

# Cross-border acquisitions in the Dutch pharmaceutical industry: a poison pill for the regional host economy?

An evolutionary approach to the impact of cross-border acquisitions on the degree of territorial embeddedness of subsidiaries in their regional host environment.





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**February 2012**

Master's thesis Business Geography

**University of Utrecht**  
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Master Business Geography

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## Preface

*“FDA Grants Genentech's Pertuzumab Priority Review for Previously Untreated HER2-Positive Metastatic Breast Cancer”*<sup>1</sup>. Until only recently, I could have read this article title without any understanding of its meaning. Nowadays I do have the knowledge to understand such news items. This FDA grant is not only great news for women battling breast cancer, but holds implications as well for the corporate geography of both Genentech’s and Roche’s subsidiaries worldwide and therewith the structure of host economies.

This document is my master’s thesis, the result of my final project in order to graduate, conducted at the Rabobank. Since the start of my master’s degree, I wanted to conduct research to the effects of cross-border acquisitions in the Netherlands. The reason for this was the publication of the book *De Uitverkoop van Nederland* (freely translated into: sale of Dutch companies) of Menno Tamminga in 2009. In this book, Tamminga outlines the exodus of traditionally Dutch firms including the Dutch brewer Grolsch, ABN AMRO and the Dutch dimestores HEMA and the Bijenkorf. While reading the book, I developed a an interest into the regional economic consequences of this exodus and in particular acquisitions in the pharmaceutical industry. Before conducting this master’s research I did not have any knowledge or understanding about the pharmaceutical industry. I therefore attended lectures, seminars and piled friends/lectures/interviewees with questions. Without the help and recommendations of all these people, I could not have finished this thesis.

First and foremost I would like to thank my supervisor at the Univeristy of Utrecht, dr. Andrea Morrison and my supervisor at the Rabobank, Rogier Aalders. Both have kept me on track over the course of this research and constantly pushed me to improve my research. Their suggestions have contributed to this thesis. Secondly, I want to thank all interviewees. Not only for rescheduling their agendas, but also for their patience to explain the pharmaceutical jargon to me. Finally I want to thank my friends and family, and in particular Sjoerd Donker, for checking my thesis for spell- and grammar mistakes.

Although this thesis has tested my perseverance to its limits, I would not have missed it in the world. I hope you will enjoy reading it.

Floris Nilting  
February 2012

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<sup>1</sup> Title of article in the Business Wire of February the 7<sup>th</sup>.

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# 1 Introduction

## 1.1 Background

Organon BioSciences has represented the Dutch knowledge economy at its best. Some may argue that Organon has even been a *condicio sine qua non* for Dutch innovative pharmaceutical firms. Its role as an anchor tenant for the industry is widely endorsed by politicians (Verhagen 2011) and the scientific community (Crommelin 2010; Giessel et al. 2008). The unexpected acquisition of Organon by Schering-Plough in 2007 was fairly well accepted in both the media and politics. The subsequent acquisition and announced restructuring programmes in Oss by Merck, were however met by strong condemnations by both parties. Politicians were speaking of the degradation of the Dutch knowledge economy, whilst others mentioned the potential *braindrain* to the United States. Critics described the acquisition and its consequences as a tragedy and catastrophe for the Dutch innovation climate. Some politicians and journalists argued that the acquisition of Organon is part of an ongoing Dutch tendency. Pharmaceutical firms are acquired by foreign multinational enterprises (MNEs), which relocates the R&D units to their home country, or even close these sites. Others claim that Organon is an exception and embodies only the darker side of the many acquisition stories. The other side of the story highlights the positive contribution of subsidiaries to the regional host economy, after an acquisition.

Foreign subsidiaries play an important role in the contemporary global economies, and are considered to be growth engines (CBS 2011a; Borensztein et al. 1998; Lipsey 2004; Hogenbirk & Narula 2004). The Netherlands have historically been one of the most internationalized countries in the world since the establishment of the Dutch East India Company in 1602, and is known for its open economy. Inward foreign direct investments (FDI) rapidly increased in the Netherlands after the economic integration of Europe. Subsidiaries of MNEs are becoming key sources for competitive advantages for both the corporate system of the MNE and the regional host environment (Hogenbirk et al. 2009). Foreign subsidiaries (both greenfield investments and CBA's) account for 17 percent of all jobs in the Netherlands and generate 32 percent of the total annual turnover by firms (CBS 2011b). Foreign subsidiaries are also accountable for an increase in the number of jobs in the Netherlands (CBS 2011a). ultimately, foreign pharmaceutical firms are responsible for a great deal of R&D investments in both Europe (EU 2010; Ecorys 2009) and the Netherlands (Nefarma 2010).

The pharmaceutical industry overall had the highest percentage of R&D investments (of net sales) of all industries in Europe, whilst pharmaceutical firms in the Netherlands invested € 550 million in R&D in 2009 (Efpia 2011). Furthermore, the industry (SBI'93 244) employs 17.000 people in the Netherlands (CBS 2011c) and generates an accumulation (*ripple effect*) of three to four people in indirect employment (Efpia 2011; PHRMA 2011). Foreign subsidiaries are important because of their accelerator effects, i.e. a multiplier effect on a country's economy via linkages with other firms (Ponfoort et al. 2007).

Whether subsidiaries can be labeled as growth accelerators, largely depends on their degree of territorial embeddedness in the regional host environment (Dicken & Malmberg 2001). Subsidiaries are no longer considered as *cathedrals in the desert* (Grabher 1994) but are embedded in their host



economy (Dunning 1998 in: Diez & Berger 2005; Chapman & Edmond 2010). Despite this contemporary conception of scholars, Beugelsdijk et al. (2010) argue that embeddedness tends to be discussed as a rather by-product of other phenomena in both the Economic Geography (EG) and International Business (IB).

This thesis is about cross-border acquisitions (CBAs) in the Dutch pharmaceutical industry and focuses on the territorial embeddedness of foreign subsidiaries. This thesis particularly sheds light on the evolution of a firm's territorial embeddedness after the acquisition. An interesting topic is whether Organon has been a tragic, but striking example of the effects of CBA's on the Dutch pharmaceutical market, or an exception. Are foreign acquirers *pulling a Pfizer*<sup>2</sup> or do they become valuable contributors to the Dutch economy by embedding in the regional host environment?

## **1.2 Thesis aim and scope:**

Since this thesis is about the evolution of territorial embeddedness of foreign subsidiaries in the Dutch regional economy, the main aim is to provide knowledge about this evolution. Thereby focusing on the dynamic- and evolutionary interaction between the subsidiary and regional actors. During this process it is also important to gain insights into the key drivers of territorial embeddedness. By concentrating on the degree of embeddedness of acquired Dutch pharmaceutical firms, this thesis can contribute to the answer of the important policy and social question; i.e. what are the economic effects of cross-border acquisitions in the pharmaceutical industry? Subsequent to the main outcomes of this research, multiple policy recommendations will be given. The main approach of this thesis is the perspective of the Evolutionary Economic Geography (EEG), thereby focusing on routines, path dependency, geographical lock-in and routines of subsidiaries and the interaction with their economic environment. This interaction is resulting in different degrees of territorial embeddedness and co-evolution.

With the results of the research this thesis aims to open the black-box of MNE subsidiaries' territorial embeddedness and thereby providing building blocks for further research.

## **1.3 Research questions**

In order to achieve the formulated research goals stated above, the following research question has been formulated:

*To what extent are pharmaceutical firms, after a foreign acquisition, embedded in the regional Dutch economy and which factors determine this territorial embeddedness?*

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<sup>2</sup> "Keep cutting to make the numbers, and when you can't do that anymore, then go out and buy someone else who has things to sell and then cut them (Lowe 2011, p. 1)".

To answer the research question, a number of sub-questions have to be asked:

- 1) Which rationales can be used to explain cross-border acquisitions in the Netherlands and to what extent does this motivation have influence on the territorial embeddedness of the subsidiary?
- 2) Why and how do foreign subsidiaries become embedded in their regional host environment and how can both the regional host environment and the subsidiary benefit from the latter's territorial embeddedness.
- 3) What are the main characteristics of the Dutch pharmaceutical market in terms of key developments and acquisitions?
- 4) How has the territorial embeddedness of the acquired firm developed after the cross-border acquisition, and which determining factors are found to be relevant to this evolution?

#### **1.4 Research contribution: social and scientific relevance**

The embeddedness of foreign direct investments has attained abundant relevance in Dutch policy strategies in the last decade. According to the former Dutch minister of Economic Affairs, Maria van der Hoeven, the establishment and embeddedness of inward foreign investments are a key aspect of both national and regional economic development as well as government policy (van der Hoeven 2010). Among others, Weterings et al. (2011) are however undecided about the potential effects of cross-border acquisitions in strengthening the Dutch host economy. As the number of cross-border acquisitions in the pharmaceutical industry is expected to continue to increase in future decades (Martino 2011; Kitamura 2011), it is important to study the possible effects of such acquisitions more in detail and to develop an adequate policy regarding foreign subsidiaries. In addition, the pharmaceutical industry is recognized as one of the nine selected key industries (as part of the Life Sciences) for the Dutch economic environment with a focus on innovation and knowledge. This focus on pharmaceuticals must strengthen the prosperity of the Netherlands as one of the world's leading innovative economies. Finally, the pharmaceutical industry is perceived to give opportunities for financial future prosperity and is therefore a key industry in economic development (White 2003; Ecorys 2009).

In order to accomplish the above mentioned Dutch policy strategies it is essential or even necessary to gain more scientific insights into the evolution of subsidiary embeddedness in the regional host environment. More boldly stated, the dynamic- and evolutionary interaction between the foreign subsidiary and its regional economic host environment has been under investigated compared to its economic and social relevance. After-care programmes, which are developed to embed and attain inward investments, can be used more effectively when there is increased knowledge regarding the evolution paths and its determining factors of acquired pharmaceutical companies.

