept of sensitivity as used in chapter four. The pattern of lowest TC over

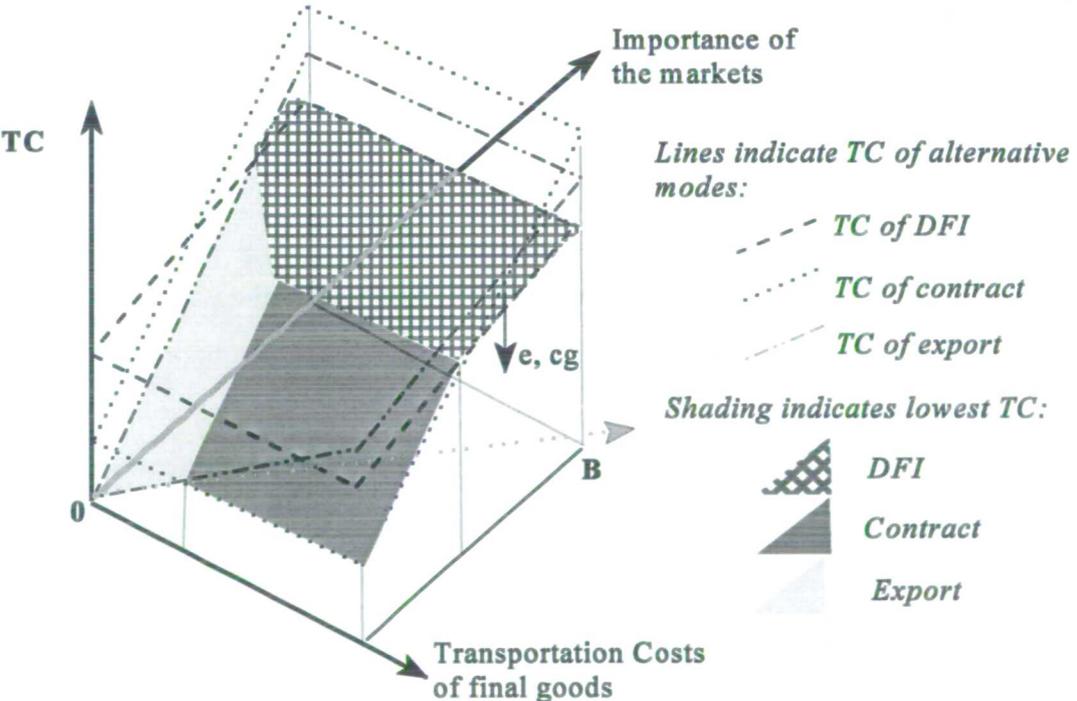


Figure 7.2: Three dimensional view of TC

this line suggest that contracts would indeed emerge as lowest cost option in an intermediate range. Whether or not this case exists is however dependent on the precise shape of the planes, for which ad hoc assumptions have been made for this graph.

The point to be emphasised is that the results suggest that a three-dimensional view of TC would be more insightful than the intermediate form interpretation by e.g. Hennart and Williamson. However, it is not clear which are the best suited axes over which the TC-curves should be drawn. Importance of the market and tradeability emerged as possible determinants from the empirical analysis. Further theoretical modelling of the issues is thus highly desirable, e.g. considering the asset specificity or information content on an axis instead of market importance.

### **7.6.3. Transition Policies in the Host Countries**

This analysis found few differences among the three Visegrad countries, but some significant differences with respect to Russia and Romania. This is surprising since the three countries have adopted quite diverse policies towards DFI, especially in the privatisation process. They also report different volumes of DFI inflow in the years until 1994. Nevertheless, their country dummies are very similar in most equations, except in the residual samples (table 7.12). Thus, the special Hungarian DFI policy had no observable effect on market serving businesses. Yet, it may have increased internalisation of local production in DFI.

The lower extend of internalisation in Russia and Romania can be attributed to several complementary factors: regulatory constraints, high investment risk, and psychic distance from countries of origin. The latter aspect is also indicated by the pattern of the German dummy in the host country sub-samples: it is significant only for the Visegrad countries. Also, non-food consumer goods are internationalised in the Visegrad countries, but not in Russia and Romania. Their sensitivity does not to interact positively with uncertainty, as predicted, but with proximity and firms' capabilities to manage the operation internally.

## Appendix 7.1: Test for 'Independence of Irrelevant Alternatives'

The M-Logit model assumes that the alternative choices are independent, a property known as "independence of irrelevant alternatives" (IIA). Under IIA, for the coefficients  $\beta_m$  estimated M-Logit, should not be more efficiently estimated in the presence of a third alternative. If IIA was *inappropriate*, then without the third alternative the vector of coefficients  $\beta_b$  obtained with the binomial Logit should be *inconsistent*. Thus, the test has to compare the consistent M-Logit estimator with the efficient estimates of a binomial Logit. If IIA holds, then the binomial Logit should also be consistent. Greene [1993, p. 671] recommends a test of the IIA assumption based on a test statistic by Hausman and McFadden [1984] of the following form:

$$(7A.1) \quad (\beta_b - \beta_m)' [V_b - V_m]^{-1} (\beta_b - \beta_m) = \chi^2$$

where  $\beta_b$  is estimated without the alternative presumed to be independent, and  $\beta_m$  for the coefficients obtained with the unrestricted model, i.e. the M-Logit.  $V_b$  and  $V_m$  are the respective estimates for the asymptotic variance-covariance matrices. If the null hypothesis of IIA cannot be rejected, using the M-Logit would be permissible.

Greene discusses this test for a conditional Logit.<sup>155</sup> Applying this test to a multinomial model has an additional complication because the M-Logit returns coefficients estimates for each odds ratio.<sup>156</sup> Thus,  $(c-1)n$  values are estimated where  $c$  is the number of choices and  $n$  the number of variables. Dropping the alternative assumed to be irrelevant reduces the number of coefficient estimates to  $(c-2)n$ . In the present case of three choices, the reduced model is a binomial Logit. This does not permit to calculate the above test-statistic because the matrices have unequal dimensions: In the present case, with eighteen variables plus an intercept ( $n=19$ ):  $\beta_b$  is  $[19 \times 1]$ ,  $\beta_m$  is  $[38 \times 1]$ ,  $V_b$  is  $[19 \times 19]$  and  $V_m$  is  $[38 \times 38]$ .

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<sup>155</sup> In a conditional Logit, the variables refer to properties of the choices and not, as in the M-Logit, to properties of the individuals making the choice. For each variable, one coefficient is estimated, whereas for the M-Logit one coefficient for each variable per odds ratio is estimated.

<sup>156</sup> Svensson [1996] reports equation (7A.1) and three  $\chi^2$ -statistics for each of the pairwise odds relationships. According to personal correspondence, he 'cut out' the part of the  $V_m$  matrix that corresponds to the interaction of the subset of coefficients he wishes to test. It is however unclear what this pairwise test actually tests, in particular how rejection for one statistic only should be interpreted.

Thus, the coefficients obtained with the M-Logit should be compared with those obtained with two binomial Logit regressions. The values needed for the covariance matrices and the vector of coefficients in equation (1) are obtained as follows:

$$(7A.2) \quad \mathbf{V}_b = \begin{bmatrix} \mathbf{V}_{ct} & \mathbf{0} \\ \mathbf{0} & \mathbf{V}_{dt} \end{bmatrix}, \text{ and } \boldsymbol{\beta}_b = \begin{bmatrix} \boldsymbol{\beta}_{ct} \\ \boldsymbol{\beta}_{dt} \end{bmatrix}$$

where the indices ct refer to the contacts versus trade Logit, and dt to the DFI versus trade Logit. Using two Logit models to estimate the relationships implies no interaction between the upper and lower parts of the vectors, such that the off-diagonal matrices of the joint covariance matrix  $\mathbf{V}_b$  are zero. Under the IIA assumption, these would also be zero in  $\mathbf{V}_m$ . The  $\chi^2$ -test tests whether or not this is true. The degrees of freedom are given by the rank of the matrix of variance-covariance differences, usually identical with the number of parameters. For the M-Logit of table 7.10, the resulting  $\chi^2$ -test statistic for IIA-test is 1.3824 with 36 degrees of freedom, which not significant at any interesting level of error.

The LIMDEP Routine for this test is

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NAMELIST ; chap7 = ...
LOGIT    ; lhs = ORG_FORM                ? M-Logit trade-contract-DFI
        ; rhs = chap7 $
MATRIX   ; BM = B                        ? retrieves coefficients
        ; VM = VARB $                   ? retrieves covariance matrix

REJECT   ; ORG_FORM = 2 , new $          ? B-Logit contr. vs trade
LOGIT    ; lhs = ORG_FORM ; rhs = chap7 $
MATRIX   ; C1 = B ; W1 = varb $

REJECT   ; ORG_FORM = 1 , new $          ? B-Logit dfi vs trade
LOGIT    ; lhs = DFI ; rhs = chap7 $
MATRIX   ; C2 = B ; W2 = varb $

MATRIX   ; ZERO = INIT (18,18,0)
        ; BB = C1 / C2
        ; VB = W1, ZERO / ZERO, W2
        ; D = BB ~ BM
        ; H = D' | NVSM (VB, - VM) | D $ ? Hausman test statistic
        ; DF = RANK (VB,-VM)           ? Degrees of freedom

CLOSE $

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## Chapter 8

### Form of Ownership, Mode of Entry and Privatisation

#### 8.1 Introduction

This research has so far focused on the determinants of DFI, both in the theoretical models (chapters three and four) and the empirical analysis (chapters six and seven). This chapter takes the analysis one step further by investigating investment characteristics. Every investor has to decide over equity ownership and mode of entry. The choices are analysed based on the recent International Business literature.

The chapter has three related objectives. First, it tests the validity of recent advances in theoretical and empirical research on determinants of joint-ventures (JV's) and of modes of entry. This includes applications of theories of transaction costs, internationalisation process model and strategic management. If theories are indeed valid as general theories, they should hold under the specific conditions of CEE as well. Secondly, the determinants specific to the region or individual countries are explored within and beyond the theoretical bases. Special features are expected because of the transition process of the economic environment. Finally, the privatisation process in the transition economies attracts substantial amounts of investment. From the investors' perspective it is a form of acquisition and should thus be driven by the same determinants. Comparing the determinants of acquisition and those of privatisation-related acquisitions provides insights into how privatisation influences the pattern of DFI inflow.

Understanding the forces determining investment characteristics advances both managers' understanding of the transition environment, and governments' understanding of inward DFI. Greenfield projects are set up with resources and technology from the parent company, establishing new production facilities and thus employment. Greenfield investors import more intermediate goods and machinery than investors taking over local firms. Acquisitions are typically less integrated into the investors' multinational network, but more integrated into the local economy. This implies major differences in the ways in which DFI projects interact with the host economy, and thus contribute to economic development and the transformation of the economy. Understanding the determinants of alternative entry modes would be an important step towards assessing the impact of DFI on economic transition and development.

The chapter is structured as follows: the remainder of this introduction reviews the data set used in the analysis. Section two discusses previous work in the International Business literature and establishes hypotheses to be tested. Since the research questions go beyond the determinants of DFI discussed in chapters three and four, this is a more extensive discussion of the theoretical argument, particularly on the role of experience and proximity. Section three discusses the empirical methodology, and section four the results of the analysis. Section five compares determinants of privatisation participation and other acquisitions, and section six concludes.

The data set has been introduced in chapter five. Two modifications are however necessary as 16 observations were lost due to missing values in independent variables, while 17 observations have been added from the write-in section of the questionnaire. It therefore covers eight Central and East European countries: the Czech Republic, Hungary, Poland, Russia, Romania, Slovenia, Slovakia and Bulgaria.<sup>157</sup>

The study distinguishes four modes of entry and three forms of ownership. In the questionnaire, separate questions were used to address the two issues. Options offered for the type of activity included minority joint-venture (JV), majority JV and wholly owned subsidiary (WOS). For part of the analysis, minority and majority JV's are aggregated in the

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<sup>157</sup> Slovenia includes one project in Croatia. Slovakia (11 projects) and Bulgaria (3) have been grouped together. These countries are taken from the write-in section of the questionnaire. The information was of the same quality as that for the core countries the Czech Republic, Hungary, Poland, Romania and Russia such that no major sample self selection would impede the analysis. Two projects each in Ukraine and Estonia have not been added as the local environment is significantly different from any other country.

variable JV-owner. Regarding mode of entry, the options were greenfield, acquisition, JV-entry and JV-acquisition. JV-acquisitions refer to projects where the local partner contributes part of the existing business to the JV, whereas JV-entry refers to newly established businesses.

Differences in the concepts related to JV in both questions arise from changes over time. The ownership question refers to the organisation at the time of the survey, and the mode of entry to the initial form. For instance, a JV may have been taken over by the foreign partner. Statistical differences between these conceptually distinct forms are small and the empirical analysis has to show whether or not the distinction is crucial. Both the ownership and mode of entry questions allowed respondents to indicate multiple responses if they had several projects in one country. Many respondents took advantage of this option. For instance, 216 projects were reported, including 81 JV's and 146 WOS's. This sums to 227, i.e. 11 incidences with both kinds of affiliate. Similar overlaps emerge for entry modes.

Since this sample has been drawn from a representative sample of selected German and British manufacturing industries, it is not necessarily representative for a base population of all DFI projects in CEE. The selection bias from this source should however be limited since the sample has been stratified by size such that the proportion of firms contacted in each size class was proportional to the share of the size class in a list of firms known to be active. Missing values however reduce the proportion of small investor firms, which results in a lower number of JV's and more greenfield entries in table 8.1 compared with table 5.9. Also, the chemical industry commands a larger share of this sample than of the sample presented in table 5.9. These biases should however not influence the validity of the empirical results. Write-in countries have been included to make best use of the available data while retaining sufficient degrees of freedom and limiting sample selection biases. Again, this may result in a bias in the sample in that the number of observations from these countries is below their proportion of all DFI in the region. Despite this multitude of potential biases, it is believed that the causal relationships have not suffered major distortions. However, some variables need to be interpreted with caution, especially the effects of the country dummies for Slovakia and Slovenia.

Table 8.1 shows the pattern of the dependent variables across home and host countries as well as industries. The patterns are similar to those in table 5.9, suggesting that sample selection biases are at acceptable levels. This includes the results of the  $\chi^2$ -tests for independence of the variables (see chapter 5). This categorical test rejects the null hypothesis of independence

for several sections of the table. A similar test compares the proportions in each cell to the proportions in the total sample. This  $\chi^2$ -test for equality among proportions follows the same concepts with however only two columns, and thus  $r-1$  degrees of freedom [Aczel 1993, p. 686]. The test finds significant differences only for Russia, with respect to both mode of entry and ownership.<sup>158</sup>

The nature of the data collected with multiple response questions has implications for the empirical method used: as the different options considered are not exclusive, using a multinomial Logit is not possible, contrary to Kogut and Singh [1988] and Gatignon and Anderson [1988] in similar research. Therefore, every option for ownership and mode of entry is considered separately. A binomial Logit is regressed independently for each, and the comparison of the results across equations will enable an analysis the consistency of the empirical results. Binomial Logit has been the dominant method of empirical analysis in the field (see table 8.2). Though less technically sophisticated, it gives results that can be interpreted straightforwardly and covers all options.

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<sup>158</sup> Notably, the hypothesis of equal proportions cannot be rejected for the write-in countries. If they had been significant, a sample self-selection could have been suspected which would require omission of these observations.