This thesis not only contributes to a more effective use of after-care programmes and government policies in general, but also provides a scientific relevance. The scientific contribution of this thesis is threefold. First, this thesis conceptualizes subsidiary embeddedness as an evolutionary concept, subject to changes in multiple determinants. In explaining this evolution in interaction between the MNE subsidiary and its regional economic host environment, this thesis applies concepts of the EEG approach rather than solely using insights from the mainstream literature (International Business literature). Most studies into subsidiary embeddedness have been carried out without such a dynamic approach, and have merely focused on the embeddedness itself rather than the determinants that drive the evolution of embeddedness. This line of conceptualizing will contribute to the under-theorized and insufficient existing literature of MNE subsidiary embeddedness. Secondly, by using a multiple case-study research design, deeper insights into the linkages between the MNE subsidiary and actors from the regional host environment can be gained. Finally, most scholars focus on a specific function in the production-chain of the subsidiary, rather than concentrating on a specific industry.

## **1.5 Research structure**

This research is structured in a number of chapters in the following way. Firstly, the theoretical framework is presented with an enumeration of acquisition rationales in chapter 2 and key determinants of (embeddedness) evolution in chapter 3. This theoretical foundation is largely based on the perspectives of the EEG and will result in a conceptual framework and hypotheses. Secondly, the methodology for data collection is presented in chapter 4. This chapter will also briefly describe the cases investigated in this thesis. In chapter 5 an overview is given of the key developments of the (Dutch) pharmaceutical industry. The second section of this chapter analyzes the empirical results gathered by interviewing six foreign subsidiaries and is followed by an analysis of the developed hypotheses. In chapter 6, the final conclusions will be presented by answering the research question. Finally, this chapter provides a number of policy recommendations and in addition highlights some further research suggestions.

## 2 Literature review: Cross-border acquisition rationales

In the twentieth century, a number of acquisition waves can be distinguished. The fifth acquisition wave emerged in the early '90s (Lipton 2006). For this thesis crucial characteristic of the latest acquisition wave is the number and magnitude of cross-border acquisitions (Bertrand 2009). This thesis will elaborate on this topic in section 5.1. The latest acquisition wave is the aftermath of the continuing and increasing process of worldwide globalization. This enables firms to fragment their production chain and internationalize different functions in order to utilize emerging foreign profit opportunities. The recent wave of acquisition activity has led to a global restructuring of the industry. Corporate geographies are influenced by these acquisitions, as are regions and even countries (Mitra 2006; Chapman & Edmond 2000). However, with the unfolding of the process of globalization also foreign threats became apparent with the appearance of foreign rivals on domestic markets. For firms it became important, or even a necessity, to internationalize their business and serve foreign markets (Nocke & Yeaple 2007; Defever 2006; Hutzschenreuter & Grone 2009).

One way for firms to encounter this urgency for internationalization is to acquire foreign firms by means of a cross-border acquisition (hereafter CBA). Thereby, multinationals (MNEs) create and utilize foreign business opportunities. MNEs that undertake a CBA have a wide range of determining motivations which often alter significantly from domestic acquisitions (Sudarsanam 2010). The initial rationalization for the CBA has an impact on the evolution of the subsidiary in its regional host environment, and can even be contradictory (Shimizu et al. 2004). The acquisition motive furthermore defines the impact of the CBA on the host economy (Beugelsdijk et al. 2008). Although CBAs are often complicated, the actual number of CBAs in the pharmaceutical industry is expected to mount in the following decades.

Chapter 2 will survey the initial motives behind CBAs, in essence: why do MNEs acquire firms behind their national borders? The first section will discuss several theories explaining the internationalization of firms, thereby focusing on theories which explain this process as an evolutionary process. Subsequently this thesis examines four general acquisition motives elaborating on work of Dunning (1994; 1996; 2006).

## **2.1 Theories explaining cross-border acquisitions**

Over the course of the past 40 years, a number of theoretical frameworks have been developed seeking to explain the motivations of MNEs to undertake CBAs and to determine the evolution paths of MNE's subsidiaries in their host environment. These theories have origins in a wide range of disciplines, dominated by IB-literature (Sudarsanam 2010). Despite the considerable theoretical conceptualizations, there is however, no comprehensive model that possesses the explanatory power to predict and explain the evolution paths of MNE's subsidiaries in their regional host environment. However, according to Dunning & Lundan (2008), a number of clusters of variables explaining CBAs have resulted in a general paradigm explaining CBAs.

In this section, this thesis focuses on three influential theoretical conceptualizations which explain the motivations underlying CBAs; Vernon's international product life cycle, the Eclectic Framework of Dunning and the Uppsala School. The latter explains CBAs from a rather evolutionary perspective, focusing on experience, routines and knowledge.

### **2.1.1 Internationalization theories (1) Vernon's international product life cycle**

An important contributor to the development of the paradigm is the American scholar Raymond Vernon. In his seminal work (1966), Vernon uses the three stages of the international product life cycle, rather than the comparative advantages of foreign regions, to explain the internationalization strategies of firms. Pivotal in Vernon's explanation is the emergence of economics of scale after a successful product innovation on the domestic market. Starting point of Vernon's cycle is the introduction of a technological innovation in a regional market located in an industrialized country. During the first experimental stage, the innovation is only produced and sold locally. Innovations are only introduced in regions with a flourishing economy, characterized by high wages thereby generating sufficient demand. Also, the innovator needs an easy and local access to capital markets in order to fund the necessary adjustments of the product. After the stabilization of the production process, both the domestic and foreign demand curve are steepening. During this second stage, firms are enabled, or even forced, to introduce and produce the innovation on foreign markets nearby. By the internationalization of production, firms cut unit costs, transaction costs and transportation costs and economies of scale occur. Firms use FDI as a substitute for export and start to compete in foreign market with domestic firms. During the third stage, the initial comparative advantage of the MNE has disappeared. To reinforce their competitiveness on both domestic and foreign markets, firms standardize their product and production process thereby taking advantage from economics of scale. Throughout the final stage, manufacturing functions are relocated to low-wage countries to decline production costs. During this stage, the initial domestic market is served by export from regions abroad (Vernon 1966; Dhondt 2006).

Vernon is one of the main founders and contributors of literature seeking to explain the correlation between international trade and CBAs (Dunning & Lundan 2008). In the subsequent decades numerous scholars from a wide range of scientific disciplines elaborated on the early work of Vernon. However, the ownership-location-internalization framework (OLI-model or Eclectic

framework) of the American scholar Dunning (1980) often is regarded as the most dominant and most influential paradigm to explain foreign investment patterns by MNEs (Dunning 2000;2001; Shimizu et al. 2004; Stefanović 2008; Hogenbirk 2002).

### **2.1.2 Internationalization theories (2) The Eclectic framework of Dunning; Ownership-, locational- and Internalization advantages.**

The OLI-model envelops separated theories from macro international economics and micro-economical theories of the MNE into one conceptual framework. The main contribution of the model is the interrelatedness between the three distinctive advantages. Dunning combines the geographical characteristics of a region (resource endowment), resulting in locational advantages and firm specific advantages (ownership advantages).

The OLI-model distinguishes three continuing decision-making steps; the ownership decision, location decision and the internalization decision. The first precondition for overseas investments is the net ownership advantages. Firms raise the question whether or not they possess a specific competitive advantage over competing domestic rivals that can be exploited across national borders. Ownership advantages are a first necessity to expand business behind national borders. The second precondition is the locational advantages of internationalization, in essence: yields the foreign region superior advantages over the current location in the home region? Firms raise the question whether the ownership advantages can best exploited by shifting function abroad. Critical elements are the characteristics of the host region including: costs of labor, protection measures, stability of the region, agglomeration economies and urbanization economies. If no localization advantages can be gained abroad, the firm will serve foreign markets by means of export. Sudarsanam (2010) argues that the decision is a trade-off between the above mentioned pull factors of the potential host region and push factors (as opposites) of the current home-region. The final precondition is the net internalization advantages. The make or buy question determines whether or not is more profitable to produce a product internally or to license a domestic firm. This decision is largely determined by the coordination- and transaction costs (including moral hazards, accountability and the loss of organizational control) of internalization or licensing a foreign partner (Dunning 2000;2001; Stefanović 2008; Sudarsanam 2010). When net internationalization advantages are anticipated, firms will undertake FDI.

In conjunction with preceding theories, the Eclectic Framework was criticized by some scholars. Firstly, Dunning's OLI-model is being criticized for not having a predictive value considering the large number of interrelated variables included in the model. According to the censors, the framework is also very sensitive to the specific context in which MNEs tend to operate (Slangen & Lennart 2007). Another point of criticism is Dunning's assumption that firms only internationalize in order to exploit firms-specific unique competences and routines. However, a rather recent hypothesis is that firms increasingly undertake cross-border acquisitions to augment their competences and routines by adapting local knowledge and collaborate with partners in the local host environment (elaborated on below). This conceptualization is not included in the earlier versions of the model. Finally, the OLI-

model is according to some scholars too static and does not take into account the evolution of the MNE (see section 3.3.4). Dunning (2001;2002; Dunning & Lundan 2008) acknowledged this criticism and improved his model. In the updated OLI-framework the O-L-I advantages co-evolve with the MNE.

### 2.1.3 Internationalization theories (3) Motivations underlying FDI

Dunning (1992; Dunning & Lundan 2008) distinguishes four main motives for FDI. It is important to note that these four motives are not mutually exclusive and can evolve over time and space when MNEs are becoming more mature and experienced. The four motives are classified as follows: natural resource seekers, market seekers, efficiency seekers and strategic asset seekers.