**Table 8.1: Characteristics of DFI Projects**

<i>Category</i>	<i>UK</i>	<i>D</i>	<i>Food</i>	<i>Chem</i>	<i>Mach</i>	<i>Total</i>	
Minority JV	20%	11%	15%	12%	16%	14%	
Majority JV	15%	31%	26%	19%	30%	25%	
Wholly owned S	76%	80%	70%	85%	76%	78%	
observations	75	141	27	81	108	216	
$\chi^2$ -test (2 df)	4.901 *	2.379	.138	2.099	1.119		
Greenfield	64%	53%	41%	71%	51%	58%	
Acquisition	22%	33%	37%	31%	25%	29%	
JV-Entry	13%	24%	19%	13%	28%	21%	
JV-Acquisition	15%	17%	19%	15%	18%	17%	
observations	73	137	27	80	103	210	
$\chi^2$ -test (3 df)	3.036	1.509	1.978	5.259	3.873		
Total no.	75	142	27	81	108	216	
<i>Category</i>	<i>CR</i>	<i>HU</i>	<i>PL</i>	<i>R</i>	<i>RO</i>	<i>SLN</i>	<i>SVK</i>
Minority JV	8%	6%	12%	41%	33%	40%	-
Majority JV	28%	22%	23%	34%	25%	20%	14%
Wholly owned S	83%	88%	83%	59%	50%	60%	86%
observations	54	50	52	29	12	5	14
$\chi^2$ -test (2 df)	2.066	3.252	.496	14.451 ***	4.503	2.501	2.803
Greenfield	60%	55%	62%	43%	45%	60%	79%
Acquisition	34%	34%	35%	11%	27%	40%	7%
JV-Entry	13%	19%	17%	50%	27%	-	14%
JV-Acquisition	15%	17%	12%	32%	18%	40%	7%
observations	53	47	52	28	11	5	14
$\chi^2$ -test (3 df)	2.176	.515	1.972	17.499 ***	.499	2.397	4.826
Total no.	54	50	52	29	12	5	14
<i><math>\chi^2</math>-tests for independence of the variables (with df)</i>							
<i>Categories</i>	<i>Mode of Entry</i>			<i>Ownership</i>			
Host countries	29.833** (18)			30.072*** (12)			
Home countries	4.545 (3)			7.280** (2)			
Industries	11.109* (6)			3.356 (4)			

Notes: (1)  $\chi^2$ -tests reported in the main table are tests of proportions, i.e. is the distribution of entry modes the same in, say, Russia than for the full sample. (2) SVK includes Slovakia and Bulgaria. Significance levels: \* = 10%, \*\* = 5%, \*\*\* = 1%.

**Table 8.2: Methodology used in Related Research**

	<i>Equity Ownership</i>	<i>Mode of Entry</i>
<i>Binomial Logit</i>	<b><i>JV - WOS</i></b> Gatignon and Anderson 1988 Gomes-Casseres 1989, 1990 Hennart 1991a Hu and Chen 1993 <b><i>Sales Rep. - WOS</i></b> Nordström 1991	<b><i>Greenfield - Acquisition</i></b> Caves and Mehra 1986 Zejan 1990 Nordström 1991 Hennart and Park 1993 Andersson and Svensson 1994
<i>Multinomial Logit</i>	<b><i>Min. - Equal - Maj.JV - WOS</i></b> Gatignon and Anderson 1988  <b><i>Licensing - JV - WOS</i></b> Kim and Hwang 1992	<b><i>Greenfield - Acquisition - JV</i></b> Kogut and Singh 1988 Arnott, Gray and Yadav 1995  <b><i>Greenf. - Acquisition - No DFI</i></b> Svensson 1996
<i>Ordered Logit</i>	<b><i>Min. - Equal - Maj.JV - WOS</i></b> Chu and Anderson 1992	

## 8.2 Theoretical Background

Ownership and entry mode are analysed in different streams of the international business literature. The JV research mainly draws on the TC literature or on a firm-government bargaining model. The main arguments of TCE concerns the hybrid organisational structure of JV's. They are partly coordinated by prices and by hierarchy mechanisms. The TC literature, reviewed in chapter 4, emphasises the effects of the incomplete internalisation and sensitivity to market failure. The mode of entry literature draws on a variety of sources: Hennart and Park [1993] use TCE, mergers-and-acquisition theory, growth-of-the-firm theory and capital market imperfections. Caves and Mehra [1986] consider organisational costs of integration, the markets for corporate control, and the competitive conditions. In CEE, specific issues arise due to the process of systemic transition, especially the rapid opening of the economies and the privatisation of state-owned firms [Dunning and Rojec 1993, Estrin and Hughes 1996]. Empirical studies use different limited dependent variable models as summarised in table 8.2.<sup>159</sup>

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<sup>159</sup> A related stream of research analyses differences in performance of DFI projects as a function of entry modes, including recently Li and Guisinger [1991], Woodcock, Beamish and Makino [1994], Nitsch, Beamish and Makino [1996], Bakema, Bell and Pennings [1996]. Related are also the empirical studies on expansion [Yip 1982] and entry [Chatterjee 1990] in a domestic US

The discussion of the theoretical basis is structured around four themes: experience and proximity, transaction cost economics, strategic management motives, and transition economics. The basic premises with respect to ownership and mode of entry are listed in abbreviated form in table 8.3.

Ownership and mode of entry are intrinsically related as any entry decision has to be taken in view of the long-term objectives for ownership. Any investor considers first the aspired form of ownership for the affiliate, and then the optimal way to achieve it. Thus, arguments in favour of JV ownership also favour a JV entry, and arguments in favour of acquisition or greenfield also favour WOS. However, a JV may be chosen as the entry mode although ultimately WOS is aspired. Since the decisions are generally made simultaneously, regressing a model on the mode of entry is not sensible with ownership or privatisation as independent variables.<sup>160</sup> Also, the size of the local operation is, at least initially, a corollary of the mode of entry and thus not independent.<sup>161</sup>

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environment.

<sup>160</sup> Caves and Mehra [1986] and Hennart and Park [1993] distinguish only between greenfield and acquisition, but include a variable for share in ownership (i.e. JV's) that is significant in favour of greenfield in Caves and Mehra [1986].

<sup>161</sup> Any greenfield project starts small, whereas the size of an acquisition is mainly determined by the available targets, which may even be larger than the ultimately desired size, at least in terms of employment. Nevertheless, prior research included size as independent variable. The size of the subsidiary relative to the parent was significant in Caves and Mehra [1986], Kogut and Singh [1988] and Hennart and Park [1993]. In Caves and Mehra [1986], it was however *not* significant for the sub-samples of firms with low R&D, high advertising, and non-durable goods.

**Table 8.3: Summary of the Theoretical Arguments**

	<i>Ownership</i>	<i>Mode of Entry</i>
<b>Proximity and Internationalisation Process</b>	JV's help learning by inexperienced or distant firms, but they would face higher coordination costs.	Post-acquisition costs of restructuring are higher for distant or inexperienced investors, but they need access to local know how.
<b>Transaction Cost Economics</b>	Firms sensitive to market failure avoid JV, while those in need of complementary inputs favour JV.	Firms core competencies and the managerial tasks required for the project determine the choice of entry mode.
<b>Strategic Competition</b>	n.a.	JV's and acquisitions are means to achieve strategic objectives such as quick market entry.
<b>Transition and Restructuring</b>	Legal constraints and economic risks discourage full ownership	Hazards of restructuring post-socialist enterprises discourage acquisitions.

### 8.2.1. Psychic Proximity and International Experience

Organising business in an unfamiliar environment faces many additional obstacles, higher costs and higher perceived risk. This includes problems in negotiating with local institutions, cultural differences between business partners as well as communication and travel costs. Costs rise with cultural, language and religious differences, lack of personal contacts and also geographic distance. Perceived risks of various types increase the less investors understand the local environment. These aspects are combined in the concept of 'psychic distance' [see section 3.5.2]. In the present context, a major psychic distance evolved due to 40 years of different economic systems and education. Foreign businesses in the region reported problems because of the attitude towards work and leadership, lack of understanding of market processes and lack of managerial and financial skills as major obstacles. Psychic distance can be overcome by multinational firms with relevant experiences. Through similar activities in other countries, or establishment of business contacts in the same country, they develop the human resources capable of managing local operations.

Thus, psychic proximity and relevant experiences should be major determinants for modes of entry and ownership. However, the direction of the effect is not clear as various costs associated with either mode of business rise with distance and lack of experience. The theoretical arguments in the literature usually apply to both psychic proximity and experience, though few authors discuss them jointly. Four effects have been discussed which would have contradicting effects on entry modes (table 8.4).

Firms with no prior international experience would choose an organisational form that provides opportunities to learn on the local environment while minimising their risk exposure. A mode suitable to learning while reducing risks is a JV, be it as a temporary or unlimited arrangement. Capital investment risk is shared with a local partner, while profit sharing ensures incentives for both partners to contribute to the success of the venture. International experience would lead to better capabilities to manage and integrate an acquired company. In their "internationalisation process", firms would make incrementally stronger commitments along various dimensions [section 3.5.2]. Firms with little experience in international business or in CEE would be expected to choose a JV entry. The same applies to firms from distant origins facing similar obstacles as they have fewer external sources of learning and higher risk perception.<sup>162</sup>

*Proposition 1: Inexperienced firms and those from distant origins prefer a mode that facilitates their learning about the local environment and thus prefer JV.*

Secondly, distant investors would incur larger post-acquisition cost of integrating an existing firm into their global corporation. Psychic distance inhibits the 'organisational fit' of the firms and thus increases the post-acquisition costs of matching the administrative, cultural and personal characteristic of the joint organisation [section 4.2.3]. These costs can be avoided with a greenfield entry, or a JV with a local partner. Furthermore, firms in proximity have personal contacts and may find it easier to find a suitable partner with whom to form a successful JV in CEE [OECD 1994].

With international and country experience, investors build the capabilities necessary to restructure and integrate acquired firms. These are particularly important in CEE because acquirers become involved in the restructuring formerly state-owned enterprises requiring change of the organisational structures. Foreign investors are reported to avoid costs and

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<sup>162</sup> For instance, US firms are said to prefer JV in CEE because they have a higher perception of the risk [van Dam *et al.* 1996].

conflicts of such organisational changes by establishing greenfield operations where they can introduce their Western business practice [Möllering *et al.* 1994, OECD 1994]. Firms with long standing business contacts with the region should be more capable to integrate acquired firms.<sup>163</sup> Thus, arises proposition 2 complementary to proposition 1. Together they are equivalent to the proposition by Kogut and Singh [1988].

*Proposition 2: Inexperienced firms and those from distant origins would incur higher costs of restructuring a local firm and therefore prefer greenfield or JV entry over acquisition.*

Thirdly, inexperienced and distant investors need complementary inputs that they can obtain quicker via an acquisition [Dubin 1975, Casson 1995] or by forming a JV with a local partner [Hennart 1988a, 1991a]. Stopford and Wells [1972, p.103], and many researchers since [for CEE: OECD 1994], found the local partners contribution to JV's is primarily their general knowledge of the local economy, cultural and social environment, labour relations etc. The foreigner supplies production technology, management know how and/or intermediate inputs. These are intangible and/or tacit knowledge that cannot be transferred via markets. Knowledge of the local partner and his capital contribution reduce the risk associated with entering a new market. The more an investor knows the local environment, the less he needs the tacit knowledge of a partner or an acquired firm. This would suggest that a "first-time foreign investor is ... more likely to expand by acquisition than an established one" [Casson 1995, p. 32]. Caves [1982] concludes similarly arguing that large and experienced firms can better cope with the higher risk of greenfield entry [Svensson 1996]. Gomes-Casseres [1989] proposes that in distant countries, JV are preferred because they provide a source for information needed by entrants not familiar with the local environment. Acquisition and JV are alternative ways to acquire local knowledge albeit with different consequences for management.

*Proposition 3: Inexperienced firms and those from distant origins choose a mode of entry that gives them access to complementary inputs and therefore prefer acquisitions or JV over greenfield projects*

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<sup>163</sup> Svensson [1996] makes a different argument with the same implication but less applicable to CEE: firms already established in a country would have an incentive against greenfield because it would increase industry capacity, and thus competition, which could harm the existing subsidiary.

Fourth, JV's are more difficult to manage by distant or inexperienced investors. They find it more difficult to identify a suitable local partner because informal contacts and prior trading relationships are usual ways of establishing successful partnerships. Culturally distant and inexperienced investors find it more difficult to establish mutual trust which is an imperfect success factor of international JV's.<sup>164</sup> Furthermore, they are more likely to experience conflicts over objectives and management style of the JV.

*Proposition 4: Inexperienced firms and those from distant origins would incur more frictions with their local partner in managing a jointly owned firm and therefore prefer full acquisitions and greenfield over JV's.*

**Table 8.4: The Implications of Distance and Lack of Experience**

	<i>Proposition</i>	<i>Implied Preference</i>
1	Need for mode that facilitates learning & Higher perceived risk	JV > Greenfield and Acquisition
2	Post-acquisition integration costs	Greenfield > Acquisition
3	Need for complementary inputs	Acquisition and JV > Greenfield
4	Coordination problems between JV parents & Problems finding a suitable partner	Greenfield and Acquisition > JV

Several studies analyse the impact of proximity and/or experience on entry modes empirically. With respect to proximity, proposition 1 receives some but not unanimous support. It is supported by Gomes-Casseres [1989] who use a familiarity index and found WOS to be preferred, significantly, in countries familiar to the US investors. Gatignon and Anderson [1988] find investors outside the 'Anglo Saxon' culture to be more likely to invest in JV in the US. Kogut and Singh [1988] use a Hofstede index as measure of psychic distance and find that firms from distant origins have a significant preference for JV over greenfield or acquisitions as mode of entry into the US. A replication study by Arnott, Gray and Yadav [1995] for DFI in the UK finds however a priority of greenfield over acquisition over JV with the first difference being significant. This would support propositions 2 and 4. Evidence in

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<sup>164</sup> Buckley and Casson [1996] make this argument for the case of equal contributions by both partners, not the case of market access motivated JV as most of the JV in this sample are.

favour of proposition 4 is also given by Hu and Chen [1993] who found DFI in China to be more likely to be as JV if it came from Hong Kong. Last not least, in chapter 7, this study found that firms prefer internalisation in nearby countries when faced with the choice between DFI and contracts or trade.

Two kinds of experience are considered in prior research: general experience in international business, and experience specific to the country. Country specific experience is analysed in four studies. Proposition 1 is supported by Kogut and Singh [1988], Andersson and Svensson [1994] and Svensson [1996] who find significant signs for a dummy indicating existence of another, older affiliate in same country favouring acquisition. Davidson [1980] finds a positive correlation between experience and WOS entry. On the other hand, the number of years of experience is insignificantly favouring greenfield in Hennart and Park [1993], weakly favouring proposition 3.

International experience effects are mostly supporting propositions 1 and 2. A high share of exports in sales favours acquisitions by small and medium size firms in Nordström [1991]. The 'number of countries in which the parent has subsidiaries' has a significant effect in favour of acquisition in Caves and Mehra [1986]. It is however insignificant in Kogut and Singh [1988]. The number of foreign affiliates is significantly favouring acquisition in Andersson and Svensson [1994] and WOS in Gatignon and Anderson [1988] and Gomes-Casseres [1989, 1990]. Agarwal and Ramaswani [1992] construct a factor that included various measures of multinationality and was significant in favour of WOS versus JV. In contrast, the 'number of years since first international investment' (logarithmic function) is significant in favour of greenfield in Zejan [1990] which would support proposition 3 [also see Yamawaki 1994].