*Natural resource seekers* aim to augment both their tangible and intangible assets. This phenomenon is often referred to as home-base augmenting R&D (Sadowski & Sadowski-Rasters 2007). These assets can range from cheaper commodities in developing countries, to high-tech technologies in industrialized countries (Swart & van Marrewijk 2009). These natural resources can be either not available or at a higher price in the home-region. An important development in today's economy is the foreign investments in human capital and knowledge (Cantwell & Piscitello 2005). A critical element of the competitiveness of firms is the possession and creation of superior knowledge, which has become the main asset of firms. Firms can augment their assets by the acquired knowledge which will alter existing routines and competences. MNE do not only acquire assets from the acquired domestic firm, but also from the regional host environment via spillovers and network relationships (Cantwell & Piscitello 2005; Kuemmerle 1999). Acquired assets are transferred into the various functions of the global corporate system of the MNE. Natural resource seekers are therefore likely to have an important- and creative role by augmenting the corporate assets and the competitiveness of the MNE (Pedersen 2006). An critical element in augmenting firm-specific routines and competences is the degree of embeddedness in the regional host environment. Subsidiaries that are not embedded in their host environment will learn less than subsidiaries that are embedded in the region.

This learning process can also be reversed. Domestic firms and institutions can in turn learn and benefit from the embeddedness of the MNE subsidiary. Co-evolution has become an important topic in contemporary economic- and evolutionary geography. This topic will be elaborated on in section 3.3.4.

*Market seekers* acquire domestic firms to exploit their superior firm-specific assets in foreign markets. By getting a foreign physical foothold, local production often replaces export. Firms aim to exploit their assets including: brand names, high-tech technologies and superior routines abroad in order to enlarge or protect their market share in foreign regions (Sudarsanam 2010; Dunning & Lundan 2008). According to Sudarsanam (2010) this motive is the most often cited reason for CBAs.

A main motive for market seekers to acquire a foreign firm is the necessity of local knowledge. Firm's specific products and services need to be modified to the local legislation, preferences and needs of the consumers in the regional host environment. Sadowski & Sadowski-Rasters (2007)

paraphrase this motive as *home base exploiting* of firm-specific competences. Subsidiaries imposed with an exploiting mandate are initially largely dependent from the transfer of routines and competences from the mother firm in the home country (Pedersen 2006). The exploitation of superior capabilities is also an important motive for FDI in foreign R&D sites (Kuemmerle 1999). As these subsidiaries are responsible for the adjustment of products and services to the requirements of the consumers in the regional host environment, subsidiaries are obligated to collaborate with regional actors. Therefore the influence of the regional host environment is expected to be large on the degree of territorial embeddedness of the subsidiary (Dunning & Lundan 2008). The influence of the host environment on the evolution of subsidiary embeddedness is elaborated in the next chapter.

*Efficiency seekers* aim to improve their efficiency by optimizing their foreign business activities. MNEs detangle their production chain and disperse the separated business functions worldwide in order to benefit from the specific comparative advantages of foreign regions. MNE locate labor-intensive functions in developing economies and knowledge-intensive functions in industrialized economies. Next, efficiency seekers aim to create benefits from economies of scale and scope. Foreign markets with similarities in the economic structure are hereto integrated into a singular market served from one location. By expanding the production quantity the average costs per product will fall and MNEs are able to exploit the economies of scale. In order to maximize these benefits, subsidiaries will produce standardized products. Efficiency seeking MNEs are often large and international experienced firms (Johnson & Turner 2003; Dunning & Lundan 2008; Brakman et al. 2008).

*Strategic asset seekers* acquire competing foreign rivals to strengthen their portfolio or market consolidation. Strategic CBAs are often part of a long-term strategic plan. Although the relative number of strategic CBAs is rather low, strategic asset seeking MNEs are important in this thesis. Through the acquisition of foreign competing firms, MNEs lower the competition in a certain market. It is important to note that the underlying motivation of such acquisitions is to strengthen the portfolio and weakening the competition rather than creating learning effects after the acquisition. This will have of considerable impact on the evolution of the degree of subsidiary' territorial embeddedness in the regional host environment (Dunning & Lundan 2008; Johnson & Turner 2003). This topic will be explored deeper in the next chapter.

#### **2.1.4 Internationalization theories (4) The Uppsala School.**

In order to overcome the deficiencies of the often static and non-evolutionary internationalization theories, scholars from the Uppsala School (see Johanson & Vahlne 1977) developed a more evolutionary theoretical explanation for FDI based on a number of key assumptions. The Uppsala School model of internationalization pictures a MNE as a learning entity with a bounded rationality, limited stock of knowledge and an adversity to risk taking. The internationalization path of firms is an incremental and continuous process characterized by successive cycles of path-dependency. This conceptualization yields that firms are bounded by insufficient knowledge about foreign markets and regions.



As a result of the assumptions above, firms will first invest in foreign regions geographically and culturally nearby the home region. Throughout time, firms will become more experienced. Deficits in knowledge and experience about the internationalization process are increasingly overcome, and firms will gradually increase their investments in regions with greater physical and cultural distance (Lommelen 2004; Barkema & Drogendijk 2007). The speed of this evolution process is largely depending on the absorptive learning capacity of the firm (Kogut & Zander 1993; Higgins & Rodriguez 2005; Cheng 2010). Without a sufficient level of absorptive capacity, firms will fail to acquire the benefits generated by the external spillovers of the acquired firm (Mitra 2007).

Because firms are characterized by a bounded rationality and limited knowledge, the internationalization process is a path-dependent process. Previous foreign investments in a particular industry determine the successive cycle in the internationalization process (Hutzschenreuter et al. 2007). Path-dependency will have a considerable impact on the evolution of the degree of territorial embeddedness of the subsidiary in its regional host environment. Successive investments in a certain region will enhance the degree of embeddedness (Dunning & Lundan 2008; Kogut & Zander 1993).

Nadolska & Barkema (2007) also stress the importance of knowledge and experience in explaining the high failure rate of CBAs. The developed knowledge and gained experiences are reflected in the routines of a firm. Routines are continuously reconsidered and subject to changes. By analyzing previous failed CBAs, firms obtain experience and knowledge which are then incorporated in routines which are exploited in subsequent CBAs. This process of trial and error is often referred to as learning by doing (Collins et al. 2009). The evolutionary learning approach of MNEs is reflected in a U-shaped failure rate of CBAs.

The probability of failure is also enhanced by managerial hubris and herding. The latter phenomena refers to the bandwagon effect of first movers on their rivals. The pharmaceutical industry is characterized by a high number of CBAs resulting in a true globalization rush of big MNEs (see chapter 5). However, this rat race is not without pitfalls and may even bring MNEs to the brink of bankruptcy. As the number of potential acquisition targets deplete, pharmaceuticals are forced to undertake hasty CBAs which often destroyed rather than created stakeholder value (Nadolska & Garretsen 2007; Firstbrook 2007; Schenk 2007). Hubris refers to the overestimating of the expected synergies of the CBS by the higher management of the MNE (Gregoriou & Renneboog 2007).

To visualize the above mentioned aspect of the internationalization process, this section briefly discusses two emblematic cases of internationalization paths and learning theories; Lincoln Electric' and Ahold.

#### **Internationalization paths of MNEs: Lincoln Electric and Ahold.**

Lincoln Electric is one of world's leading manufacturers of arc welding equipment. The firm is known for its distinctive company culture and particularly for its compensation culture and old-fashioned values. Since the late eighties Lincoln Electric faced a rapid international expansion. The global strategy choices brought the firm to the brink of bankruptcy. Leading local companies were acquired in Latin America and Europe, including Germany, the United Kingdom and the Netherlands.

In a brief time period, Lincoln Electric had become a true global company. Lincoln Electric's business model was implemented in all foreign subsidiaries including the incentive system which pays workers on the basis of the number of products he or she produces rather than hourly wages.

Just within a decade Lincoln Electric's higher management however, decided to close down the majority of the foreign subsidiaries facing steep losses. The combination of a lack of international experience and managerial hubris proved to be a hindrance for a profitable international expansion. European workers were not used to the incentive system and revolted against the foreign managers of whom none had international experience. Although Lincoln Electric's routines had proved to be profitable in domestic markets, foreign markets required other routines. Lincoln Electric had learned some harsh but valuable lessons from the failed acquisitions, adjusted their foreign business model and has nowadays subsidiaries in 19 countries with a global network serving over 160 countries (Hastings 1999; Lincoln Electrics 2011).

Like Lincoln Electric, the Dutch retailer Ahold faced a rapid global expansion consisting of a large number of foreign acquisitions in both the retail industry and adjacent industries. In order to ensure continuous growth in sales volumes Ahold expanded its business to unfamiliar regions including; Asia, Eastern Europe and Latin America. At the apex of Ahold's globalization rush, Royal Ahold possessed over 4000 retail stores in 27 countries.

However, soon Ahold faced large unexpected problems in many of its foreign subsidiaries caused by cultural differences and misinterpretations. Ahold was often seen as an invader which aggressively acquired domestic retailers, particularly in Latin America. To cope with these problems, Ahold allowed their subsidiaries a great deal of autonomy. Subsidiaries were however expected to achieve an annual growth of 15 percent. To meet with this unrealistic growth, financial statements were filled with misrepresentations and irregularities which were often neglected by Ahold's high ranked managers. Finally, after an ongoing process of fraud, Ahold was accused for accounting fraud and became known as Europe's Enron (Knapp & Knapp 2007; The Economist 2003).

Like Lincoln Electric, Ahold implemented firm specific routines in the business model of their foreign subsidiaries regardless of different cultures and management styles. The limited knowledge of operating in foreign countries, the lack of international experience and the different cultures ensured large problems. Nowadays, the internationalization path of Ahold is characterized by a slow expansion. Ahold has learned some valuable lessons from previous failures and has adjusted its routines to characteristics of the regional host environment.

### **2.1.5 Internationalization theories (5) the foreign establishment mode choice**

Firms that want to enter a foreign market by means of full ownership and an equity based investment can acquire an existing domestic firm or create a new firm from scratch (a greenfield investment). The choice between the two alternative enter modes is called the *foreign establishment choice*. The outcome of this choice can tell something about the characteristics of the acquiring firm and the expected evolution of the degree of territorial embeddedness in the regional host environment (Kim 2009). This section therefore briefly discusses the determinants of this choice.

Despite the abundant and long-term interest of scholars from multiple disciplines, the prospect of formulating a comprehensive model that is able to both explain and predict the outcome of the foreign establishment mode choice is still poor. Empirical studies show contradictive outcomes and theories have different conceptualizations (Cartwright & Schoenberg 2006; Buckley & Casson 2009; Ahsan & Musteen 2011; Shimizu et al 2004). Slangen & Lennart (2007) distinguish a number of factors and firm characteristics that determine the foreign establishment mode choice. The first distinguished factor is the internationalization motive of the firm, in essence; the exploitation or augmentation of technological assets.

If a firm already possesses superior technological assets over its competing rivals, the likelihood of an investment in a greenfield venture increases. Firms want to exploit their technologies rather than incorporate subordinate technologies from local domestic firms. Contrariwise, firms aiming to augment their existing technological assets are more likely to undertake a CBA rather than a greenfield investment (Shimizu et al. 2004; Slangen & Lennart 2007).

Cultural differences between countries or regions are a second explaining factor. These differences are expressed in transaction costs or institutional hazards. These costs and hazards rise with the degree of cultural distance between regions. Therefore, firms investing in regions with great cultural differences are likely to create a new venture from scratch. This because it is less expensive than familiarize local workers with firm specific routines. On the contrarily, firms investing in regions with great cultural similarities are likely to acquire a firm (Muller 2007; Slangen & Lennart 2007; Slangen & Beugelsdijk 2010; Kogut & Singh 1988).

A third factor is the impact of international experience on a firm's foreign establishment choice. Through international experience, capabilities and routines are developed. CBAs are negatively associated with international experience, in essence; firms that are international experienced are more likely to establish a subsidiary in the foreign market via a greenfield investment. However, this relationship between international experience and the establishment mode choice can be interpreted as a reflection of the possession of superior technologies. Experienced firms are more likely to possession of superior technologies compared with less experienced firms. These experienced firms aim to exploit their technologies rather than augment subordinate technologies (Shimizu et al. 2004; Brouthers & Brouthers 2000; Muller 2007; Slangen & Lennart 2007).

Next, the market structure is regarded to be an important factor in explaining the foreign establishment mode choice of firms. Regarding these features a number of assumptions can be formulated. CBAs are positively associated with the size of the market. Rapidly growing markets also correlate with CBAs. Finally a CBA is the preferred establishment mode when the market is characterized by average competition (Muller 2007; Eicher & Kang 2003).

Finally this section distinguishes the characteristics of the product introduced on the host market as an explaining factor. Standardized products that can be introduced without significant adjustments in a global market are associated with greenfield investments. Contrarily, a CBA is the preferred establishment mode if the product requires significant adjustments prior to introduction (Slangen &

Lennart 2007). Next to these specific factors, Danzon et al. (2007) state that CBAs are in general cheaper, more effective and quicker than building up a firm from scratch.

## 3 Literature review: territorial embeddedness of foreign subsidiaries in the regional host environment

### 3.1 The effects of foreign direct investments on the regional host economy.

In this section, the effects of CBAs on the regional host economy are examined. Since the late 1890s, some governments are critical, or even hostile to the interference of multinationals in the national economy. The first subsection examines the role of the government as major stakeholder in the cross-border acquisitions. Firstly, the regulatory framework and its determinants of world's largest recipient of incoming FDI (the United States) is studied, thereafter this section focuses on the position of the Netherlands. Section 3.1.1 explains the differences in policy approaches of different countries. Some countries use tax incentives to attract FDI flows while other countries developed contradictive laws and regulations to control incoming FDI flows. Why have these disparities occurred and what determines the different policy attitudes towards FDI and in particular CBAs?

Section 3.1.2 discusses a number of general effects of FDI (both greenfield investments and CBAs) on the regional host environment. Thereafter, the specific impact of CBAs will be examined in section 3.1.3<sup>3</sup>. The establishment of foreign MNE is increasingly becoming an important engine for regional economic growth (Hogenbirk 2002, Borensztein et al. 1998; Ponfoort et al. 2006). The impact of inward FDI on the host countries economy has been a thoroughly studied topic (Phelps et al. 2003). According to Dunning (1994), almost every country has been subject of such research. However, the lion's share of the scholars focused their research on the national impact of FDI rather than a regional approach.

#### 3.1.1: Cross-border acquisitions; a matter a national security?

Foreign investments (both portfolio and direct investments) have always played an important role in the development of the U.S. economy since at least the mid-1870s (Wilkins 1991; Graham & Marchick 2006). However, a poll held in 2006, shows that 53 percent of American citizens thinks that the presence of foreign firms on U.S. soil is "*bad for America*" (Graham & Marchick 2006, p.15). Some even argue that FDI is compromising the national security of the U.S. Therefore, the U.S. government is empowered to block foreign acquisitions and even seize foreign subsidiaries. The often discussed relationship between state and industry is furthermore expressed for example by the profound interventionist policy of the French government regarding foreign acquisitions (Mittra 2006). Completed by China, these three countries are according to an Economist Intelligence Unit survey most likely to block a foreign acquisition (Sauvant 2009).

Governments are historically an important stakeholder in acquisitions, more specifically in protecting the interests of the state and its inhabitants. As the United States joined the allies during First World War, concerns about Germany's increasing involvement in key sectors in the U.S. economy (especially the chemical/pharmaceutical industry) via its subsidiaries were raised. The

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<sup>3</sup> it is important to differentiate between greenfield investments and cross-border acquisitions as FDI can not been seen as a homogenous phenomenon (Balsvik & Haller 2011).

increasing concerns on the matter of national security lead to the *Trading With the Enemy Act* (or TWEA). This act gave U.S presidents the power to confiscate all foreign assets during times of war or the endangerment of the national security of the United States. During the decisive war years 1917-1918 U.S president Wilson nationalized all German subsidiaries and firms under German control. Assets (including patents) of the German chemical and pharmaceutical giant Bayer were sold to Sterling Drug while other German pharma assets (e.g. Hoechst) were allocated to the Chemical Foundation which in turn transferred the assets to U.S. held pharmaceutical firms (e.g. E.I. du Pont de Nemours & Company). Government interventions were justified by the protection of national security. U.S. firms took economic advantage of the confiscation of German assets and increased their foreign influence by FDI. Due to the lack of technological knowledge U.S. firms were forced to build alliances with German pharma firms and German firms returned to the United States. Since the U.S congress did not restrict foreign investments in the chemical/pharmaceutical industry, the sector was leading in terms of incoming FDI prior to the onset of the Second World War. During this war, president Roosevelt, supported by the TWEA Act, again seized German and Japanese assets mainly in the chemical/pharmaceutical industry including assets from pharma giants I.G. Farben and Schering. While most European economies were ruined after the war, the U.S. economy was flourishing and U.S. firms accelerated their foreign activities rapidly (e.g. Pfizer in the mid-1950s). Although concerns about the presence of foreign held firms in U.S. were raised during the 1970s, president Carter and his successor Nixon stated that all FDI were welcome. However, this stance was changed due to the double digit growth rate of, especially from Japan, FDI in the United States. Published books concerning this matter such as the *Selling our Security* and *Rising sun* fuelled the fear for foreign companies in the U.S.. Fears were focused around the *hollowing out* of U.S. technology (Graham & Marchick 2006, p. 23) by the transfer of sensitive technologies from the U.S. to Japan.

Nowadays, FDI (especially from China and the Middle East) still is a concern for the national security of the U.S.. The congress enacted the Exon-Florio Amendment in 1988, to review incoming FDI. This amendment allows the president to block foreign investments that is believed to impair the national security. The U.S. congress blocked for example (advised by the Committee on Foreign Investment in the United States or CFIUS) blocked the acquisition of P&O by Dubai Ports World, a United Arab Emirates state-owned Dubai firm in 2006 (Graham & Marchick 2006). Although the U.S. government is entitled by law to block foreign acquisitions, the U.S is still world's most attractive destination for FDI in 2010 (UNCTAD 2011).

### ***Dutch Investment policy.***

Investment liberalization has historically always been one of the cornerstones in the Dutch economic policy. However, after the reverse Schering-Plough Merck merger and the subsequent announced rationalization of R&D sites in 2009, the Dutch government received a scarlet letter. Other stakeholders, including employees, opposition parties and firms representatives, blamed the government for not protecting the national interest and strategic industries by blocking the acquisition of Merck. It is however questionable to what extent the Dutch government was legally entitled to block the acquisition.

In contrast to other European governments, the Dutch government is legally very limited in its options to block foreign acquisitions. The introduction of laws that could protect economic- and national security is a rather recent worldwide development. In the 1990s and early 2000s, laws were introduced in favour of FDI. Legislative restrictions were abandoned and investments throughout Europe became increasingly liberalized. This development was slowed (according to some, even reversed) around 2005 when countries introduced investment-restrictive laws (Marchick & Slaughter 2008). This policy change in opposite direction is justified by the protecting of national economic interest or even national security (Mittra 2006). Precursor in this trend is France with its historically defined interventionist policy. This policy is reflected by the acquisition of Aventis (Franco-German) by Sanofi (French). After receiving a hostile and defensive takeover bid from Sanofi, Aventis invited Novartis (Switzerland) to open negotiations. Prime minister Jean-Pierre Raffarin and minister of finance Nicolas Sarkozy intervened in the negotiations by invoking French protecting laws and strongly supporting the Sanofi bid, in order to create a national champion. Raffarin officially justified the intervention by stating that the national security (i.e. access to Aventis's vaccines) would be jeopardized if Novartis would acquire Aventis. In order to secure R&D facilities, high skilled jobs, pharmaceutical capabilities and eventually the creation of a national champion, the government pressured Sanofi to raise their bid. Sanofi raised the bid and ultimately acquired Aventis in 2004 (Mittra 2006).