In this research, lack of international experience is proxied by a dummy showing whether or not the business with CEE is the first major international business operation and accounts for more than half of international sales. This applies to several German firms who take the value of 1 in the variable FIRST.<sup>165</sup> Experience specific to the country is measured by the time since the establishment of first business contacts (YEARS). The dummy ONLY\_PROJ indicates whether or not the investor has multiple DFI projects in the region. If all kinds of experience were positively influencing a choice, YEARS would have a positive coefficient, and the two

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<sup>165</sup> I also tested the influence of international experience directly with the variable 'share of turnover outside the home market'. This variable was frequently significant but correlated to FIRST ( $r=-.50$ ), EMPLOY ( $r=.44$ ), EMPL\_SQ ( $r=.37$ ), R&D ( $r=.34$ ) and EXPERIENCE ( $r=0.29$ ).

dummies have a negative coefficient.

The proximity effects can only be captured with host and home country dummies, where UK firms and investment in the Czech Republic are chosen as base cases. In addition, a control dummy is included for ownership of the parent firm. NONEUR describes firms affiliated to a MNE located outside Europe, mostly in the USA.<sup>166</sup> If psychic proximity had a positive impact on an option, then the dummy GERMAN should have a positive coefficient and NONEUR negative. The host country dummies should show a ranking of coefficients with Hungary and Poland close to zero (the Czech Republic), Slovakia negative, and Russia and Romania even more negative.

### 8.2.2 Transaction Costs Economics

A JV is an intermediary form between a contractual relationship and a wholly owned affiliate that is particularly common in international business [Parkhe 1993]. JV's have equity contributions by multiple owners sharing control. They operate under a regime of dispute settlement by arbitration that is partly internalised. Market failures are resolved by 'voice' rather than 'exit', i.e. agents work with each other to remove the market failure. This however comes at a cost as incentives change without giving full control over the operation. This partial internalisation of markets cannot fully resolve the problems of market failure. Therefore, the arguments in favour of internalisation also favour WOS. In particular, businesses subject to asset specificity or information market failure are more likely to seek full control. Industries that are information intensive and thus sensitive to market failure are high-tech firms and marketing oriented consumer goods manufacturers.<sup>167</sup> Both would thus prefer full ownership of their operations in CEE:<sup>168</sup>

*H1: Consumer goods manufacturers and technology intensive firms prefer WOS*

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<sup>166</sup> The effect of NONEUR is however also subject to other influences as this is not a representative sample of US firms. For instance, they would have considerable international experience which works against the effect predicted above. It was not sensible to introduce a similar European parent dummy because there were only 7 such observations in the sample, of which 5 were accounted for by one peculiar MNE whose core business activity may well be centred in the host country rather than the nominal home country.

<sup>167</sup> On the performance impact of different arrangements of control in JV's see Beamish and Banks [1987], Geringer and Hebert [1991] and sources cited therein. Lyles and Baird [1994] addresses these issues in the case of Hungary and Fey [1995] for Russia.

<sup>168</sup> This hypothesis is analog to H1 in chapter seven.

For consumer goods, two dummies are used separating the food and beverage industry (FOOD) and non-food consumer goods manufacturers (NF\_CONS). Technology intensity is proxied by the ratio of R&D expenditures over sales turnover. Results of previous research confirm the preference of human capital intensive investors for WOS [Gatignon and Anderson 1988, Gomes-Casseres 1989, 1990]. Contrary evidence is shown by Kogut and Singh [1987, 1988] as R&D intensive inward investors in the US prefer JV to acquisition. They explain this by the investors' objective to acquire US technology.

However, some specific situations and objectives may make JV's a preferred form of business. Two arguments are derived from the transaction cost approach by Hennart [1988a]: scale economies at one production stage, and complementary intangible inputs. First, 'scale joint-venture projects' have the same function for all participating investors, e.g. investment in a backward integrating production stage by two firms operating at the same stage in the value chain. Such JV's are motivated by the desire to achieve efficient economies of scale at that production stage, but internalise the market for the intermediate products. This type of JV exists in industries where processing facilities are specific to the sources of raw materials such as aluminum smelting and oil refinery. Such JV's are part of a larger cooperation between multinational firms such as 'strategic alliances' [Ohmae 1989, Dunning 1995] or joint research. In the transition economies, JV's are mostly of the second type such that this case would not apply to the present sample.<sup>169</sup>

Secondly, investors would prefer to internalize the project in a 'link-JV' if it requires complementary contributions that face some kind of market failure from two or more partners [Hennart 1988a, 1991]. Often this is due to multiple contributions of technology. Also, small firms may use such a JV if they lack managerial resources or access to capital markets to manage and finance the scale of operations that would fully utilize its competencies. However, the complementary assets motive will overcome the disadvantages of joint ownership only if three conditions apply [Hennart 1988a]:<sup>170</sup>

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<sup>169</sup> It would apply if two Western firms had invested in one jointly-owned project in CEE. In the questionnaire, no such projects were reported.

<sup>170</sup> As a static theory, TCE analyses JV as an equilibrium ownership form. JV as temporary form are not considered, and the distinction between entry mode and the form of ownership is meaningless.

1. The assets acquired have to be firm specific and
2. quasi public goods, i.e. they cannot be dissociated from the partner firm and they can be shared at low marginal costs.
3. The assets used by the JV are a subset of the assets of the partners, i.e. purchasing the whole partner firm would force the acquirer into unrelated fields or suddenly to expand its size. In other words, if the project is small relative to the size of the partners, internalizing both enterprises is not feasible [Hennart 1989, Kay 1991].<sup>171</sup>

A need for complementary local assets would apply to firms processing natural resources or aspiring local market access. Many chemical industry firms (CHEM), are processing inputs at the source of their raw materials. They probably cannot acquire state-controlled firms with access to natural resources. Also, the food and beverage industry (FOOD) depends on local inputs as transportation costs for agricultural products are high and international trade is inhibited by trade barriers. Even to supply the local markets, they need access to local raw materials. A resource industry dummy was highly significant in favour of JV in Gomes-Casseres [1989, 1990] and Hennart [1991a]. Thus,

*H2: The chemicals and food and beverage industries are more likely to form JV than the machinery industry.*

In consumer goods industries, market access is very important. Market entrants would be interested to obtain access to distribution channels and to acquire a local brand name to evade the costs of building their own brand. Acquisition of a local brand name has been shown empirically to motivate acquisition entry in the US [Anand and Delios 1996, Chen and Zeng 1996]. Reports from CEE also suggest that "buying a market share" and acquiring distribution channels were major reasons for selecting an entry via privatisation-acquisition [Gatling 1993, Dunning and Rojec 1993]. On the other hand, the value of local brand names was low at very early stages of economic opening because customers valued Western imports and brand names very highly. After the first wave of Western products, customers return to local brands if they offer acceptable quality at an affordable price. Case evidence suggests that Western investors even reintroduced local brand names after initially dropping them [Estrin, Todd and Hughes 1996]. Even without valuable brand names, a local partner can ease market access in various ways. Thus, need for complementary inputs would favour a JV. However,

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<sup>171</sup> The third condition is not in line with Dunning [1993, p. 238] who argued that complementary assets would motivate JVs "where resource commitments are substantial and where the outcome of the venture is highly uncertain".

as Hennart's third condition would not apply for many small local firms, also acquisition is an attractive alternative.

*H3: Consumer goods manufacturers are more likely to enter via JV or acquisition.*

The need for complementary inputs (H3) conflicts with the transfer of know how from the parent (H1). The former favours JV's, the latter WOS, with a theoretically ambiguous net effect. Hennart and Park [1993] use advertising and media expenditures of the parent to test a similar hypothesis. They found no significant effect in their aggregate model, but a 10% significant effect in favour of acquisition in high/low growth industries.

The concepts of TCE can be extended to the choice between greenfield and acquisitions [Hennart and Park 1993].<sup>172</sup> A major difference between the two modes of entry is that in a greenfield the investor can establish an organisation *de novo* and smoothly integrate it in its existing corporate organisation and philosophy. An acquisition on the other hand requires restructuring of an existing organisation. A JV-acquisition needs to be restructured without full control over the operation that increases the impediments to successful integration. Depending on the nature of the core competencies of the investor, the relative costs of these different strategies vary. Companies with superior organisational skills have comparative advantages in integrating new affiliates. Large and diversified firms have a management cadre capable to run acquired firms, which could otherwise be a constraint of firm growth [Penrose 1959]. If they wish to acquire complementary local assets, they can acquire a whole firm. So,

*H4: Large and diversified firms are relatively more likely to enter by acquisition or JV-acquisition.*

Greenfield investment would, on the other hand, be suitable for investors with a distinctive, valuable corporate culture. Neither imposing the culture in the acquired firm nor assimilating to existing culture would achieve optimal use of the investors' core competencies [Casson 1995, p. 33]. Expansions that shall create new outlets for existing resources would thus favour a greenfield operation if the resources are of technological or organisational capabilities and costly to implement in an existing organisation. Greenfield investment gives, in contrast to partial or full acquisition, an opportunity to design and control the local

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<sup>172</sup> The following arguments could also be derived from the resource-based-view [Wernerfeld 1984] following the strategies of exploiting existing resources and developing new ones.

operations. Firms with technological core competencies are most likely to have such distinctive corporate culture [Andersson and Svensson 1994]. They may also find compatibility problems with the production technology of existing local firms [Fölster and Nyberg 1994]. They would be characterised by high R&D intensity. Thus,

*H5: R&D intensive firms are more likely to enter by greenfield than any other mode.*

Similar firm specific variables have frequently been used in previous research. The parent size variable has a significant sign for acquisition in Caves and Mehra [1986] and in one model specification by Andersson and Svensson [1994]. Opposite results are reported for Dubin [1975] and Wilson [1980]. A diversification ratio is not significant in Hennart and Park [1993], except in their producer goods sub-sample, and for very high or very low growing industries. A similar index is highly significant in favour of acquisition in Zejan [1990] as is the number of industries of activity in Caves and Mehra [1986]. The positive relation of acquisition and size is also confirmed by Agarwal and Ramaswani [1992], Wilson [1980] and Dubin [1975]. Kogut and Singh [1988] find a non significant sign of diversification in favour of greenfield.

In Hennart and Park [1993], R&D expenditures favour greenfield at 1% level of significance in most specifications, but less in very high or very low growth industries where strategic considerations dominate. Andersson and Svensson [1994] and Svensson [1996] find a similar effect. Kogut and Singh [1988] find a significant effect in favour of JV but not between acquisitions and greenfield.

In this research, firm characteristics are measured by employment and its square for size (EMPOYM, EMPL\_SQ), number of USSIC plus UKSIC codes in the Amadeus database, adjusted for sales turnover for diversification (DIVER\_TO), and as above R&D expenditures.

### **8.2.3 Strategic Competition**

JV's and acquisitions can be important means to improve a firms competitive position *vis-à-vis* its main rivals. In particular, they are a means to acquire complementary inputs needed for a speedy market entry. Delay of entry may be costly, e.g. in emerging markets opening to international oligopolistic competition, such as CEE.

The speed of entry is particularly important in industries where first mover advantages can have a special value. A speedy entry and access to the local market can be achieved by

forming a JV with, or acquiring, a local firm with local brand names and a local distribution network [Stopford and Wells 1972]. The special situation of the transition countries opening virgin markets to potential entrants makes this argument particularly important [section 2.2.5]. Both, JV and acquisitions are reported as a means to gain quick market access in CEE [Gatling 1993, OECD 1994, Duvvuri *et al.* 1995]. First mover advantages are most important in consumer goods industries where brand names dominate. This lends additional support to hypothesis H3.

Secondly, speed of entry is important in industries that are fast growing in the host economy because of short term profit opportunities and participation in a growing market [Hennart 1991a]. The standardised variable (H\_GROWTH) measures the growth of the industry relative to the average in the host country.

*H6: Entry into fast growing industries is more likely in form of JV or acquisition.*

In prior research, industry growth is partly positive significant in Zejan [1990], but insignificant in Andersson and Svensson [1994] and Svensson [1996]. Caves and Mehra [1986] and Hennart and Park [1993] use a proxy for deviation from average growth. They argue that slow growing industries would also attract acquisition entry because capacity expansion by greenfield would lead to industry overcapacities [also see Andersson and Svensson 1994, Casson 1995, p. 33, Svensson 1996]. In CEE, existing capacity is often of outdated technology and may be more a burden than an asset for the acquirer. Therefore, this counter argument would not apply here.

In the questionnaire, firms indicated their investment motivation as factor-cost oriented and or market oriented. For firms suggesting factor costs as their motivation (FACTOR), the speed of entry would be less urgent. They could establish local production gradually as needs for additional capacity arise. As the opening of CEE coincided with a recession in Western Europe, few urgent needs for additional capacity arose at the time.

*H7: Investors motivated by factor-costs are more likely to choose greenfield entry.*

#### **8.2.4 Transition and Restructuring**

The process of economic transition from centrally planned to market economies creates very special conditions in the CEE countries that affect modes of entry. First, the rapid opening induces strategic moves into virgin markets, as discussed above. Secondly, until recently, the

full range of entry modes was not available due to legal constraints. Thirdly, the potential acquisition targets are limited in number, and have to undergo major restructuring in both their managerial organisation and their physical asset base. Section 8.6. discusses how privatisation related investment differs from other investment.<sup>173</sup>

JV's are popular with governmental institutions because of expected externalities on economic development. They are also the rationale for subsidies, tax holidays or credit lines available only to international JV's. The actual foreign share in a given venture in a developing country may thus be a function of the relative bargaining power of the host government *vis-à-vis* the investor, and performance criteria the host government may impose [Kobrin 1987, Stopford and Strange 1991, Gomes-Casseres 1991].

When CEE countries first permitted DFI, investment was constraint by many regulations, including constraints on foreign equity ownership. For many early investors, a JV was the only feasible mode to establish a local operation. Since then, the regulations have been relaxed in many small steps. By 1992, DFI was fairly unregulated in Hungary, Poland and Czechoslovakia, and in most other countries soon afterwards. In Russia, many regulations were however still in place by the time of the survey in 1994/95 (section 2.2.3). Consequently, the share of WOS among recent investment projects would be higher. JV's established earlier may or may not have been converted in wholly owned affiliates. Institutional hysteresis would suggest that organisational forms, once established, are changed only gradually. Thus older projects, especially before 1992, and those in yet less liberalised Russia are more like to have been set up as JV:

*H8: Older investment projects are more likely in form of a JV.*

*H9: Projects in Russia are more likely to operate as JVs*

Post-socialist economies are experiencing a major industrial restructuring process (section 2.2.1). This raises the post-acquisition costs for foreign investors. Increasing productivity often requires to lay off a large number of employees. This is costly to organise and can severely damage the investors' local reputation. Therefore, Dunning and Rojec [1993]

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<sup>173</sup> For the present model, it could be hypothesised that "*DFI related to the privatisation process are more likely to enter joint-ventures.*" However, this hypothesis presumes that privatisation is exogenous, which however it is not. Acquiring a firm in the privatisation, and thus entering a bargaining process is only one alternative mode of entering the transition economies.

suggest labour intensity of an industry raises the post-acquisition costs due to the overemployment problem. Capital intensive industries would on the other hand raise the cost and entry delay of greenfield ventures compared with acquisition. Labour intensity is measured by the investors' employment over turnover ratio (EMPL\_TO).

*H10: Labour intensive firms prefer greenfield entry.*

A particular restructuring cost arises in industries where past production was polluting the environment as environmental standards were far below West European standards. Potential investors refrain from acquisitions because of uncertain environmental liabilities associated with the firms, or their property. As these problems are particularly severe in the chemical industry (CHEM), less acquisition should be seen in this industry.