Although the Dutch government acknowledges the national interest in cross-border deals (Verhagen 2011), the government plays only a marginal role. Due to the Dutch Anglo-Saxon economic tradition, policy intervention in global industrial affairs is highly unlikely. According to the 2012 Index of Economic Freedom, the Dutch economy is regarded as one of the most free economies in Europe, especially in terms of open markets (the Heritage foundation 2011). These findings are also acknowledged by the U.S. Government Accountability Office (GAO 2008) that investigated the (implementation) of laws and policies enacted by governments to control FD and in particular cross-border acquisitions. Other than acquisitions in the financial industry and acquisition of firms controlled by the government, Dutch laws and regulations are not enacted to block foreign acquisitions and control foreign direct investments. The flip side of the very open economy and liberal investment policy, is that the Dutch government is legally not able to regulate incoming most FDI flows and protect its national champions such as Organon BioSciences. Some recent foreign acquisitions (e.g. Organon BioSciences, Nuon, Essent and Grolsch) raised discussions in the House of Representatives and public opinion to develop laws and invoke review processes to control these acquisitions and protect traditionally Dutch national champions. Currently, Dutch law does not make a distinction between foreign and domestic firms. Although all investment are reviewed by the Netherlands Competition Authority (NMa), investments cannot be blocked on grounds other than competition regulations (GAO 2008).

Although FDI protectionism is on the rise and MNEs are increasingly discouraged to acquire domestic firms, Evenett (2003: In Mittra 2006) however notes that: "*foreign acquirers often transfer cutting edge technology, new strategic options and better managerial practices to the domestic firms they acquire*" (p. 477). Therefore, governments from emerging and developing countries increasingly

aim to attract FDI (Javorcik 2004). In the next section this thesis will examine this positive claim of governments about the positive effects of FDI and CBA's on the regional host economy.

### 3.1.2: FDI productivity spillovers in the regional host environment

Scholars historically considered the introduction of new technologies by foreign subsidiaries the main reason for economic growth in the host country. The main contribution of these subsidiaries is the transfer of technologies to domestic firms in the regional host economy (Carkovic & Levine 2005). The introduction of superior technologies drives innovative behavior and increases the productivity standards of domestic firms and thereby boost the regional economy (Branstetter 2000; Borensztein et al. 1998; Blomström et al. 1999). A more rather recent hypothesis is that regions also benefit from the presence of subsidiaries that aim to augment their technologies. First the relationship between inward FDI and productivity growth is examined.

The supposed causal linkage between inward FDI and productivity growth of domestic firms is empirically proved by a number of scholars (see for example Blomström et al. 1999). Castellani & Pieri (2010) conclude that regional productivity growth positively correlates with the establishment of foreign subsidiaries<sup>4</sup>. Also Görg and Greenway (2003) and Bertrand & Zanouta (2009) find that the presence of foreign subsidiaries is positively associated with regional productivity growth.

Competitive advantages (see section 2.1.3) are necessary to overcome a MNE's *liability of foreignness* (Johanson & Vahlne 2009). In order to compensate for the unfamiliarity with- and the limited stock of knowledge about the regional host environment, MNE subsidiaries are likely to be more productive than their domestic rivals (Borensztein et al. 1998; Castellani & Pieri 2010; Bertrand & Zitouna 2008). When subsidiaries are not embedded in an external network in their host environment they risk to suffer from a *liability of outsidership* (Johanson & Vahlne 2009). To overcome this liability, firms aim to establish themselves in a network and hence MNE's routines and capabilities can be, voluntary and by spillovers, transferred to domestic firms, thereby increasing the productivity standards of these firms<sup>5</sup>. Blomström et al. (1999) and Görg & Greenway (2003) enumerate a number of channels through which these routines and capabilities are channeled to domestic firms.

First, FDI productivity spillovers are channeled to domestic firms via imitation and demonstration (or reverse engineering). Externally visible superior routines and capabilities are imitated by local firms. The second vehicle of productivity spillover is the inter-firm migration of managers and employees. Subsidiaries invest in human capital by training and educating their employees. Trained workers or managers can migrate to competing domestic rivals or can start an own spin-off. During this migration process, acquired knowledge and routines are transferred to domestic firms, and workers exert their knowledge to increase productivity (Blake et al. 2009). Also,

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<sup>4</sup> However, evidence is only found for relatively large numbers of investment projects.

<sup>5</sup> Domestic firms must however have a critical amount of absorptive capacity or routines to be able to adopt technological innovations (amongst others: Borensztein et al. 1998; Dunning 1996). Because the Netherlands is one of the most developed countries worldwide with a highly educated workforce, Dutch companies will have a sufficient threshold human capital to adopt and transfer knowledge from and to MNEs foreign subsidiaries.



increased competition on the market forces domestic firms to become more efficient. Increased competition will also exert the development of innovations in products and production processes. Firms are forced to incorporate these innovations faster to stay competitive. These developments will increase the productivity of domestic firms.

Next to these horizontal channels, Blake et al. (2009) also distinguish vertical input-output linkages in the value-chain of the subsidiary as an important channel through which knowledge, routines and capabilities are transferred. Subsidiaries transfer superior- and necessary techniques via backward linkages to upstream suppliers, to maintain a proper standard for the locally sourced input. These relationships between subsidiaries and their regional suppliers thus enhances the productivity of domestic firms (Javorcik 2004). Local sourcing also increases the competition among domestic suppliers. Foreign subsidiaries also transfer knowledge, routines and capabilities through forward linkages to domestic firms in the downstream supply chain of the subsidiary. Domestic firms can either distribute or purchase superior products from the subsidiary which improves their productivity (Crone & Roper 2001).

Finally, MNEs have extensive knowledge about foreign markets and global trade networks. The presence of foreign subsidiaries can compensate for the lack of information of foreign markets necessary for exports. Also domestic firms can be motivated by the foreign subsidiary to meet with the high export standard of products (Blake et al. 2009; Blomström et al. 1999; Görg & Greenway 2003).

Besides the above enumerated learning effects, FDI can stimulate economic growth directly. MNE subsidiaries generate additional tax revenues, create employment, contribute to the GDP and enhance the balance of international payments (Dunning 1996). As mentioned in the introduction, foreign subsidiaries are important drivers of economic growth in the Netherlands. Both directly and indirectly.

### **3.1.3 The impact of cross-border acquisitions on the region's host economy**

This subsection examines the specific impact of CBAs on the regional host economy. Although the number and share of CBAs in the overall FDI activity has steeply increased in the last decades, there have been relatively few scholars inquiring the regional impact of such acquisitions (Bertrand & Zitouna 2008). Undeterred by the lack of consensus among scholars regarding the potential benefits or disadvantages of CBAs, governments have raised concerns for the host country's general welfare (see previous section). Also in the public debate, CBAs are often associated with hazards to economic growth and increasing job insecurity. A related concern is the decline in R&D expenditures, innovative capacity and the decrease of productivity growth of domestic firms (Lehto et al. 2006; Bandick & Karpaty 2007). However, CBAs have also been associated with a number of potential economic opportunities including productivity growth, job creation (regional employment growth) and increasing innovativeness of domestic firms (Crisuolo et al. 2010; Stiebale & Reize 2011; Bertrand 2009; CBS 2011a). First the relationship between CBAs and innovativeness of subsidiaries and domestic firms is examined. Next, the impact of CBAs on productivity efficiency is outlined. Finally, the employment effects of CBAs are studied.

Scholars commonly use R&D expenditures as an indicator of innovation. The impact of CBAs on R&D expenditures of subsidiaries is however theoretically inconclusive. On one hand scholars expect a decline in R&D expenditures after an acquisition, on the other hand, theories expect an increase in R&D expenditures. In order to monitor innovative activities carefully, reduce spillovers to competing firms and reduce transaction- and coordination costs, firms may centralize their R&D functions. As a result, duplicate functions are closed down. By eliminating duplicative R&D sites, MNEs may also create economies of scale (Danzon et al. 2007). Dissimilar to above mentioned assumptions, other theories suggest an increase in R&D expenditures after a CBA. Firms undertaking a CBA motivated by the augmentation of existing routines and capabilities, will invest in acquired R&D functions. Not only do foreign R&D functions support local production plants by adjusting products to the requirements of the regional host environment, yet they also are increasingly becoming important vehicles of knowledge creation and innovation for the entire MNE (Bertrand 2009).

Since theoretical conceptualizations are inconclusive, outcomes of empirical research are examined. However, this is a complicated method since most scholars do not differentiate between greenfield investments, domestic acquisitions and cross-border acquisitions. Only few scholars empirically study the specific impact of CBAs on R&D expenditures (Bertrand 2009; Stiebale & Reize 2011).

Stiebale & Reize (2011) make a distinction between foreign-owned and domestic firms and their respective R&D expenditures. Various scholars (including: Castellani & Zanfei 2007; Erdilek 2005; Love et al. 2009; Criscuolo et al. 2010 and Wagner 2006) report a positive correlation between foreign ownership and R&D expenditures. However, when separating CBAs from other forms of FDI, contrasting results are found. Martin & Alvarez (2009) find a negative relationship between foreign subsidiaries and expenditures in R&D<sup>6</sup>. These findings are supported by Stiebale & Reize (2011). Research carried out by Bertrand (2009) is however not in accordance with these findings. French firms do increase their R&D expenditures after a CBA. Of particular interest, for this thesis, is that Bernard (2009) also finds a positive correlation between foreign acquisitions and increasing R&D expenditures of domestic firms in the external network of the subsidiary.