*H11: Entry in the chemical industry is more likely to be in form of greenfield or JV but not by acquisition of JV acquisition.*

All hypotheses are summarised in table 8.5 with the relevant variables, their respective level of analysis and predictions. As several models are tested, the predictions are not plus or minus signs, but modes that would be favoured. Most variables are specific to the firm of the Western investor. Three variables, FACTOR\_C, ONLY\_PROJ and YEARS are specific to the relationship of the firm with the host country. H\_GROWTH is specific to the industry in the Eastern economy, and six dummies are used for the Eastern Countries. Table 8.6 shows the descriptive statistics and table 8.7 the correlations of the independent variables. Two quite high correlations between dummy variables arise by their definition: CHEM and NF\_CONS and NONEUR and GERMAN. These interactions need to be considered in the interpretation of the results. High but acceptable is the correlation of the size variable, EMPLOYM, with YEARS and GERMAN.

### **8.3 Empirical Analysis**

The empirical analysis is based on a binary Logit model, i.e. the dependent variable takes the value of one if the firm chooses the named entry mode or ownership, and zero otherwise. The regression equations for different dependent variables are independent. Any firm may have more than one operation and thus several modes of entry. The results for opposite modes of entry should be negatively correlated, but not exact mirror images.

Tables 8.8 and 8.9 report the regression results. All equations have very high predictive

power with correctly predicted observations between 76% and 89%. Very high shares of correct prediction arise in unbalanced samples with few ones for the dependent variable. The tables report the correct prediction of a random draw along the correct predictions of the model. They are calculated as  $a^2 + (1-a)^2$  where  $a$  stands for the proportion of ones in the dependent variable. The model improves the proportion of correct predictions by more than seventeen percentage points in all but one equation, the minority-JV model.  $\chi^2$ -statistics are also quite high indicating a significance of the model as a whole. The critical value for 24 degrees of freedom at 1% margin of error is 42.98. Many significant effects are consistent across models. These are overall very satisfactory results.

The regression contains a linear expression for employment. In the relevant range between zero and 120,000 employees the linear element always dominates, i.e. the marginal effect is positive where EMPLOYM has a positive sign, and negative where EMPLOYM has a negative sign. However, the effect may be smaller for very large firms because the peak or low of the expression is within the 15% of the range of EMPLOYM in most cases.<sup>174</sup>

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<sup>174</sup> The Peak is always between 42,000 and 66,000 where 15% to 7% of the firms are larger than peak value (including equations in table 8.10). The lows are at 33,390 (22%) in the WOS equation, 49,257 (15%) in the greenfield equation and at 154,258 (outside the range) in the JV-entry equation.

**Table 8.5: Summary of Variables**

<i>Variable</i>	<i>level</i>	<i>theory</i>	<i>hypothesis</i>	<i>prediction</i>
FIRST	firm	EP		see table 8.3
ONLY_PROJ	transaction	EP		see table 8.3
YEARS	transaction	EP		see table 8.3
		TR	H8	JV
GERMAN	firm	EP		see table 8.3
NONEUR	firm	EP		control
RUSSIA, ROMANIA	host country	EP		see table 8.3
		TR	H9	JV
SLOVAKIA	host country	EP		see table 8.3
R&D	firm	TC	H1, H5	WOS, greenfield
NF_CONS	firm	TC	H1	WOS
		TC	H3	JV, acquisition
FOOD	firm	TC	H1, H2	JV, acquisition
CHEM	firm	TC	H2	JV
		TR	H11	greenfield, JV
EMPLOYM	firm	TC	H4	WOS
DIVER_TO	firm	TC	H4	acquisition
FACTOR_C	transaction	SC	H7	greenfield
H_GROWTH	host industry	SC	H6	JV, acquisition
EMPL_TO	firm	TR	H10	green

Notes: HUNGARY, POLAND and SLOVENIA are predicted to have minor differences to the base case of the Czech Republic. EP = Experience and Proximity, TC = Transaction Cost, SC = Strategic Competition, TR = Transition and Restructuring, transaction = specific to the relationship of the firm with the country.

**Table 8.6: Descriptive Statistics for Independent Variables**

<i>Independent Variable</i>	<i>Unit of Measurement</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Median</i>
R&D	percentage	4.05	3.54	3.15
EMPLOYM	10 <sup>5</sup>	.20120	.07809	.26523
DIVER_TO	see appendix 5.3	25.9	6.9	81.7
EMPL_TO	ratio	9.88	7.19	9.63
YEARS	years	17.8	21.0	6.0
H_GROWTH	see appendix 5.3	-.052	.905	-.274

Note: the median for GERMAN is one and for all other dummies zero. Differences to table 6.4 and 7.3 emerge because this sample contains only firms with DFI projects.

**Table 8.7: Correlations of the Independent Variables**

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 EMPLOYM	1.0														
2 EMPL SQ	.94	1.0													
3 R&D	.06	-.04	1.0												
4 EMPL_TO	.01	-.11	.03	1.0											
5 DIVER_TO	-.21	-.13	-.02	.14	1.0										
6 NF_CONS	.10	.13	.33	-.20	-.06	1.0									
7 FOOD	-.16	-.12	-.19	-.12	-.07	-.25	1.0								
8 CHEM	.07	.12	.30	-.30	-.12	.64	-.29	1.0							
9 GERMAN	-.34	-.36	.26	-.06	-.01	.11	.10	.02	1.0						
10 NONEUR	.09	.09	-.07	-.20	-.06	.05	-.14	.11	-.49	1.0					
11 H_GROWTH	.04	.04	-.01	-.10	-.07	.10	-.00	.06	-.00	.04	1.0				
12 FIRST	-.20	-.13	-.15	-.22	.01	.12	.19	-.03	.22	.03	.16	1.0			
13 FACTOR_C	.16	.11	-.01	.09	.14	-.15	-.06	-.21	.09	-.04	-.07	-.09	1.0		
14 YEARS	.36	.27	.20	-.06	-.14	.13	-.15	.02	-.05	-.04	.02	-.22	.05	1.0	
15 ONLY_PROJ	-.06	-.05	-.02	.07	.12	-.15	.08	-.16	-.31	-.06	-.09	-.06	.08	-.04	1.0
HUNGARY	-.03	-.03	.03	.04	-.01	-.04	-.01	-.02	.03	-.06	.05	-.01	-.04	-.00	.03
POLAND	-.07	-.07	-.01	-.08	-.02	.02	.05	.03	-.02	.05	-.03	.03	.01	-.02	.03
ROMANIA	.11	.12	.04	-.04	-.01	-.03	.06	.01	-.01	.08	.00	-.02	.05	.06	-.09
RUSSIA	.07	.06	-.04	.08	.03	-.06	-.03	-.05	-.14	-.01	-.12	-.07	-.02	.12	.15
SLOVENIA	.09	.07	.03	-.01	-.03	-.04	-.06	.01	-.02	.01	-.01	-.05	.17	-.06	.04
SLOVAK/BG	.05	.02	.05	.02	-.04	.11	.01	.07	.07	.02	-.07	.06	-.05	-.09	-.10

Note: correlations are significant at 5%-level for  $r > 0.13$ .

**Table 8.8: Logit Models: Form of Ownership**

<i>Dep. Variable</i>	<i>WOS</i>	<i>JV-Owner</i>	<i>Minority-JV</i>	<i>Majority-JV</i>
FIRST	<b>-2.2878 (.784)****</b>	<b>2.3767 (.799)****</b>	.5995 (1.09)	<b>2.1324 (.760)****</b>
ONLY_PROJ	<b>-1.9344 (.670)****</b>	<b>1.9216 (.676)****</b>	1.2387 (.963)	.9206 (.656)
YEARS	-.0115 (.013)	<b>.0371 (.013)***</b>	<b>.0276 (.014)**</b>	.0096 (.011)
GERMAN	-.0372 (.648)	.6436 (.629)	-.1184 (.769)	<b>1.3660 (.661)**</b>
NONEUR	<b>1.4242 (.782)*</b>	-.7880 (.629)	-.4318 (.840)	-.1422 (.688)
CZECH = base				
HUNGARY	.3904 (.639)	-.2464 (.532)	-.2824 (.829)	-.2792 (.539)
POLAND	.1661 (.608)	-.2985 (.537)	.3459 (.719)	-.5605 (.545)
ROMANIA	<b>-2.6792 (.866)****</b>	<b>2.4799 (1.00)**</b>	<b>2.3764 (.892)***</b>	.1052 (.943)
RUSSIA	<b>-1.1832 (.653)*</b>	<b>2.0561 (.698)****</b>	<b>2.1158 (.719)****</b>	.3718 (.643)
SLOVENIA	-1.4885 (1.21)	1.1035 (1.19)	<b>2.5293 (1.21)**</b>	-1.1377 (1.32)
SLOVAK_BG	-.0148 (1.02)	-1.1006 (.985)	-6.0155 (25.8)	-1.0832 (.930)
R&D	<b>.2739 (.100)***</b>	<b>-.4191 (.102)*****</b>	<b>-.2954 (.116)**</b>	<b>-.1995 (.086)**</b>
NF_CONS	.5812 (.678)	<b>-1.7217 (.582)****</b>	<b>-1.3314 (.737)*</b>	<b>-1.2236 (.588)**</b>
MACH = base				
FOOD	-.0997 (.670)	-.5409 (.665)	.2785 (.807)	-.2868 (.644)
CHEM	-.9679 (.680)	<b>1.9252 (.582)****</b>	<b>1.6997 (.752)**</b>	.7999 (.569)
EMPLOYM	-1.6430 (2.97)	<b>11.8654 (3.22)****</b>	<b>6.1293 (3.26)**</b>	<b>12.4603 (3.64)****</b>
EMPL_SQ	2.4603 (2.99)	<b>-13.4940(3.76)****</b>	<b>-6.5076 (3.30)**</b>	<b>-14.4045 (4.71)****</b>
DIVER_TO	-.0027 (.003)	.0038 (.003)	.0041 (.003)	<b>.0048 (.003)*</b>
FACTOR_C	-.7066 (.488)	<b>1.9544 (.480)*****</b>	.1794 (.553)	<b>1.5481 (.425)****</b>
H_GROWTH	.3809 (.244)	-.3420 (.218)	-.0041 (.258)	-.2815 (.225)
EMPL_TO	-.0287 (.031)	-.0111 (.031)	-.0020 (.033)	-.0174 (.033)
Constant	2.1844 (.900)**	-.5025 (.854)	-1.9615 (.963)**	-2.2434 (.858)***
observations	215	216	215	215
variables	20	20	20	20
$\chi^2$ -statistic	65.467	111.846	50.522	65.859
correct pred.	84.65%	79.63%	88.37%	80.00%
random pred.	66.36%	53.13%	75.32%	62.38%
ones/zeros	169/46	81/135	31/184	54/161

significance levels: \* = 10%, \*\* = 5%, \*\*\* = 1%, \*\*\*\* = 0.5%, \*\*\*\*\* = 0.005%.

**Table 8.9: Logit Models: Mode of Entry**

<i>Dep. Variable</i>	<i>Greenfield</i>	<i>Acquisition</i>	<i>JV-Entry</i>	<i>JV-Acquisition</i>
FIRST	<b>-1.8396 (.733)**</b>	.2278 (.760)	.4802 (.741)	<b>2.4324 (1.05)**</b>
ONLY_PROJ	<b>-1.4794 (.604)**</b>	-.6462 (.714)	.7053 (.712)	.9343 (.834)
YEARS	<b>-.0210 (.011)*</b>	-.0109 (.012)	<b>.0310 (.012)**</b>	<b>.0273 (.014)*</b>
GERMAN	-.6982 (.542)	.6091 (.592)	<b>1.3573 (.682)**</b>	-.9087 (.816)
NONEUR	<b>1.2976 (.581)**</b>	-.1692 (.602)	.0119 (.710)	<b>-2.3985 (1.06)**</b>
CZECH = base				
HUNGARY	-.2037 (.467)	-.0109 (.486)	.5370 (.606)	.1549 (.695)
POLAND	.1447 (.475)	-.0409 (.462)	.5154 (.590)	-.6459 (.710)
ROMANIA	<b>-1.4503 (.838)*</b>	-.7232 (.855)	1.4440 (.928)	-.5538 (1.12)
RUSSIA	-.7272 (.584)	<b>-1.8696 (.768)**</b>	<b>2.6060 (.665)****</b>	.8958 (.726)
SLOVENIA	-.1400 (1.11)	-.4474 (1.06)	-4.6899 (15.7)	.9808 (1.42)
SLOVAK_BG	.9747 (.844)	<b>-2.1888 (1.15)*</b>	.7665 (.951)	-.9040 (1.34)
R&D	<b>.1890 (.068)***</b>	-.0917 (.068)	<b>-.2159 (.089)**</b>	-.0197 (.082)
NF_CONS	<b>.9927 (.501)**</b>	<b>-1.2852 (.542)**</b>	-.4854 (.631)	-.2442 (.739)
MACH = base				
FOOD	-.1950 (.535)	.8112 (.576)	<b>-1.2070 (.699)*</b>	.9211 (.800)
CHEM	-.1930 (.490)	<b>1.4688 (.547)***</b>	-.6184 (.624)	.5399 (.862)
EMPLOYM	<b>-7.8643 (2.54)****</b>	<b>5.6322 (2.50)**</b>	-1.8908 (2.97)	<b>14.5236 (3.55)*****</b>
EMPL_SQ	<b>7.9829 (2.63)****</b>	<b>-4.3385 (2.42)*</b>	.6129 (2.95)	<b>-12.6465 (3.53)****</b>
DIVER_TO	<b>-.0048 (.025)*</b>	-.0002 (.003)	-.0038 (.003)	<b>.0078 (.002)****</b>
FACTOR_C	-.0238 (.406)	<b>1.2102 (.418)****</b>	.2577 (.463)	<b>1.0836 (.540)**</b>
H_GROWTH	<b>.3980 (.195)**</b>	<b>-.4087 (.207)**</b>	.2104 (.220)	-.3125 (.279)
EMPL_TO	.0449 (.030)	-.0609 (.049)	-.0091 (.036)	-.0794 (.063)
Constant	-.5978 (.770)	-2.2661 (1.00)**	-1.4711 (.915)	-2.7433 (1.18)**
observations	212	211	210	210
variables	20	20	20	20
$\chi^2$ -statistic	70.202	52.643	48.808	70.689
correct pred.	75.94%	77.73%	82.38%	89.05%
random pred.	51.00%	58.90%	66.88%	71.59%
ones/zeros	121/91	61/150	44/166	36/174

significance levels: \* = 10%, \*\* = 5%, \*\*\* = 1%, \*\*\*\* = 0.5%, \*\*\*\*\* = 0.005%.