With respect to repercussions on a firm's productivity after a CBA, the empirical evidence is rather clear. Compared with greenfield investments, the efficiency gains for CBAs are regarded to be stronger (Bertrand & Zanouta 2008). A number of scholars find a productivity raise after a CBA. Piscitello & Rabbiosi (2005) conclude that CBAs in Italy exert a positive repercussion on firm's productivity. More recent papers also highlight the positive consequences of CBAs. Chen (2010) finds efficiency gains for American firms after a CBA, and Arnold & Javorcik (2009) find correspondingly results. Finally, Bertrand & Zanouta (2008) find an increase in productivity efficiency in targeted French firms after a CBA.

Finally, the impact of CBAs on the domestic labour-market is analyzed. CBAs are often associated with employment losses due to changes in ownership and the following reorganizations

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<sup>6</sup> Martin & Alvarez (2009) focus on the entire MNE, not the subsidiary itself.

and closure of chain functions. Governments fear a brain drain to the home region of the mother company if domestic firms are acquired. The negative relationship between CBAs and employment losses is however both theoretically and empirically inconclusive and also depending on a number of variables. Lehto & Böckerman (2006) distinguish a number of determinants that influence the employment effects after a CBA. They identify the acquisition motive, characteristics of the targeted firm, facets of the particular industry and country and finally the type of acquisition (i.e. vertical or horizontal acquisitions) as main determinants. Another public expressed fear of governments is the replacement of domestic managers by expatriates (see 3.3.3) who have no relationship with the host region. This development enhances the process of disembeddedness of foreign subsidiaries.

Empirical studies regarding the impact of acquisitions on the labour market, show conflicting outcomes. It is important to distinguish low- and high skilled jobs. Lehto & Böckerman (2006) and Pesola (2009) both find a positive correlation between CBAs and unskilled job destruction in the manufacturing industry in Finland. These findings are confirmed by Girma & Görg (2001) and Bandick & Karpaty (2007) in respectively the United Kingdom and Sweden. Regarding high-skilled jobs, contradicting results are found. Bandick & Karpaty (2007) positively associate CBAs with progressive high-skilled employment effects. In the Netherlands, foreign subsidiaries stimulate high-skilled employment (Ponfoort et al. 2007; Wintjes 2005; CBS 2011a). However, there seems to be an overlooked regional employment effect of CBAs (Arnold & Javorcik 2009). Compared to domestic firms, foreign subsidiaries in the Netherlands often pay higher wages to attract high-skilled employees (Ponfoort et al. 2007; Wintjes 2005). As most foreign subsidiaries source their employees locally (Balsvik & Haller 2011), domestic firms will encounter migrating employees. On average there will be thus no job destruction in the acquired firm itself, domestic firms however will face difficulties in attracting skilled employees.

Foreign subsidiaries further stimulate an indirect multiplier effect on regional employment. Subsidiaries stimulate employment in adjacent industries by purchasing materials and services. Also employees do spend their salaries most likely in the host region thereby boosting the demand for products and services (Potter et al. 2003).

Thus far in this section, foreign subsidiaries and their respective impact on the regional host economy are assayed homogeneous. However, the reciprocal relationships between foreign subsidiaries and their corresponding regional host environment are in fact far from consistent. Domestic firms and other regional actors do not by definition benefit from the presence of foreign subsidiaries in their environment. A critical variable in explaining the differences in regional impact is the degree of subsidiary territorial embeddedness (Saliola & Zanfei 2006; Williams et al. 2008; Balsvik & Haller 2011). Only when foreign subsidiaries are embedded in their regional host environment, reciprocal relationships can result in the channeling of superior knowledge and routines into the regional host environment and vice versa.

In the next section, this thesis will elaborate on the concept of territorial embeddedness. After defining and narrowing down the phenomena, an evolutionary perspective of territorial

embeddeness will be introduced. Furthermore, this section enumerates the different factors that determine the degree of territorial embeddeness of the foreign subsidiary in its regional host environment.

### **3.2 MNEs subsidiaries: snatchers or stickers?**

The original concept of embeddeness was first introduced by Karl Polany in his seminal work *The great transformation* (1944) and elaborated on by the social economist Mark Granovetter (1985). More recently, the concept was introduced in the field of economic geography in the early 1990s, seeking to explain the evolution and the economic success of clusters. The territorial embeddeness of spatial relations between firms and other actors in a cluster, resulted in an institutional thickness thereby boosting the economic success of these regions (Hess 2004). Foreign subsidiaries were increasingly seen as benefactors to the economic success of clusters as they introduced superior knowledge and routines to a cluster. This positive attitude toward foreign subsidiaries is however rather recent and is not true for every country (see section 3.1.1).

As firms increasingly became geographically dispersed and globalised after World War 2, foreign subsidiaries were referred to as footloose organizations, or even more negative; snatchers. MNEs were accused of an emblematic *slash and burn* policy in which resources (including labour) were fully exploited and thereafter abandoned when cheaper alternatives became available elsewhere. In contrast with domestic firms, foreign subsidiaries were merely seen as placeless organizations lacking durable relationships with actors in the regional host environment. The stereotypical view of foreign subsidiaries and their footloose relations in the regional host environment persisted until the early 1990s when the relationship between the MNE (and its subsidiaries) and territory became more interlinked (Dicken et al. 1995).

#### **3.2.1 Territorial embeddeness:**

Foreign subsidiaries became an important channel to transfer new knowledge from the external network into the corporate system of the MNE. Throughout the early 1990s, it became apparent that foreign subsidiaries were not merely vehicles that exploited superior routines and knowledge in foreign markets, but that foreign subsidiaries were key to the development of these superior routines and consequently, to the competitiveness of the firm (Anderson et al. 2001). By tapping into dispersed external networks, new sources of knowledge become available and intangible assets are augmented (Kramer & Diez 2011). Prior to this rather contemporary attitude, knowledge and routines were top-down transferred and then exploited abroad through subsidiaries. Foreign subsidiaries embodied with an augmentation mandate (Almeida & Phene 2004; Birkinshaw & Hood 1998), are depending on relationships with actors from the regional host environment for the creation of knowledge and routines (Figueiredo & Brito 2011).

Despite the actual physical presence in the host region, knowledge in external networks can still be inaccessible for some subsidiaries. The extent to which foreign subsidiaries are capable of creating and transfer external knowledge and innovations into the corporate system is largely determined by their degree of territorial embeddeness in the external networks in the regional host environment.

A high degree of subsidiary territorial embeddedness leads to access to a local buzz<sup>7</sup> and access to new knowledge and routines (Kramer & Diez 2011). Differences in territorial embeddedness in external regional networks also determine the performance and evolution of subsidiaries' routines and thereby also the role of the subsidiary in the global corporate system. The degree of embeddedness has got a positive impact on the subsidiary's importance in this system (Almeida & Phene 2004; Figueiredo & Brito 2011; Anderson et al. 2005; Anderson et al. 2001).

Although the scientific literature on the concept of territorial embeddedness of foreign subsidiaries is considerable, the phenomena is still regarded as a fuzzy concept (Markusen 1999, in: Phelps et al. 2003) with different definitions and used in different scientific frameworks and contexts (Hess 2004). Consequently, no singular approach in conceptualizing territorial embeddedness exist (White 2003). The spatialization of the concept is a rather recent development by (economic) geographers focusing on the spatial knowledge relationships between firms (MNEs) and their respective environment (Phelps et al. 2003). In his dissertation on the embeddedness of American and Japanese subsidiaries in Dutch regions, Wintjes (2001) elaborates on the definition of embeddedness in a more evolutionary manner. Wintjes' definition is largely based on the concepts of path dependency and locational inertia caused by cumulative investments in the subsidiary (and the region) and mutual adjustments in reciprocal relationships between the subsidiary and actors from the regional host environment. The degree of territorial embeddedness of the subsidiary in its regional host environment is therefore not a fixed, but a rather evolutionary process; the process or *evolution* of embeddedness. Through intensified interaction with regional actors and consecutive investments, increasing sunk costs occur and the subsidiary becomes increasingly embedded in its regional host environment. Clark & Wrigley (1997) therefore state that: "*firms are held hostage by their history and geography*" (in: Chapman & Edmond 2000, p. 759). This process of increasing spatial inertia is not only caused by physical investments but also through immaterial investments in, for example human resources, by training and the education of employees, which leads to an important and expensive asset in human resources. A key determinant in the evolution of embeddedness is the locational inertia caused by increasingly stronger network relationships (network ties) in the external networks with regional actors.

These network ties are both formal- and informal of nature and can consist of vertical, horizontal and diagonal relations in the value chain of the subsidiary. However, also relationships outside (e.g. governments) of the value chain are a gauge for territorial embeddedness. Formal/business relationships along the value chain of the subsidiary are often, especially in later phases, subsequent to the initial CBA, external to the network of the MNE. In order to create mutual understanding and trust, and thereby reduce transactions- and coordination costs, certain closeness to suppliers and customers is essential. These developing reciprocal relationships enhance the locational inertia of the subsidiary in its regional host environment. Emphasizing the importance of strong business ties Anderson et al. (2001) define embeddedness therefore as "*closeness in a*

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<sup>7</sup> According to Kramer & Diez (2011) local buzz can be defined as: "a knowledge and communication ecology created by face-to-face contacts, the co-presence and co-location of a variety of stakeholders in an RIS, which cannot be easily reproduced at any location" (P. 4).

*relationship [...] the stronger the embeddedness, the more difficult it will be for the counterparts to change to other partners. The weaker the embeddedness, the more relationships will have a arm-length character* " (p. 1016). Also Phelps et al. (2003) underscore the importance of strong business ties by defining (local) embeddedness as: " *the depth and the quality of the relationships between inward investors and local firms and organizations* (p. 28). In this thesis the main focus therefore will be on the relationships between the subsidiary and localities. This is commonly referred to as territorial embeddedness<sup>8</sup> (White 2003; Perkmann 2006)

The degree of embeddedness influences the innovative capacity of the subsidiary. In order to develop and diffuse new routines and exchange knowledge, actors need both strong formal- and informal network ties. The exchange of knowledge is often beyond formal business relations and is therefore called social and technological externalities (Wintjes 2001). These externalities often consist of tacit or non-codified knowledge. To exchange tacit knowledge it is crucial to have strong ties (to be embedded in the relation) which are created by often large investments in communication- and transaction costs. Once collaboration networks are established they are, as with formal business relationships, hard and expensive to relocate. Tacit knowledge exchanges enhance geographical closeness of companies and are therefore often linked with the emergence of- and the success of clusters (Wintjes 2001; Anderson et al. 2001; Anderson et al. 2005; Saliola & Zanfei 2006; Dicken et al. 1995).

### **3.2.2 Territorial embeddedness: perspectives from the evolutionary economic geography.**

Unlike theories from the mainstream literature on MNE (IB), this thesis approaches territorial embeddedness as being of evolutionary nature. The degree of territorial embeddedness in the regional host environment is evolving both in time and space in conjunction with the evolution of the subsidiary (Tavares 2001; Birkinshaw & Hood 1998). Birkinshaw & Hood (1998) define subsidiary evolution as "(1) *the enhancement/depletion of capabilities in the subsidiary, coupled with (2) an explicit change in the subsidiary's charter* (p.773). Before analyzing the different stages of subsidiary evolution and corresponding territorial embeddedness evolution, this section will first briefly outline the theoretical foundations of evolution especially in the field of Evolutionary Economic Geography (hereafter EEG).

Foreign subsidiaries can fulfill, according to their respective charters, different roles in the corporate system. Based on the typology of White & Poynter (1984), Dörrenbächer & Gammelgaard (2006) indicate five different roles foreign subsidiaries can acquire. These roles are defined by the market scope of the subsidiary, product scope and value adding scope. Combinations of these dimensions result in five distinctive roles: marketing satellites, Miniature replicas, Rationalized manufactures, Product specialists and strategic independent units.

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<sup>8</sup> Hess (2004) also distinguishes *network embeddedness* in which the actors are involved in, thereby not differentiating between local and international networks, and *social embeddedness* referring to the extent to which firms are being influenced by their values and cultures.

Since subsidiaries have different roles in the corporate system of the MNE, their corresponding set of responsibilities also differs. Birkinshaw (1996) defines this set of responsibilities as the charter of the subsidiary, i.e. "*the business, or element of a business, in which the subsidiary participates, and for which it has responsibilities beyond its national market*" (p.471). The charter of the subsidiary is defined by its geographical market scope, the line of products, the use and development of technologies and a combination of these three aspects. A charter can comprise the entire value chain of a product, or solely a specific function in this chain (Birkinshaw & Hood 1998).

Next to the typology of White & Poynter (1984), subsidiaries can be classified by their developed competences. Foreign subsidiaries are capable of creating new competences by combining internal- and external (i.e. from collaboration with actors in the regional host environment) gained knowledge and experiences. This process of synthesizing and accumulation of internal- and external knowledge will cause the creation and/or adjustment of routines. Organizational routines are largely firm specific and shape the foundations and organizational structure of a firm, thereby determining to a great extent the economic behavior of the MNE (Boschma et al. 2002). Because routines are created by, via experiences gained (tacit) knowledge, routines are firm specific by nature and therefore hard to acquire or transfer. Considering the variety in structures of different foreign markets in which subsidiaries operate, each subsidiary is developing its own distinctive and unique set of competences and routines.

After the initial CBA, the role and the corresponding charter of the subsidiary is top-down allocated by headquarters. This is in line with the hierarchical approach of the corporate system propagated by more traditional IB-studies. However, more recent IB studies consider the MNE as a heterarchical organization (Delaney 2000). Although these studies acknowledge that subsidiary charters and roles are subject to evolution (see for example Dörrenbächer & Gammelgaard 2010; Birkinshaw 1996; Birkinshaw & Hood 1998; Delaney 2000), the determinants of this evolution are rather limited and are not studied thoroughly. For an enumeration of the main criticisms of evolution in IB, see Jacobs et al. (2010). Theories from EEG can be valuable to amplify to the limited literature of subsidiary evolution and thereby to the evolution of subsidiary embeddedness in the regional host environment.

EEG is regarded as the third approach<sup>9</sup> in economic geography, and according to Boschma & Frenken (2006) as the emerging paradigm despite the lack of a "*coherent body of theory and empirics*" (p.274). In the EEG framework, concepts, methodologies and theories from the evolutionary economics are applied in the economic geography. EEG scholars assume that the competitiveness of firms is a reflection of competences and the creation of unique routines. Theories in EEG therefore aim to explain and understand the spatial distribution of routines in time and space (Boschma & Frenken 2006). One of the key contributions to evolutionary economics is the seminal work of Nelson & Winters (1982). Cornerstone of their research are routines, defined as "*organizational skills, which cannot be reduced to the sum of individual skills*" (Nelson & Winters

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<sup>9</sup> Next to the Institutional Economic Geography and the New Economic Geography introduced by Paul Krugman (1991) based on neoclassical economics.

1982 in: Boschma & Frenken 2006 p.277). Routines can therefore be considered as the DNA of a firm. Routines are used as a control- and coordination mechanism for economic behavior (Hansen & Martin 2009). As economic actors are constrained by their bounded rationality, routines are used to cope with insecurities. Routines determine the economic behavior of firms and consequently their performance. Initiated by an insecure economic environment, deficient routines are filtered and refined. Therefore routines are the outcome of an ongoing selection process defined by experience (i.e. process of trial and error) and tacit knowledge. This knowledge is extracted from both the internal- (corporate system), external networks and the acquired firm. However, as the examples of Ahold and Lincoln in section 2.1.4 pointed out, the implementation of acquired routines requires experience and knowledge.

A final important concept of EEG is the irreversibility of historical processes expressed in the path-dependency of a firm. Historical events determine the path of the firm. Firms are therefore limited by the routines created in the past even through the occurrence of negative market feedback resulting in suboptimal decision-making (Boschma et al. 2002; Boschma & Frenken 2006). This phenomenon emerges in the evolution of territorial embeddedness, which will be elaborated further in section 3.2.3.

### **3.2.3 Territorial embeddedness: an evolutionary process:**

Since firms are constrained by a bounded rationality and set of historical decisions, firms create heterogeneous routines. Therefore the evolution paths of subsidiaries are unique. In the IB theory, subsidiary evolution is seen as a static and linear process. Subsidiary evolution is also often progressive i.e. the subsidiary's role is expanding and charters are extended instead of removed (see for example Delaney 2000). Theories from EEG approach the unique subsidiary's evolution in a more dynamic manner and focus on the process, rather than the state of the evolution. Evolution is seen as a dynamic, irreversible and an open process (Cantwell et al. 2010). Although the development paths of subsidiary's evolution are very heterogeneous and firm specific, Wintjes (2001) distinguishes three general stages in the developmental trajectory of subsidiaries territorial embeddedness. During these stages the territorial embeddedness of the subsidiary in its regional host environment is developing through time and space (Liu 2011).

During the first stage of territorial embeddedness evolution, the *implementation* phase, subsidiaries are practically miniature replicas of the MNE. The subsidiaries are deeply imbedded in the internal network of the corporate system. High-ranked managers and expats transfer MNE specific routines and competences to the subsidiary. Since the subsidiary is inadequately imbedded in its external regional host environment resources and construction parts are imported from abroad (Liu 2011). During the first embeddedness phase, the innovative capacity of the subsidiary is low, as is the relative importance of the subsidiary in the corporate system. Concerning the labour-market in the regional host environment it is notable that local employees are only hired for less specialized jobs and are trained by foreign expats. However, during the interaction with these local employees, the DNA of the subsidiary is set to change. Local customs, practices and legislation compel the MNE to modify their routines. Routines are adjusted by interaction to the new regional host environment. When the subsidiary is established by a CBA, mutations in routine will occur faster. Routines of the



acquired firm will be selected, redefined and combined with the routines of the MNE. The implementation phase of acquired subsidiaries is therefore considerably shorter than greenfield investments (Wintjes 2001).

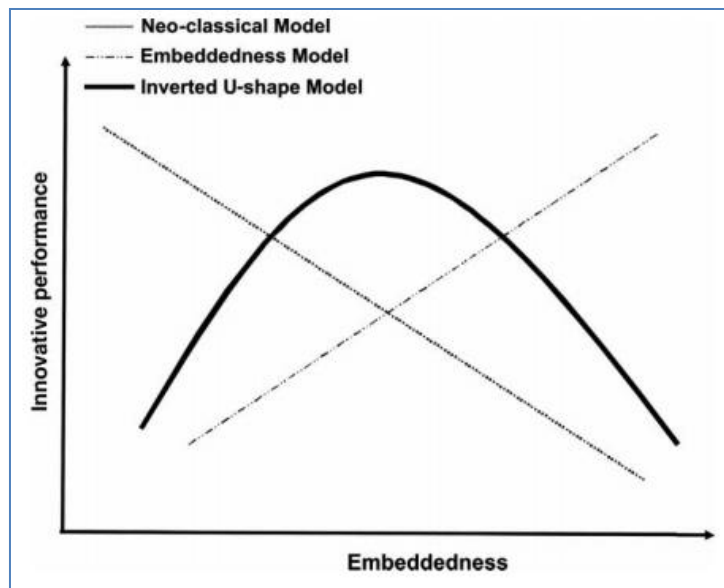
The implementation phase is succeeded by the *interaction* stage. During this phase both the external business- and informal networks start to materialize. Successive capital investments in physical and non-physical assets result in a higher degree of territorial embeddedness in the regional host environment. Subsidiaries start sourcing locally by collaboration with regional suppliers. As a result the subsidiary becomes less depending on the internal network of the corporate system (Drogendijk 2005). To be capable of adjusting products and services to the regional environment, external resources are secured by the subsidiary. Reciprocal relationships start to occur as network relationships complement one another. According to the typology of Vaessen (1993) this is a process of mutual manipulation and adaptation. Unlike the preceding phase, high-skilled local employees are being hired. As domestic employees are expected to have stronger bonding with the regional host environment, this local sourcing will strengthen the degree of territorial embeddedness. Collaboration with regional suppliers and purchasers will start the creation of new routines, which are then transferred and incorporated in the corporate system (Wintjes 2001; Liu 2011).