**Table 8.10: Country Patterns***Difference in coefficients from base country, and standard deviations on the differences*

<b>a. Wholly Owned Affiliate</b>			<b>b. JV-Owner</b>		
<i>Rank</i>	<i>Difference</i>	<i>Standard Error</i>	<i>Rank</i>	<i>Difference</i>	<i>Standard Error</i>
1. Hungary	0		1. Romania	+ .424	1.05
2. Poland	- .224	.645	2. Russia	0	
3. Slovak/BG	- .376	1.04	3. Slovenia	- .953	1.26
4. Czech	- .390	.639	4. Czech	<b>-2.056</b>	<b>.698****</b>
5. Russia	<b>-1.574</b>	<b>.687**</b>	5. Hungary	<b>-2.303</b>	<b>.703****</b>
6. Slovenia	-1.879	1.23	6. Poland	<b>-2.355</b>	<b>.731****</b>
7. Romania	<b>-3.070</b>	<b>.888****</b>	7. Slovak/BG	<b>-3.157</b>	<b>1.09****</b>
<b>c. Minority JV</b>			<b>d. Majority JV</b>		
<i>Rank</i>	<i>Difference</i>	<i>Standard Error</i>	<i>Rank</i>	<i>Difference</i>	<i>Standard Error</i>
1. Slovenia	+ .414	1.16	1. Russia	0	
2. Romania	+ .261	.824	2. Romania	- .267	1.02
3. Russia	0		3. Czech	- .372	.643
4. Poland	<b>-1.770</b>	<b>.668***</b>	4. Hungary	- .651	.664
5. Czech	<b>-2.116</b>	<b>.719****</b>	5. Poland	- .932	.673
6. Hungary	<b>-2.398</b>	<b>.774****</b>	6. Slovenia	-1.509	1.38
7. Slovak/BG	-8.131	25.8	7. Slovak/BG	-1.455	1.02
<b>e. Greenfield</b>			<b>f. Acquisition</b>		
<i>Rank</i>	<i>Difference</i>	<i>Standard Error</i>	<i>Rank</i>	<i>Difference</i>	<i>Standard Error</i>
1. Slovak/BG	0		1. Czech	0	
2. Poland	- .830	.851	2. Hungary	- .011	.486
3. Czech	- .975	.839	3. Poland	- .041	.462
4. Slovenia	-1.115	1.27	4. Slovenia	- .447	1.06
5. Hungary	-1.178	.848	5. Romania	- .723	.855
6. Russia	<b>-1.702</b>	<b>.902**</b>	6. Russia	<b>-1.870</b>	<b>.768**</b>
7. Romania	<b>-2.425</b>	<b>1.09**</b>	7. Slovak/BG	<b>-2.188</b>	<b>1.15*</b>
<b>g. JV-Entry</b>			<b>h. JV-Acquisition</b>		
<i>Rank</i>	<i>Difference</i>	<i>Standard Error</i>	<i>Rank</i>	<i>Difference</i>	<i>Standard Error</i>
1. Russia	0		1. Slovenia	+ .085	1.44
2. Romania	-1.162	.934	2. Russia	0	
3. Slovak/BG	<b>-1.840</b>	<b>.971*</b>	3. Hungary	- .741	.748
4. Hungary	<b>-2.069</b>	<b>.649****</b>	4. Czech	- .896	.726
5. Poland	<b>-2.091</b>	<b>.630****</b>	6. Romania	-1.450	1.17
6. Czech	<b>-2.606</b>	<b>.664****</b>	5. Poland	<b>-1.542</b>	<b>.765**</b>
7. Slovenia	-7.296	15.7	7. Slovak/BG	-1.800	1.39

Significance levels: \* = 10%, \*\* = 5%, \*\*\* = 1%, \*\*\*\* = 0.5%

## **8.4 Results and Hypothesis Tests**

### **8.4.1 Psychic Proximity and Experience**

The psychic distance between the home of the investor and the investment location as well as the investor's international and region specific experiences have theoretically ambiguous effects. Of the four alternative lines of arguments, the empirical analysis gives most support to proposition 1, focusing on JV as a mode of learning, but also supports other propositions for some variables. Institutional constraints interact with the proposed effects, leading to counter-intuitive results.

Firms with little experience prefer a JV-ownership, including entry by JV-acquisition, and avoid full ownership and greenfield projects. This pattern emerges for both international experience at large (proxied by FIRST) and regional experience (ONLY\_PROJ) in tables 8.8 and 8.9. It supports the learning argument in proposition 1, and is also consistent with the complementary inputs argument in proposition 3. Thus, firms which lack international or regional experience choose a mode of entry that provides means of learning and complementary inputs. Experienced firms are more likely to establish greenfield projects with full ownership.

This pattern is not confirmed by the third experience variable, YEARS. Positive significant signs on JV-owner, minority-JV and JV-entry show that firms with business contacts in the region over a long time are more likely to have JV's. This pattern is, surprisingly, in line with proposition 4. This has not been suggested in the literature with respect to experience, only for proximity. It would suggest that inexperienced firms abstain from JV because of potential coordination problems between the parents. More likely, a different effect arising from legal constraints is dominating the experience effect. Older projects were set up under a different legal framework (H8). The changing pattern of entry modes over times has also been reported in a number of earlier studies, including Hood and Young [1994], Möllering et al. [1995], Duvvuri et al. [1995] and Sharma [1995a].

Because of institutional hysteresis this also affects the present ownership of operations: JV's, especially minority JV's, were established during the times of legal constraints and continue

operating as JV's, even with foreign minority shares. Up until the time of the survey, in Winter 1994/95, only some of them had been taken over by one partner or discontinued. Thus, a temporary regulation has a lasting effect. New projects are established predominantly by acquisition or greenfield investment and whole ownership, while old projects are still in a form of JV.<sup>175</sup>

Proximity effects have been analysed using dummies for both home and the host countries but no unanimous results emerge. German firms prefer majority JV, for JV-entry and acquisition but against JV-acquisition and greenfield. Firms affiliated to non-European, mainly American, parents have a higher preference for WOS and greenfield.<sup>176</sup> This pattern supports proposition 2 (post-acquisition costs) and proposition 4 (coordination costs). It should however be considered cautiously for two reasons: first, the effects are rarely significant. Secondly, the home country dummies would also capture differences unrelated to proximity. Overall, the results attribute no major differences in entry and ownership patterns solely to the nationality of the firm.

The results for the host country dummies are consistently supporting proposition 1. This evidence is in line with the results of chapter 7 where proximity favoured DFI over contracts and trade. Table 8.10 examines the pattern across the seven host countries. Mode of entry and ownership vary substantially: the ranking of countries changes for each option. Therefore, the priorities have been tabulated separately based on regressions using the country with the highest preference as a base case.<sup>177</sup> This analysis can detect more significant differences than the  $\chi^2$ -test of proportions in table 8.1 because various influences have been controlled for.

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<sup>175</sup> The sample includes JV's even if the same firm has another WOS project. This is because multiple responses were permitted. If only one project for each firm and country was considered, as in many studies, this effect would be less apparent.

<sup>176</sup> This contrasts with van Dam *et al.* [1996] who found that US firms have a higher propensity for 'cooperative' ventures than did Dutch firms.

<sup>177</sup> In some incidences, the base case has been adjusted because the number of observations in each country in the sample varies from 5 for Slovenia to 54 in the Czech Republic. Therefore, more precise results, i.e. smaller standard deviations, are obtained for the three Visegrad countries than for any other country.

Significant differences emerge in ownership pattern, especially between the three Central European countries on the one hand, and Russia and Romania on the other: minority-JV's are most common in Romania and Russia, significantly more than in the Czech Republic, Poland, Hungary and Slovakia (table 8.10.c). Investors in Slovakia have the lowest preference for minority JV's but with a large margin of error. Interestingly, no significant differences emerge across countries for the preference for majority JV's (8.10.d). JV-entry pattern thus follows the pattern of minority JV's. WOS's are significantly more common in the three Visegrad countries than in Russia and Romania (8.10.a), which is the mirror image of the preference pattern for JV's.

Entry modes also differ primarily between Poland, Hungary and the Czech Republic on the one hand, and Russia and Romania on the other. Greenfield and acquisition projects are more common in the three Central European countries, whereas JV's are preferred in the two more distant countries. The pattern of JV-acquisitions does not seem to follow a proximity pattern (table 8.10.h). Here the specific modalities of the privatisation process may explain the variation: apparently, investors were frequently asked to take only partial ownership in state-owned enterprises in Russia. In Slovakia or Poland, privatisation agencies did not favour JV-acquisition.

Slovakia takes the predicted intermediate position for JV's, but greenfield is more common at the expense of acquisition. This may be due to a lack of attractive take-over targets. Slovakia was developed through military and heavy industry during socialist rule while light and machinery industries were based in the Czech part of Czechoslovakia.

This pattern is as predicted by proposition 1. However, it has to share the credit for the effect with the transition argument on the legal environment (H9) because of a positive correlation of the distance from the West and the extent of legal restrictions. These are still more restrictive in Russia and Romania, and would be sufficient reason to explain why minority JV's are more likely there. The fact that the effect is significant for minority JV's but not majority JV's may support H9.

In conclusion, the institutional framework interacts with the proposed experience and

proximity variables so that their contribution is diluted. For first time investors and one project investors, proposition 1 is confirmed: they prefer JV as a means to learn about the environment and acquire complementary assets. Specific conditions in the transition countries, especially the liberalisation over the five years prior to data collection, make it impossible to detect the gradually deeper involvement by investors over time. Therefore, older projects are more likely to be in the form of a JV. Differences across host countries are in line with proposition 1, which suggested that in distant locations JV's would be preferred. It could however also be a result of legal constraints. The pattern for both country experience and host country differences is most significant for minority-JV's. Psychic distance appears to encourage minority-JV's (and contracts) as a mode with low exposure and capital commitment, as these enable distant investors to learn while sharing the risk.

#### **8.4.2 Transaction Cost Economics**

TCE arguments centred around the issues of market failure, complementary inputs and core competencies. All these aspects receive convincing support, although for some variables contradicting hypotheses have been suggested.

As predicted in H1, R&D has a positive and highly significant sign for WOS and greenfield and a negative significant effect on all concepts related to JV.<sup>178</sup> This strongly supports the argument of hypothesis H1 that research-intensive firms are eager to maintain full control over their operation and are unlikely to share control with JV partners. This is even more remarkable as the R&D proxy performed poorly in chapter seven. The result also supports H5, which suggested that R&D-intensive firms face more obstacles with the integration of acquired firms using a different organisational or managerial approach.

Non-food consumer goods manufacturers (NF\_CONS) have the same priority of preferences as R&D-intensive firms. In particular, they prefer greenfield projects over acquisitions. Thus, their concerns about the transfer of marketing knowledge and brand names (H1) and integrating local operations outweigh their need for complementary local inputs from a JV

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<sup>178</sup> Given the results of chapter seven, a dummy for the pharmaceutical industry was added in a separate experiment. This was never significant and did not alter the results for the R&D variable, though in some incidences the collinearity reduced the level of significance.

partner or acquired firm (H3). The suggestion that these firms would enter the region by acquiring local firms and using them only as their distribution network [Dunning and Rojec 1993, Sereghyová 1995] is not confirmed by this analysis.

Firms in the two broadly defined resource-based industries, FOOD and CHEM, prefer acquisitions or JV-acquisitions over establishing a new JV-entry. The CHEM industry also has a significant preference for JV ownership where the effects of FOOD are insignificant. In these industries, the need for complementary inputs appears to dominate over post-acquisition costs of restructuring and integrating the acquired firm. Note the opposite priorities suggested by the results for the food and non-food consumer goods industries.

Hypothesis H4 considered the relationship of firms' core competencies and the best mode to utilise them in a foreign environment. Large and diversified firms were hypothesised to be best equipped to manage acquired operations. The size effect receives strong support with a significant effect by the employment variable. Large firms have a relative preference for acquisitions and JV-acquisitions. They also appear to be better equipped to manage JVs than are small firms. Small firms prefer greenfield operations that give them the possibility of starting an operation at a small scale in line with their financial and managerial resources. Diversified firms were expected to prefer acquisition entry as their competencies are in managing firms with a variety of activities. The effect emerges only (but highly significantly) for JV-acquisition, presumably the mode of entry most difficult to manage. Otherwise, the variable is insignificant with coefficients signed as for the size variable and thus consistent with the hypothesis.

In conclusion, the analysis shows strong support for arguments developed in the transaction cost section: firms sensitive to market failure avoid JV's, and the nature of the core competencies of the firm determines the preferred mode of entry. Firms capable of restructuring and integrating another firm would choose acquisition entry.

### **8.4.3 Strategic Competition and Transition Environment**

Three effects have been suggested to capture the impact of strategic competition on the mode of entry. All three were motivated by the presumed urgency of entry in some industries, but they are clearly rejected in the analysis.

The NF\_CONS and FOOD dummies were predicted to indicate a preference for JV and acquisition entry because consumer goods manufacturers are especially concerned about speedy access to local markets. NF\_CONS however fails to support this proposition, as it did for the proposition H3 that derived the same prediction from the need for complementary local inputs. The rejection of both hypotheses shows that the nature of consumer goods industries in CEE is different from other markets. Apparently, the local industry is of little interest to potential buyers, although it possesses knowledge on the local environment, local brand names and access to distribution channels. Thus, the positive effect of internalisation incentives in favour of WOS (H1) dominates.

Entry in fast growth industries also is in the form of greenfield with wholly owned operations rather than acquisition. Several possible explanations come to mind: the growth of the industry could be a result of foreign investment rather than a cause. For instance, if competitors acquired a leading and growing firm, the following firm may not find a suitable local target firm. Secondly, growing industries can accommodate more entrants without frictions with competitors. Thirdly, the highest growth may occur in sectors neglected under the socialist regime. Their growth could come primarily from foreign investors or newly established local firms. In any case, the transition-specific pattern of industrial growth seems to create conditions of competition different from the pattern found in other markets.

The third proposition suggested that investors using factor-cost differentials to supply world-wide markets would have less urgency in implementing their projects. This too is rejected as factor-cost oriented investors do prefer JV and acquisitions. This suggests that existing production facilities are more suitable to supply low cost products for exports than to supply the local market. It could however also be a result of the privatisation policy, to be discussed in the next section.

No support is given to either of the two hypotheses on the specific post-acquisition costs of restructuring a local firm. The chemical industry dummy has a positive significant sign on acquisition and thus seems undeterred by potential environmental liabilities as proposed by H11. According to H10, labour intensive firms would prefer a greenfield entry. Yet the labour intensity dummy is correctly signed but insignificant in all models.

In conclusion, the competitive nature of transition economies seems different from mature market economies. The expected strategic motivations for mode of entry decisions do not apply under these conditions. In particular, acquisition is not preferred where speed of entry was presumed to be important. Yet factor cost oriented investors choose acquisition although they are presumed to have less urgency of entry. Specific effect suggested for the transition environment did not materialise either.

**Table 8.11: Privatisation-Acquisition by Type of Firms**

	yes	no	yes, %		yes	no	yes, %
Czech R	12	41	23%	Food & Bev	6	21	22%
Hungary	10	39	20%	Chemicals	19	58	25%
Poland	11	40	22%	Machinery	16	92	15%
Russia	2	26	7%	$\chi^2$	2.967	(2)	
Romania	2	10	17%	UK	8	63	11%
Slovenia	2	3	40%	German	33	108	23%
Slovak/BG	2	12	14%	$\chi^2$	4.459	(1)**	
$\chi^2$	4.891	(6)		Total	41	171	19%

$\chi^2$  -tests are categorical tests for independence of the two dimensions of the table.

\*\* = significant at 5% level.

**Table 8.12: Privatisation**

<i>Dep.Variable</i>	<i>Privatisation</i>	<i>Benchmark</i>	<i>Difference</i>	
FIRST	<b>-1.5858 (.959)*</b>	.8835 (.723)	<b>-2.4693 (.417)</b>	<b>2.06**</b>
ONLY_PROJ	.0762 (.901)	.7951 (.601)	-.7189 (1.08)	.66
YEARS	.0012 (.013)	.0080 (.011)	-.0068 (.017)	.40
GERMAN	<b>1.5586 (.781)**</b>	-.1765 (.539)	<b>1.7351 (.949)</b>	<b>1.83*</b>
NONEUR	-.4781 (.823)	<b>-.9317 (.560)*</b>	-.4536 (.991)	.46
CZECH = base				
HUNGARY	-.0391 (.596)	-.0052 (.478)	.0339 (.764)	.04
POLAND	-.1726 (.568)	-.2499 (.467)	-.0773 (.735)	.11
ROMANIA	-.4615 (.994)	-1.2870 (.953)	-.8255 (1.38)	.60
RUSSIA	<b>-1.7803 (.948)*</b>	-.7205 (.603)	-1.0598 (1.12)	.94
SLOVENIA	.3279 (1.16)	-.0997 (1.13)	.4276 (1.62)	.26
SLOVAK_BG	-.4421 (.988)	<b>-1.9566 (.936)**</b>	1.5145 (1.36)	1.11
R&D	<b>-.3980 (.110)****</b>	<b>-.1299 (.067)*</b>	<b>-.2681 (.129)</b>	<b>2.08**</b>
NF_CONS	<b>-1.1427 (.679)*</b>	<b>-.9287 (.518)*</b>	-.2140 (.854)	.25
MACH = base				
FOOD	.9285 (.688)	<b>1.2340 (.573)**</b>	-.3055 (.895)	.34
CHEM	<b>2.4955 (.713)****</b>	<b>1.5105 (.540)***</b>	.9850 (.894)	1.10
EMPLOYM	<b>7.3680 (3.06)**</b>	<b>10.1824 (2.56)****</b>		
EMPL_SQ	<b>-5.7685 (2.98)*</b>	<b>-7.9008 (2.39)****</b>		
DIVER_TO	<b>.0045 (.003)*</b>	<b>.0053 (.002)**</b>	-.0008 (.002)	.27
FACTOR_C	<b>1.7814 (.503)****</b>	<b>1.2230 (.409)****</b>	.5584 (.648)	.86
H_GROWTH	-.3351 (.252)	<b>-.4845 (.198)**</b>	.1494 (.320)	.47
EMPL_TO	-.0917 (.062)	<b>-.0707 (.043)*</b>	-.0210 (.075)	.28
Constant	-2.3549 (1.19)	-.6796 (.829)		
observations	212	211		
variables	20	20		
$\chi^2$ -statistic	29.815	69.223		
correct pred.	86.57%	76.00%		
random pred.	68.80%	52.70%		
ones/zeros	41/171	81/130		

significance levels: \* – 10% \*\* = 5%, \*\*\* = 1%, \*\*\*\* = 0.5%, \*\*\*\*\* = 0.005%.

## 8.5 Privatisation

Privatisation accounts for a major share of foreign investment, especially of DFI capital inflows in the first years after opening up to international business (section 2.2.4). In the survey, investors were asked whether or not they participated in this privatisation process. Table 8.11 shows that more than one in five DFI projects in the three Visegrad countries did. Little variation emerges among these countries despite their different privatisation policies [Estrin 1994]. In Russia, only 7% of projects are related to privatisation. Neither are significant variations across industries detected, though German firms are significantly more active in this process than British firms.<sup>179</sup>

In a reasonably perfect market for privatised firms, participation in the privatisation process would be driven by the same forces as acquisition entry. Foreign investors would acquire firms from the privatisation agencies if the value of the local assets were attractive. This implies that arguments for acquisition would also apply for privatisation entry. Therefore, the analysis starts from the basic premise that

*H: The coefficients in the acquisitions model are not significantly different from those of the privatisation model.*

The test of this hypothesis will generate some insight into how industrial policy in the region affects DFI. Differences between the benchmark and the privatisation model would arise from the privatisation policy, and the nature of the assets to be privatised. The models are Logit models of the same type as those presented in section 8.4. The dependent variables are the following dummy variables:

Privatisation = 1 if the investment is related to the privatisation process, and

Benchmark = 1 if the firm has either an acquisition or a JV-acquisition.

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<sup>179</sup> These results differ from Meyer [1995b] because those data included non-manufacturing firms in the British sample which had projects in utilities or exploration activities in Russia. In all other cases there are no substantial differences between the proportion reported in this table and the first results summary of the survey.

The benchmark model is defined in this form because privatisation can result in these two forms of entry. Investors may acquire full ownership of an enterprise, or an equity share in a firm in which the government retains a stake. The first research question is whether or not privatisation is determined by the forces hypothesised to determine acquisitions: does the privatisation regression confirm hypotheses in section 8.2 on preferences for acquisition? Secondly, how does the privatisation regression differ from the empirically observed determinants of acquisitions, i.e. the benchmark equation?

As proposed, firms most likely to have appropriate managerial resources to manage and reorganise an acquired firm are more likely to acquire a privatised firm: These are large and diversified (H4) firms with low technology intensity (H5). The signs on EMPLOYM, EMPL\_SQ, DIVER\_TO and R&D are as predicted and, except DIVER\_TO, significant. Acquisitions are more frequent in psychic proximity and by firms with international experience or long-standing contacts in the host country. The signs for GERMAN, RUSSIA and FIRST are significant and correctly signed, while YEARS and ONLY\_PROJ are correctly signed but insignificant. The significant negative sign of the RUSSIA coefficient could be a result of psychic distance or of the minor role of sales to foreigners in the Russian privatisation process.

A compulsion for speedy entry does not lead to acquisition or privatisation entry. On the contrary, investors avoid the privatisation in the industries where such strategic motivations for an acquisition were proposed, in non-food consumer goods (NF\_CONS) and fast growing industries (H\_GROWTH). Factor-cost oriented investors, who were presumed to be less in need of a speedy entry (FACTOR), however, have a high preference for privatisation. This may be an outcome of an industrial policy followed by privatisation agencies that gives preference to investors who intend to export at least some of their products.

Potential environmental liabilities do not deter acquisition nor participation in privatisation. In fact, CHEM firms appear more likely than others to participate. The effect of labour intensity is unclear: although the coefficient is large relative to that observed in all other equations in this chapter, it is insignificant due to a large variation. Thus, on average, labour intensive firms avoid the privatisation process, but with wide variations.

Comparing the determinants of privatisation-acquisition with those of the benchmark model, the most apparent result is the absence of major differences: only 3 of 21 variables change their sign. These are GERMAN, FIRST and SLOVENIA, of which the latter is well within its standards error. The other two variables are related since all companies with little prior international experience (FIRST) are based in Germany. As the two coefficients have roughly equal size, this is to be interpreted as 'German firms with international experience are more likely to be active in the privatisation process'.

The coefficient on the R&D variable is three times as high in the privatisation equation, and significantly different as indicated by the t-test. Thus, technology intensive firms avoid acquisitions and even more so the privatisation process. Such firms would find it extremely difficult to adapt and integrate an existing firm with established production facilities and organisational structures into the parent firms' corporate structures. This suggests that post-acquisition restructuring costs particularly affect privatised former state-owned enterprises.<sup>180</sup>

In conclusion, the acquisition of firms in the privatisation process is driven by similar forces as acquisitions overall. First, firms which combine advantages of proximity and international experience are most likely to participate. This provides one explanation why neighbouring countries, such as Germany and Austria, have had a dominant role in foreign investment early in the systemic transition. Secondly, privatisation policy was successful in attracting projects that use factor-costs and export at least part of their output. This is in spite of the fact that labour intensive Western firms are less likely to be involved in the process.

Thirdly, firms with the managerial capabilities needed to restructure a firm are more likely to participate while technology intensive firms prefer to set up new operations. Firms offered in the privatisation process face more problems of organisational restructuring than those that could be acquired through other means. Therefore, firms well equipped to manage firms in CEE are more likely to invest: these are large, diversified and internationally experienced firms. On the other hand, firms with core competencies in proprietary technology, or which

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<sup>180</sup> Alternatively, one could argue that few research oriented enterprises are offered in the privatisation process because they would be considered part of the 'family silver'. There is however no evidence for this.

face major restructuring of an over-staffed labour force, avoid the privatisation process.

Fourthly, and contrary to expectations, firms do not acquire privatised firms for the strategic objectives of acquiring complementary assets or of achieving a speedy entry to the market. It appears that the procedures of the privatisation process do not permit speedy entry. Negotiating a privatisation-acquisition may be lengthy as many parties are involved in the process, including multiple government agencies, firm management and workers' councils which may have quite contrasting objectives [Rojec and Jermakowicz 1995, Antal 1995]. Therefore, the most important motivation for acquisitions, from a perspective of strategic competition, does not apply.

## **8.6 Conclusions**

Three objectives have been laid out for this chapter: testing DFI theory on ownership and entry mode, exploring the pattern of privatisation-related DFI, and exploring of the special features of CEE and cross-country differences.

The experience and proximity propositions and TCE received support for very similar lines of argument. In fact, the former could be integrated into the latter, although the theoretically ambiguous effects would be more difficult to illustrate within this framework. The arguments receiving empirical support are:

- JV's are used as an opportunity to learn;
- firms sensitive to market failure prefer wholly owned operations;
- firms with unique core competences prefer greenfield operations;
- firms with capabilities to restructure and integrate an acquired firm are more likely to choose acquisition and JV-acquisition; and
- legal constraints influence ownership patterns.

On the other hand, there are common lines of argument receiving little or no support from the empirical analysis:

- Psychic distance does not inhibit JV although coordination between the partners becomes more difficult.

- Firms presumed to demand a speedy entry into new markets do not choose acquisitions and JV's. This refers to consumer goods manufacturers, high growth industries, and investors seeking local markets (rather than low factor-costs).
- Firms presumed to require complementary inputs are rarely shown to choose JV or acquisition as entry mode. Only resource-based industries prefer acquisitions, though not JV-ownership. Inexperienced firms, and projects in distant host countries, choose JV and JV-acquisition, but not acquisitions. Firms from distant home countries and non-food consumer goods manufacturers choose neither.

The tests for specific costs of industrial restructuring in the region did not yield the predicted results. This could be attributed to the complexity of constraints and costs for economic transition that have not been explored sufficiently in previous research to obtain testable hypotheses for this analysis.

These results lend support to the TC approach, more than those of the previous chapter. The market failure motivation for internalising business transactions is more important for the choice between JV and WOS than it is for the markets and hierarchies decision between trade or contacts and DFI. In particular, technology and marketing-intensive firms (R&D, NF\_CONS) avoid both JV's and acquisitions in order to protect their know-how and implement their own organisational structure in the new affiliate.

Apparently, JV are avoided more as result of transaction costs than are contracts. Although the literature discusses the contracts versus DFI choice along the same lines as the JV versus WOS choice, there are inherent differences. A contractual arrangements can stipulate more clearly the responsibilities of each partner, and limit the risks. A joint-venture is on the other hand is more dependent on post-signature behaviour of both partners, and thus more subject to opportunism or uncertainty over the partners' capabilities and objectives. Therefore, JVs are more sensitive to information asymmetry than are contracts.

On experience and psychic proximity, the theoretical discussion developed opposing propositions. With this theoretical ambiguity, the empirical results suggest that for experience, propositions 1 (learning) and 3 (complementary inputs) dominate over

propositions 2 and 4. Firms which are unfamiliar with the local environment prefer JV - or trade, or contracts, see chapter seven. These modes enable them to reduce investment risk. In addition, JVs enhance learning and provide access to complementary inputs.

Relative to the emphasis in the international business literature, the nature of investors' capabilities emerges as very important determinant in this study. Investors face restructuring of obsolete organisational and technological structures in formerly state-owned enterprises. The post-acquisition restructuring costs may exceed costs of acquisitions. This reduces acquisition entries, except for entries by firms with managerial resources to undertake the economic restructuring. The low attraction of the physical capital stock is also the cause of a new phenomenon in CEE, called 'brownfield' [Estrin and Hughes 1996]. Investors acquire a local firm, or form a JV, but establish completely new production facilities akin to the old factory. The acquired firm serves as a reservoir of skilled employees and facilitates relationships with government agencies.<sup>181</sup>

Investment in the privatisation process has the same determinants as acquisitions overall. However, problems of matching the organisational structures of investor and acquired firm are particularly strenuous. The empirical results suggest that the privatisation process would favour export oriented investors, but it does not however provide opportunities for quick market access strategies. German firms with international experience are particularly active. This may be because participation in the privatisation process requires insider knowledge on local institutions and markets that is more accessible for firms from not so distant origins.

With respect to the countries in CEE, the evidence shows major differences that can be related to the local environment, in particular the prior industrial structure and the progress in economic transition.

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<sup>181</sup> What are the implications of the brownfield phenomenon for this analysis? Respondents to the survey will have indicated the mode of entry that they felt was the most important aspect of the brownfield. This implies that brownfields are classified as perceived managers. This is in fact a very suitable treatment since the concept of 'brownfield' is not clearly defined in a way that would clearly distinguish it conceptually from the modes of entry considered in this study.

- No significant differences emerge between the Czech Republic, Hungary and Poland in any of the options analysed for mode of entry or ownership, even though the estimates for these countries have the lowest standard errors giving the test a high power. Given the different policies followed towards DFI in these countries, this is a surprising result.
- Slovakia followed the other three Visegrad countries with respect to the ownership pattern but has distinct patterns of mode of entry: the highest preference for greenfield, a higher preference for JV-entry, and a significantly lower preference for acquisitions. The low attractiveness of acquisitions in Slovakia is however *not* because of less activity in the privatisation process (table 8.9). It may rather be due to the initial conditions with a less attractive industrial structure.
- Russia has less WOS, greenfields and acquisitions but a higher share of minority JV's, JV-entry and JV-acquisition than the four Visegrad countries. This suggests that the Russian environment favours JV over other modes of entry or ownership. Both, legal restrictions and greater psychic distance to the countries of origin could account for this effect. Also, investors are less likely to participate in the privatisation process, which indeed offers fewer opportunities for foreign investors.
- Romania has a pattern very similar to Russia except that JV-acquisitions are not particularly common, and no difference in privatisation participation was detected. The number of DFI projects in the sample is however small.
- Slovenia is difficult to assess, based on the present data set, as the small number of observations results in large standard errors. The indications are that the investment environment in Slovenia would be different from other transition economies.



## Part IV

# Conclusions



# Chapter 9

## Conclusions

### 9.1 Summary of the Analysis

This thesis presented an analysis of direct foreign investment (DFI) in the transition economies in Central and Eastern Europe (CEE). It evaluated the accumulated available statistical and qualitative evidence to assess research questions specific to the region. The theoretical literature on DFI in economics and management was reviewed and extended with an analytical framework for international internalisation decisions. On this basis, a questionnaire instrument was developed covering business relationships with five countries in CEE. Using a postal survey, data for 269 German and British companies were collected.

The empirical part examined the decision process of firms entering the region. Hypotheses derived from general economic theory were tested under the special conditions of economic transition. Methods of empirical analysis were innovative in the research on entry decisions in that multiple decisions were analysed in the same broad data set of potential investors, and integrated with a three-step decision model. At the first stage, firms' propensity to be active was examined. The second stage investigated their choice between trade, contracts and DFI. The third analysis tested hypotheses for the entry mode and ownership preferences of actual investors. Most theoretical propositions were confirmed, with however several notable exceptions. This concluding chapter interprets the research results and discusses implications

for both the international business literature and for research and policy in the economics of transition.

## **9.2 Contributions to the International Business Literature**

### **9.2.1 Research Findings and Implications**

In the OLI paradigm, Dunning [1993] considers two types of ownership advantages: first, property rights and/or intangible asset advantages, and secondly, advantages of common governance. In chapter four, a general framework showed how the trade off between internal and external transaction costs determines internalisation decisions, and thus the choice of DFI over market-based forms of international business. The two components of the OLI paradigm are related, as intangible assets affect transaction costs and common governance affects management costs.

The empirical results suggest that primarily economics of common governance and management determine firms' propensity to be active, and their forms of business. The most important ownership advantages arise from common governance related to size, international and regional experience, diversification, growth and the country of origin. Hardly any advantages of intangible assets induce DFI. For the internalisation decision, proximity, size and experience are at least as important as sensitivity to market failure. Thus, *the capability of a firm to manage a business appears more important than the characteristics of the market.*

Of the components of the TC framework, *some support is found for information content.* Evidence for asset specificity and for interaction effects with uncertainty is weak. This is in line with the reviewed empirical literature (chapter four) which is more supportive of information variables than any other. It confirms the separate treatment of asset specificity and information asymmetry in the framework. The underlying causes of market failure differ, and knowledge-related issues may be more important internationally than in a national context.

Thirdly, *psychic proximity not only encourages the emergence of international business, but*

*also favours its internalisation.* The country pattern found in chapters seven and eight suggests that business in proximity is more likely in form of DFI rather than contract, and full ownership, acquisition and participation in the privatisation process rather than joint-venture or greenfield project. Thus, proximity appears to affect internal TC and costs of integration of an acquired firm more than it affects TC of market transactions.

A fourth interesting result is the inferior performance of the markets versus hierarchies approach. A scale from markets based on price-mechanisms to hierarchically organised firms appears insufficient to account for the variety of international business. The superiority of the M-Logit over the O-Logit suggests that *contracts are a distinct form of business rather than an intermediate between markets and hierarchies.* In fact, contracts are chosen by many firms which were expected to favour internalisation because of information intensity. Contracts appear sufficient to protect the interests of many firms sensitive to market failure, especially for business outside their core markets. Figure 7.2 offered a graphical illustration and interpretation of this result.

The capability of a firm to manage the new operation emerges as the major determinant of internalisation. The causality in the decision process may be as follows: firms take strategic decisions on the kind of activity they would undertake in a country, i.e. what parts of the production chain to locate there. This decision defines the interface between the business units in the two countries. Capabilities of the firm to manage the new venture, together with the nature of the interface, determines the organisational form. The relative advantages of available organisational forms for an interface can additionally create feedback effects such that decisions are interdependent.

Similar arguments on firm's capabilities and transaction specific influences determine entry mode choice. *Firms with unique competences embedded in their organisational or technological structure abstain from modes that require sharing control or impede implementation of an organisational design.* Therefore, they prefer either contracts or greenfield investment. Both modes avoid sharing control over uncodifiable or difficult to value knowledge. Contracts can be used to transfer clearly defined technology or stages of the production chain. Greenfield projects allow the recreation of major units based entirely

on the parent's organisation and technological concepts and on exchanging extensive information. On the other hand, integrating an acquired firm may impede the implementation of new an organisation or technology because inherited structures may be resistant to change. A JV could face problems due to both the inherited structures of the partner, and the diffusion of sensitive knowledge.

As a corollary of this, *companies with capabilities to manage a variety of activities are more apt to invest directly, particularly by acquiring, restructuring and integrating local firms.* This includes large and internationally active diversified firms. They would be less concerned about technological spillovers than about putting their management capabilities to work. Firms with a strong global presence are also more active and hence capable of managing a wholly owned affiliate. Firms without capabilities in international management prefer to form a JV with a local partner to acquire know how on the local environment, despite the higher cost of managing a JV. This learning effect appears to dominate among opposing theoretical effects of experience and psychic proximity.

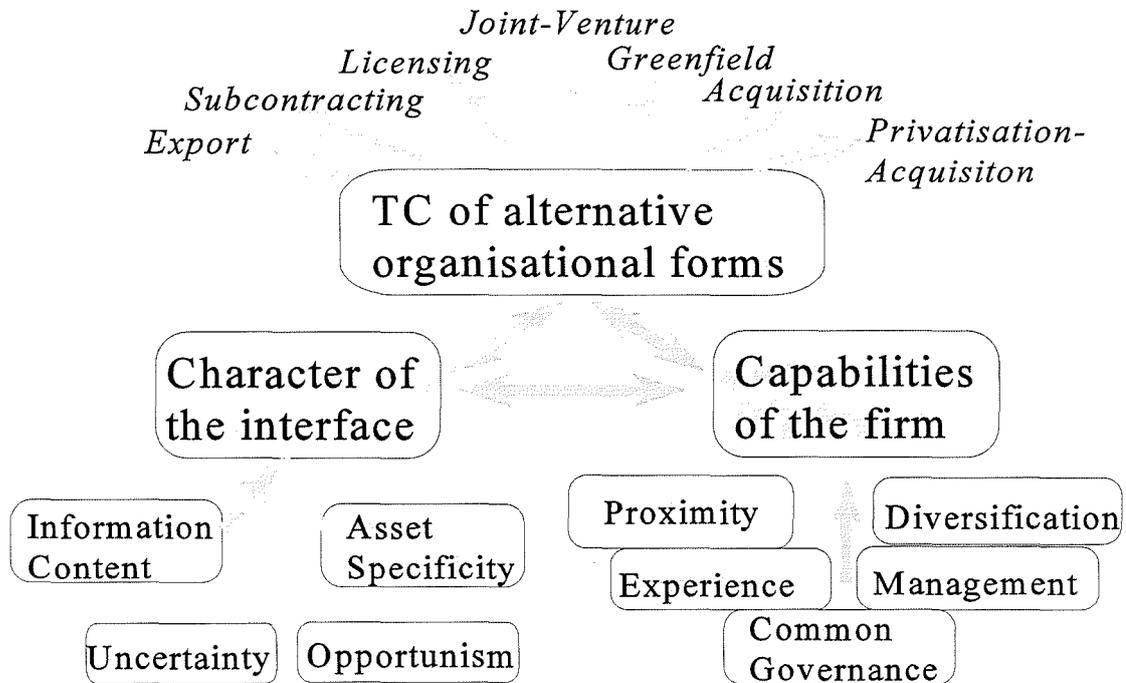
An explanation for the shift towards common governance and management capabilities as explanatory variables is the globalisation of business. Most firms in the sample, especially the large firms that are most active in CEE, have developed into multinational enterprises which have acquired competencies throughout a multi-country or global network. They are increasingly independent of the specific competitive advantages they obtained in their country of origin [Narula 1995]. At this stage of development, the organisational or managerial competencies become more important for corporate strategy than the nature of the technological expertise. These competencies in turn depend on experiences and economies of common governance.

These results expose fundamental weaknesses in the TCE approach:

- By focusing on market failure, TCE analysts may miss important aspects of internalisation decisions, especially the capabilities of firms to manage operations.
- By focusing on markets and hierarchies as the fundamental modes of organisation, TCE analysts may miss the diversity of organisational arrangements.
- By focusing on given transactions, TCE analysts may miss the dynamic interaction

between organisations and transactions and the way in which established organisations can foster new additional transactions.

**Figure 9.1: Choice of Transaction Modes: an Interpretation**



General conceptual theoretical work on TCE can bridge most of these weaknesses. However, *shortcomings arise with the operationalisation for empirical research questions*. Thus, TCE is unsatisfactory for the empirical explanation of internalisation decisions in firm level analysis. However, it helps to identify factors influencing these decisions. The comprehensive model in chapter four incorporates many aspects, explicitly showing the eclectic character of TCE, and emphasising the trade off between management and transaction costs. The actual determinants are even more complex. Each organisational mode has different TC, which adjusts differently with growing output, over time, and other dynamic influences. Formally, the choice should be expressed as:

$$(9.1) \quad \text{MODE} = j \quad \text{if} \quad TC_j = \text{Min} (TC_1, TC_2, \dots, TC_j, \dots, TC_n)$$

where  $TC_{1,2,\dots}$  are functions of the character of the interface and the capabilities of the firm. Figure 9.1 offers a conceptual interpretation, which additionally considers a possible

interaction between the capabilities of a firm and the interfaces it creates.

### **9.2.2 Evaluation of the Methodology**

Limitations are unavoidable for a study with broad objectives in a previously unexplored territory. The data-set was subject to compromise between the objectives of understanding DFI in CEE and testing propositions of general theory. The challenge was to make the best use of the available data requiring the careful interpretation of often weak evidence.

For issues in transition economics, the data-set would ideally comprise all potential investors and all manufacturing investment in the region. This would allow macro-level predictions and policy advice. Such a base population is, however, impossible to construct. The base population covers the three most important manufacturing industries in two very distinct countries of origin. Results thus apply to these industries in Germany and the UK. They may be generalisable to a considerable extent since these are major industries in contrasting home countries. However, additional effects are likely for specific industries and home countries.

Research in the International Business field can often draw on more sophisticated databases than has been the case in this study. The focus on CEE makes it difficult to obtain data of the quality and sample size used in some of the empirical tests of general theories using US or UK data. Data availability severely constrained the selection of independent variables especially for host country industry level data, e.g. industry concentration. In addition, a theory driven questionnaire may focus on a small number of industries that are of specific interest from the theoretical perspective at the expense of greater generalisation. Simple proxies or dummies have been used to measure several theoretical concepts in the survey. More sophisticated measures would yield more robust results, but were not obtainable without complicating the questionnaire and thus reducing the return rate.

The return rate of questionnaires was high and did not suggest sample selection biases, although due to missing values for some firm-specific variables, a modest selection bias against German SME's emerged. A selection issue also arises for the sample used in chapter eight. It is not a representative sample of all DFI projects, but representative of the activities of the selected and stratified base population of Western firms. This is implicit in the

analytical approach, using the same base population for each stage of the analysis.

The decision model itself can be challenged (figure 5.1). It is based on the assumption that decisions are taken sequentially and are not interdependent. Although more complex empirical models are available, this thesis gives preference to the model because it generates straightforward interpretable coefficients, and is superior to prior research that analysed only selected decisions within the decision process.

As with most questionnaire surveys, the information provided is based on retrospective memory that may not be objective. Since most questions requested factual information, and few evaluative or perceptual variables are used in the analysis, this should not cause major biases in this study. Finally, empirical data-analysis can reject hypotheses but cannot prove a causal relationship between variables. The inferences in the previous section thus are an interpretation of patterns detected empirically in the data.

### **9.2.3 Further Research**

The empirical tests can be *refined using more complex econometric techniques*, such as a nested Logit model for the decisions regarding activity and organisational form (chapters six and seven) or by including contracts and DFI in the base population, replicating the test by Chu and Anderson [1992]. This would give additional insights into some particular theoretical aspects, such as the determinants of contracts versus DFI and the interdependence of various alternative choices. However, with the given data-set such aggregations would result in degrees of freedom problems unless some interesting independent variables with missing values were omitted. Future research on these issues should explore alternative data sets, as indicated in the methodology discussion.

Theoretical work extending the analytical models of this study may consider *alternative approaches to the reigning TCE paradigm*. This study is 'normal science' in that it applies existing theories and paradigms [Kuhn 1962]. The TCE approach is applied and, while it is not rejected, it is felt that developing alternative approaches to these issues may be worthwhile. In other words, a shift in the dominant conceptual approaches to these issues may be forthcoming. Where should one search for new paradigms? Three lines of inquiry are

suggested: dynamic models of DFI, alternative modes of organising transactions, and the activity of management.

A major weakness of the TCE approach is its static nature. *Dynamic alternatives* should be further developed since experiences, strategic interaction and changing environments are important determinants of multinational business activity. These include internationalisation process models (section 3.5.2), strategic investment and the new international trade models (sections 3.4.2, 3.4.3), and the developmental model (appendix 3.1). The latter needs to be refined as its an important proposition is not supported in the empirical analysis: the competitive push in the home country does not lead to factor cost seeking investment in CEE, but to market oriented investment.

*Organisational forms for transactions should be mapped with concepts other than the markets and hierarchies.* One suggestion is to map organisational forms along multiple scales in terms of characteristics (adjustment mechanisms, time horizons, control, risk) and determinants (technological and environmental volatility, management capabilities, psychic distance). Trade, contracts and wholly owned affiliates may be at different corners of such a matrix, with JV in an intermediate position. Figures 4.7 and 4.8 illustrate such approaches based on Root [1987] and Buckley and Casson [1996]. Figure 7.2 shows the TC of alternative modes of business as function of the tradeability of final goods and the relative importance of the target market. The choice depends on firm and environmental characteristics, as analysed in this study, and information exchanges across the particular interface of the transaction. Further analysis needs to explain why many firms in this sample appear to consider contracts sufficient to overcome imperfect markets.

The dissatisfaction with the basic premises of TCE, and agency theory for that matter, led to a literature in management and economics that could be called '*the search for the new theory of the firm*'. In the words of Harold Demsetz [1988, p. 161],

“our thinking may be too constrained by our past successes. Some important problems are amenable to solution by application of the logic of both transaction cost theory and agency theory, but other problems, equally important, are not.

Coase's work is best honoured by using it as the foundation to build a still richer set of tool''.

Contemporary research draws on three current approaches: transaction cost economics, industrial organisation and game theory, and the resource-based view. Additionally, theorists experiment with new concepts. A common starting point is the view that firms do things that markets do not, or cannot, do. Many discussions surround the issues of knowledge and innovation. Firms are social organisations that follow an evolutionary pattern of accumulation of knowledge [Kogut and Zander 1992, 1995]. They are organising teamwork [Alchian and Demsetz 1972], innovating [Teece 1995, Ghoshal and Moran 1996], focusing on 'value creation' [Ghoshal and Moran 1996a] and 'dynamic capabilities' [Teece and Pisaro 1994]. Firms provide a role for entrepreneurial judgement and decision making [Casson 1991 - also Knight 1929]. They differ in their ability to manage knowledge [Demsetz 1988], and information flows, and in their corporate culture and thus the level of trust within and between firms [Casson 1991, 1995].

This study supports the shift of attention from market failure to looking at firms as organisations. Common governance, experience and managerial capabilities are empirically supported in the analysis. How do these firm characteristics influence the ability to manage knowledge accumulation, evaluation and diffusion, and thus the choice of modes of business? Figures 7.2 and 9.1 may stimulate new theoretical modelling.

Multinational businesses entering CEE may employ novel corporate strategies, especially in greenfield ventures. They do not have to deal with inherited organisational structures that inhibit social change. In fact, DFI in CEE gives opportunities for experimentation with new management ideas and corporate governance systems [Kogut 1996]. This in turn offers opportunities for academic inquiry: researchers looking for a new theory of the firm or analysing any particular aspect of strategic management could *analyse new features of international business as they emerge in business with CEE*. In turn, this implies that the results of this study are relevant beyond the region of CEE.

### 9.3 Contributions to Literature in the Economics of Transition

#### 9.3.1 Research Findings

Besides the scientific results for the Economics of the Multinational Enterprise, this study yields interesting insights specific to the CEE region. Research in the field of Transition Economics is more exploratory and policy oriented, and so are these conclusions. The main result is that *determinants of multinational business activity in CEE are largely consistent with those suggested by the literature* and the observed patterns in other parts of the world. Only a few specific environmental conditions of CEE are shown to affect the pattern of inward DFI.

First, *the variation of DFI projects among the Visegrad countries is surprisingly minor* given the variation of aggregate inflows of DFI capital. Hungary is among the most successful recipient of DFI capital in emerging markets in per capita terms receiving almost twice as much DFI as Poland or the Czech Republic. Nevertheless, no statistically significant differences emerged for any of the business activities analysed in the empirical part of this study. Secondary variations include British and consumer goods manufacturers favouring the larger Polish market (section 6.4.5). Business with the Czech Republic has a slightly larger component of factor cost oriented activity, including subcontracting and DFI (section 5.4). Local production in Hungary may be more likely to be internalised (section 7.4). However, in general, manufacturing MNE's follow very similar strategies towards the three countries. Capital flow data in contrast are dominated by a few large projects, especially due to the privatisation process.

The main differences within the region are between the Visegrad countries and the other two countries of the study, Russia and Romania. Romania is lagging by a substantial margin on most measures of activity. British companies have rarely integrated Romania into their CEE expansion. This lag is more apparent in DFI, but less apparent in the trade pattern. Romanian businesses are not yet considered an attractive business partner, and little evidence would suggest that companies are prepared to move into Romania soon.

Russia is a potentially attractive market, with businesses waiting *ante portas*. They are

interested, but are not yet willing to risk full-fledged involvement. The survey shows that Russia has almost as many business contacts as Central Europe but a different structure of underlying business. *Most businesses follow a risk averse strategy with a focus on the potential long-term benefits of an early market entry.* They prefer trading relations without DFI, contractual arrangements, and investment in JV's rather than in wholly owned affiliates. Correspondingly, JV's and JV-acquisitions are the most common modes of entry, and few investors participate in the privatisation process. This could be a result of the higher risk of a less developed economic and institutional environment, but could also result from a larger psychic distance where entrants follow low-risk learning strategies.

Secondly, German firms are more active in the region than their British counterparts. This is now well established for the volume of DFI capital flows, and this study established this at a firm level. By various measures, Germans are more deeply involved, and more likely to use factor cost differentials. The region accounts for a larger share of their overall business. Small German firms in particular are more active than their British counterparts.

*These differences may be attributed to the geographic, historical and cultural proximity, and to more extensive contacts to the region before 1989.* Hypotheses of proximity favouring internalisation received empirical support in chapters seven and eight. In addition, this study discussed the impact of differences in the economic environment. *The developmental model (appendix 3.1) illustrates how push factors in the home environment induce DFI.* German firms face more pressures on their competitiveness due to high labour costs, currency appreciation, and the deep recession following German unification. This has induced firms to seek new opportunities in the East, particularly those that have reached barriers to growth in their present strategic setting. The negative effect of firm growth also supports this argument suggesting that slow growing firms are more active in CEE. This is remarkable as these firms would have fewer financial resources. Only one paper [Haiss and Fink 1995] has suggested before that weak firms would be investing more in CEE.

The different reaction of the German and British business communities to the opening of the East has feedback effects on the economic restructuring of Western Europe. German industry is adapting to the changing environment, with entry to major new markets, the

internationalisation of medium size firms, and production relocation. British industry is only remotely affected as some enterprises expand their global markets. This development will probably affect the process of structural change within the European Union. Germany is experiencing the upgrading and expansion of advanced industries and a loss of competitiveness in low-tech industries. Thus, the two economies may be moving further apart rather than converging.

Thirdly, no evidence suggests that the search for low labour costs has been a major motive for firms investing in CEE. The survey finds only five firms indicating factor-costs as their only motivation. Most investors reporting factor-cost motivation also report the market motive. This implies that *only jointly with attractive markets do lower factor costs attract inward DFI*. Furthermore, the importance of factor-costs is an industry specific phenomenon. Low labour cost has partly motivated 41% of machinery industry DFI, but only 19% of projects in the chemical industry. Note that this study does not cover the textile and clothing industry, in which the low factor costs are likely to be more important. Consequently, the proposition of the developmental model that investment would be primarily factor-cost seeking is not supported. Competitive pressures and the recession seem to induce firms to seek new markets at least as much as lower labour costs. Since the study covers the largest sectors of manufacturing industry, and labour cost is less relevant in services or primary industries, this conclusion can be generalised: with some possible industry-specific exceptions, low labour costs are not the dominant motive for DFI in CEE.

Why is this so? Whether or not factor-costs play an important role in a firm's locational decision depends on its labour intensity, minimum efficient economies of scale and transportation costs. These vary substantially across industries and between the two home countries. Low labour cost operations are not sensible, e.g. in capital intensive chemical industries, or transportation cost intensive food industries. For German firms, transportation costs are less of a deterrent as a matter of geography. In addition, labour cost consideration is more important due to the higher West-East wage differential. The survey also showed a substantial number of subcontracting arrangements by German firms. These use factor-cost differences without capital commitment. However, the trend in Western Europe towards capital intensive production and manufacturing close to the customer reduces the potential

for such investment. At the advanced stages of internationalisation, firms are increasingly competing based on organisational rather than technological capabilities. They undertake market and strategic asset seeking DFI rather than factor-cost minimising strategies.

Fourth, *changes in local environments lead only gradually to changes in multinational investment activity*, due to decision and implementation lags as well as hysteresis effects. In this study, two implications of such lags were observed: firstly, investment from distant origins took longer to materialise. With less access to information and contacts, British and American DFI was small compared with German and Austrian DFI in the first years of transition. It surged only in 1995. Secondly, legal constraints on ownership have been removed in most countries, but existing operations are still maintained as JV's although new projects now are predominantly fully foreign owned.

Fifth, *firms do not enter the region through acquisitions of local firms with the strategic objective acquiring local know how and obtaining speedy market access*. These standard arguments in the International Business literature are not confirmed in this study (apart from the food industry dummy). Transition specific influences lead to surprising effects. Investors prefer greenfield entry even when complementary inputs are predicted to be valuable, such as with consumer goods industries, or when speed of entry is important, such as for fast growing industries. The trend towards greenfield entry implies that these objectives are becoming even less important. The cause of this trend may be the lack of attractive targets or the discouraging features of the privatisation process.

The privatisation process accounts for half the acquisitions and JV-acquisitions in the sample. It attracts large volumes of direct investment capital, but it does not affect the number of firms investing in the country in the industries studied here. *The incidence of DFI by MNE's in a country seems unaffected by opportunities in privatisation*, but capital invested is affected. However, privatisation attracts an over-proportional number of investors from Germany. Their historical, cultural and geographic proximity to the region eases both participation in the process and the integration of acquired firms into their global operations. As expected, technology intensive firms abstain from acquisitions, especially in the privatisation process. Privatisation agencies seem to favour factor-cost seeking investors,

presumably a result of deliberate industrial policy by privatisation agencies.

What accounts for these patterns? Lack of attractive target firms, and the costs of restructuring reduce the attraction of acquisitions *vis-à-vis* greenfield operations. The negotiation process needed to acquire a firm involves multiple stakeholders and is time consuming. The post-acquisition costs of acquiring formerly state-owned firms are a further deterrence to acquisitions. Foreign investors are expected to induce enterprise restructuring, creating a competitive local manufacturing base. This conflicts with many objectives that investors may have, such as a local market focus, a small and efficient workforce, and adaptation to the parent firms organisation, technology and brand names. It is primarily firms with financial and managerial resources that can engage in industrial restructuring and thus participate in the privatisation process.

The pattern indicates that sales to foreign investors may contribute to the restructuring of existing enterprises through the introduction of modern market-oriented management and organisational restructuring. However, it fails to attract firms which would bring specialist technology, an over-optimistic expectation. Furthermore, acquiring a firm in the privatisation process may not offer opportunities for quick market access. The tedious process of negotiating privatisation-acquisitions appears to delay sales and thus reduces the value of the assets. In addition, it may strengthen the dominance of investors from neighbouring countries.

Finally, what does all this study imply for the research question that originally motivated this research: “why is there so little DFI?” To answer this question, first it has to be noted that ‘little investment’ refers to the volume of capital flows, which are the most frequently cited statistic. They were small in most CEE countries compared to other emerging markets until 1994, but rose substantially since. The low level of capital inflow is, as the data in this study show, not related to lack of business activity, but rather lack of large projects with substantial capital flows.

These can be attributed firstly to time lags that are involved in the decision processes of large investment projects. Especially if there is no time-pressure, e.g. because of opportunities in the privatisation process. Secondly, the number of attractive acquisition targets is limited such

that investors increasingly prefer greenfield projects. This requires less initial capital outlays than an acquisition. Thirdly, the high economic risk in the region, especially in Russia leads to risk reducing entry strategies, encouraging for instance joint-ventures and contractual alternatives to DFI. Fourth, the sophistication of the demand is not at the level of industrialised countries such that for many capital intensive production processes there is insufficient local demand to justify the capital investment. Finally, labour cost seeking investment is not emerging at large scale, and if it is not capital intensive. In fact the actual capital flows, not only in CEE countries, can probably be better explained by a small number major privatisation projects than by the number of manufacturing firms setting up operations in the country.

### **9.3.2 Policy Implications**

The Visegrad countries have received considerable DFI inflow, and most firms in the sample are active. The countries still have a long way to go to establish all the structures and routines of a market economy. However, they have established core processes fostering a productive evolution of the required socioeconomic structures [Murrell 1996]. The general expectation is that these processes will continue and guarantee political stability, and economic growth suffices to attract DFI. Investors acknowledge the progress of the economic transition process in these countries.

The prime policy objective in these countries is *to sustain and make best use of international business activity and DFI inflow*. The small number of firms indicating a factor-cost orientation in CEE suggests that host countries are not taking full advantage of their comparative advantages. Low labour costs, even productivity adjusted, are insufficient attraction to investment as this advantage is shared with many other regions in the world. They are rarely the sole motive for investment, but usually combine with market oriented objectives. More investors will produce locally only if local markets are also attractive targets. They may develop the export potential from the region once they have saturated the local market. Privatisation is the most important means of industrial policy. The empirical results suggest that it is used to encourage export oriented ventures.

A different contribution of foreign investment is the transfer of technology. The potential

contribution of investment in the special conditions of economic transition has been discussed in a few recent papers by McMillan [1993], Kogut [1996] and Estrin and Hughes [1997]. This study has emphasised that contractual arrangements can substitute DFI for many operations. Host governments need to consider whether they can achieve objectives, such as inward technology transfer and market access, through contractual arrangements. In this case, policy and economic analysis should focus less on DFI than on broader concepts of international business.

The shift over time from JV and acquisition to greenfield entry changes the contributions of foreign investors. *They are contributing less to the restructuring of formerly state-owned enterprises, but more to the development of a new private sector.* Greenfield projects affect employment creation, technology transfer and productivity. The emphasis of foreign investors on greenfield projects finds a parallel in the domestic economy. The recent growth of CEE economies, especially Poland, is attributed primarily to the growth of a new private sector, and not to the reformed and privatised former state-owned enterprises. [Gomulka 1994, Borish and Noël 1996, Richter and Schaffer 1996]. This study strengthens the expectation that the new private sector, domestic or foreign owned, may flourish in the next years as economic transition progresses.

Industrial policy could foster growth by encouraging the new private sector. Promoting the new businesses and greenfield investment does not however, contribute to solving a principal transition problem: restructuring state-owned enterprises. Without a Western partner, but with a greenfield competitor, they may find it harder to survive and their eventual restructuring or dissolution could become even more costly for the host economy. If policy intends to encourage either entry mode, it needs to consider these trade-offs, and different investors' relative preferences for each mode.

*In Russia and Romania, the main concern is still the low level of foreign investment.* By 1994, many firms are present in Russia but without major capital commitment, while Romania seems to receive low priority in most firms' regional strategies. Here, the policy priority should be on reforming the local environment so as to improve conditions for both domestic and multinational businesses. The secondary attraction for foreign investors is an

indicator of a slow transition process as investors react sensitively to 'weak' local environments. The current lag in attracting DFI also indicates that the economy benefits less from externalities attributed to DFI. It is beyond the scope of this study to determine whether or not the impact of such externalities is economically significant.

The differences between the Visegrad countries and the other two countries suggest that DFI inflow depends on the economic conditions in the host country. This includes the presence of local entrepreneurs as partners and quality suppliers, education profiles, the structure of domestic demand and income, the institutional framework and infrastructure. By these criteria, Russia and Romania are lagging behind the Visegrad countries. This has an implication of wider relevance: *DFI is not a 'kick-starter' to economic development*. A minimum level of economic development is certainly a precondition to attracting major DFI inflows. Once development has taken off, inward DFI can accelerate the development process and, in CEE, the economic transition. This indicates that governments should create a domestic environment conducive to market-led business development to foster both local and foreign businesses.

### **9.3.3 Directions for Further Research**

Research on DFI in CEE started with country surveys and has recently moved on to the analysis of more specific issues (section 2.4). The demand for descriptive summary papers on Central Europe has been well satisfied.<sup>182</sup> As the pattern of DFI has been established in broad terms, the focus for this study has been on determinants and characteristics of investment. Numerous suggestions could be made on specific issues that future research should address.

From this study, the most interesting research questions appear to be the effects of country of origin, strategic investment motivations, the comparative analysis of emerging markets, the impact of DFI on economic transition and development, and government policy. For thorough analysis, the collection of better data would be very helpful, considering not only

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<sup>182</sup> For the CIS and Russia, there is still some need to establish the basic features of foreign investment as official databases are less advanced.

capital flows but business operations by number, size, performance etc.

This study analysed differences between two countries of origin. With only two countries in the study, relating differences in activities to the underlying determinants specific to the country of origin has been difficult. Thus, *a wider range of home countries should be analysed*, considering for instance the USA which is a major investor in the region, but also other Western European countries. Among other things, this would permit a test of the push factors proposed by the developmental model.

Strategic behaviour of foreign investors was hypothesised but could not be shown in the empirical analysis due to a high degree of aggregation and the absence of industry level data. In chapter eight, the standard propositions on strategic motives for acquisition entry were not supported. An interesting line of inquiry would explore *the specific features of entry strategies in the transition context*: what are the strategic motivations of foreign investors in virgin markets, and the interactions between potential investors, local institutions, and local businesses?

The developmental model was a first attempt in using the experience of other emerging markets to analyse and predict patterns of DFI in the region. An interesting analysis would test the propositions of the model systematically in a wider context comparing the emerging markets of Eastern Europe, East Asia and Latin America. This research should *integrate the development economics literature on DFI*<sup>183</sup> with the emerging literature in CEE.

From the host country perspective, the main issue is *the impact of DFI on the economic transition and development in the region*. No study has yet analysed the actual 'impact' on the CEE economies comprehensively. The interesting questions are, at this stage: how, and how much, does this DFI contribute to transition and development? Understanding why firms invest in the region is a first step towards understanding their interaction with the local environment. This interaction can generate externalities of foreign investment. Future research could draw on related work on DFI in developing countries. It needs to be extended

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<sup>183</sup> See for instance Lall and Streeten [1977], Enos [1989] and Lall [1996].

to consider the special conditions of economic transition, and the role of technology transfer that has become so important in recent years. Implications of DFI for the balance of trade and balance of payments may be secondary.

An interesting aspect is the relationship between project characteristics and impact variables. The ultimate interest of impact analysis would be the value added in the host economy as a source of employment, tax revenues and private income. Of importance are the human capital related channels of impact:

- The transfer of technological and managerial expertise to the local affiliates,
- The introduction of new value systems and business culture [Casson 1994],
- The diffusion of know how beyond the foreign owned affiliate, and
- The industrial restructuring and corporate governance of formerly state owned enterprises [Kogut 1996, Estrin and Hughes 1997].

If such externalities to the local economy were shown, a case could be made for an active industrial policy to encourage DFI. This relates to another under-researched issue, the *effectiveness of government policy towards inward DFI*. The evidence from other countries seems to suggest that specific policies, such as incentives or tax holidays, have little impact on the volume of DFI. However, they would affect location within a country and DFI performance, e.g. export propensity [Guisinger *et al.* 1985, Safarian 1993]. This line of inquiry needs to be extended to the CEE region, considering the special conditions of transition as well as the motives of DFI observed in this study.



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