Wintjes (2001), finally distinguishes the *contribution* phase, which marks the culmination of the territorial embeddedness in the regional host environment of a foreign subsidiary. During this phase, the subsidiary is capable of creating new products (processes) and services by collaborating with firms and institutions in its network. Strong business ties and informal relationships with local and regional actors lead to the exchange and spillover of knowledge in the regional host environment. Actors in the value chain start using the subsidiary as a bandwagon. Existing routines are improved and channeled to other subsidiaries in the corporate system. Rather than depending on the HQ and other subsidiaries, the subsidiary becomes more autonomous in strategic planning and can even gain a pivotal role in supplying new knowledge in the corporate system (Drogendijk 2005).

However, the progression of territorial embeddedness into the regional host environment is not infinite. To ensure continuous business growth, subsidiaries start expanding their activities abroad (or interregional). In order to maintain or strengthen the central role in the corporate system, subsidiaries are compelled to introduce new knowledge in the internal network of the MNE (Drogendijk 2005). To avoid a territorial lock-in, subsidiaries set up pipelines with more distant located actors. Value-chain relationships become international and also suppliers and purchasers can have an international scope. As a consequence the degree of territorial embeddedness starts to diminish. Although the subsidiary is still physically located in the regional host environment, the regional economy can suffer from the expansion of the subsidiary (Wintjes 2001).

This development is illustrated in figure 1. The positive impact of territorial embeddedness on the innovative performance of a firm can, at a certain threshold, turn negative (Kramer & Diez 2011).

Figure 1: Interaction between embeddedness and Innovative performance



Source: Kramer & Diez (2011)

As is mentioned before, the development paths and the corresponding territorial embeddedness of subsidiaries are to a great extent unique. These aforementioned stages of embeddedness evolution are therefore general patterns of corresponding developments. The speed of embeddedness evolution differs greatly among the different subsidiaries. Furthermore, not all subsidiaries develop onwards from the implementation- to the subsequent phases. Some subsidiaries stay in the implementation phase and other subsidiaries disperse from the market. From the perspective of the regional host environment, it can be stated that the more the subsidiary is embedded in the regional economy the harder it will be for the MNE to relocate the subsidiary. Policymakers therefore emphasize the importance of embedding the subsidiaries in the regional host environment. Regional development agencies (RDAs) develop tools and initiatives to embed the operations of subsidiaries in the local economy (Phelps et al. 2003). However, which (f)actors determine the (degree of) territorial embeddedness of the foreign subsidiaries in the regional host economy? As became apparent in chapter 2 the motivation behind a CBA is an important determinant. Another key determinant is the evolution of the subsidiary itself (Delaney 2000). It is therefore critical to analyse the different (f)actors that determine the evolution of the subsidiary.

### 3.3 Determinants of embeddedness: subsidiary evolution

In the early literature on subsidiary evolution, scholars concentrated on the headquarters of the MNE and its top-down relations with its foreign subsidiaries (Birkinshaw & Pedersen 2001). This rather traditional strand of MNE literature has a strong hierarchical view and considers the subsidiary as a subordinate instrument of the parent or solely as a 'dump subcontractor' (Delaney 2000; Ambos et al. 2010). Since the early 1980s, this centre-dominated view of the corporate system was increasingly questioned by scholars and alternative concepts were developed (Pedersen 2006). A new theoretical framework emerged, in which the MNE was seen as a heterarchy. According to this differentiated network approach, the corporate system consists of multiple centers or polycentric

networks (Kramer & Diez 2011). Each single subsidiary contributes to the corporate system with specific routines and roles. The competitiveness of the MNE is generated collectively by the corporate network (Birkinshaw et al. 1998). In accordance with this contemporary conceptualization of the corporate system, subsidiaries are to some extent able to take initiative by developing an autonomous set of routines and firm strategy rather than solely accepting charters. To create these routines, foreign subsidiaries combine internal knowledge with specific external locational advantages of the regional host environment (Delaney 2000; Rugman et al. 2011). Therefore, subsidiaries can be conceptualized as 'quasi-firms' (Anderson 1997) in an inter-organizational network (Tavares 2000).

Next to the subsidiary taking initiative, two other (f)actors can be distinguished that drive subsidiary evolution and the consequent degree of embeddedness. Although the 'head office knows best syndrome' is becoming less persisted, the influence of the head office on the evolution of the subsidiary is still considerable. The third distinguished driver of subsidiary evolution is the regional host environment. These three factors (and the interaction between them) drive the evolution and hence the evolution of embeddedness of the subsidiary in the regional host environment (Birkinshaw & Hood 1998; Dörrenbächer & Gammelgaard 2006; Tavares 2000).

This thesis is emphasizing on the effect of subsidiary evolution; subsidiary embeddedness. The first discussed driver of subsidiary evolution is the role of the foreign subsidiary in the corporate system.

### **3.3.1 Subsidiary's entrepreneurial capacity and strategy: *strategic leader or branch plant of the MNE?***

Subsidiaries are semi-autonomous entities (see section 3.3.2). Although constrained by the HQ's corporate strategy, subsidiaries are to some extent able to develop and set their own strategy<sup>10</sup> and thereby influence the scope and nature of their businesses (Ambos et al. 2010). The strategy of the subsidiary is influenced by the degree of autonomy in the internal network and the number and quality of the subsidiary's initiatives. Subsidiary strategy reflects the goals of subsidiary managers who pursue an increase in autonomy and influence over other units (Ambos et al. 2010).

The contributory role of the foreign subsidiary in the corporate system has been a rather recent phenomenon (Rugman et al. 2011). Through entrepreneurial activities- and the development of superior routines in foreign markets, subsidiaries can contribute to the MNE's competitiveness. Foreign subsidiaries can act as pioneering leaders in innovative projects, create products for the local and global market, and transfer their knowledge, experience and routines into the corporate system (Birkinshaw et al. 1998; Ambos et al. 2010). Subsidiaries are no longer seen as solely vehicles through superior routines, and technologies are exploited abroad. Even on the contrary, subsidiaries are key in the development of these routines and technologies by incorporating external embedded knowledge from the collaboration with actors from the regional host environment in the corporate

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<sup>10</sup> Birkinshaw (2001), defines the own strategy of the subsidiary as: "*the positioning of the subsidiary vis-à-vis its competitors and its consumers, and with regard to its underlying resources and capabilities*" (p. 389).

system of the MNE, thereby becoming strategic resources on which other subsidiaries are depending (Hogenbirk & Kranenburg 2006). Subsidiaries characterized by this role are labeled *specialized contributor*, *strategic leader* or *active subsidiary* (Birkinshaw et al. 1998). By contributing to the competitiveness of the MNE, subsidiaries are progressively influencing their own evolution (Delaney 2000; Pedersen 2006).

To contribute to the MNE-specific routines, foreign subsidiaries must undertake entrepreneurial activities. Activities developed outside the home country of the MNE, which enable the subsidiary to benefit from local opportunities and competences, are labeled *subsidiary initiatives*. The conceptualizing of subsidiary initiative is still rather complicated and little-understood (Ambos et al. 2010), as are the effects and determinants of subsidiary initiative (Birkinshaw & Ridderstråle 1999). The consequences of initiative taking of the subsidiary on its degree of autonomy in the corporate system are twofold. On one side initiative taking does enhance the autonomy of the subsidiary, on the other side however, its entrepreneurial activities will lead to a decrease in its level of autonomy. Since the implementation of an initiative requires attention of the HQ, subsidiaries that attempt an initiative will evoke a monitoring process of the HQ (Ambos et al. 2010).

To develop a strategy, foreign subsidiaries are depending on both the internal network of the MNE and the external network of the subsidiary itself, i.e. the regional host environment. The internal network (HQ) will provide the subsidiary with initial resources and competences, thereby influencing the development trajectory of the subsidiary. Regarding the internal network of the subsidiary it is important to take the reputation and credibility of the subsidiary into account. A good reputation of prior initiative taking will enhance the probability of the successful implementation of an initiative in the internal network. Identity and reputation are therefore important assets of a subsidiary.

The external network will give opportunities to take initiatives and developed successful routines. Collaboration with regional actors from the regional host environment is of key importance. Cooperation will enhance the exchange of knowledge and therewith the creation of routines (initiatives) (Birkinshaw & Ridderstråle 1999). Embedded subsidiaries are therefore more capable of developing routines than disembedded subsidiaries. Finally, the way subsidiary management is able to manage and combine the specific capabilities and resources will determine the entrepreneurial capacity of a subsidiary (Birkinshaw et al. 1998; Birkinshaw 2001).

The degree of which the subsidiary is able to develop its own strategy is thus largely depending on the ability of the subsidiary to create and develop superior routines. Because the development of superior routines is a result of vis-à-vis contact with both the regional host environment and the internal network (especially the HQ), the next two sections will elaborate on these topics.

### **3.3.2 MNE headquarters.**

It has been made clear that the evolution trajectory of a subsidiary is not determined by the HQ. However, the HQ influence is still an important driver of this evolution. The strategy of the HQ is reflected by the assignment of roles and mandates to the foreign subsidiary (Birkinshaw & Hood

1998). With this allocation, HQ determines the initial stages of evolution. This can be explained by two conceptual perspectives discussed in chapter 1. Both the Product Life Cycle model of Vernon (1966) and the Internationalization process model of Johanson & Vahlne (1977) view foreign subsidiaries as a device which is determined by the strategy of the HQ. Albeit the old-fashioned characteristics and the outdated hierarchical point of view of these two theoretical perspectives, the HQ assignment and allocation of roles and mandates over their subsidiaries can still be critical in the early stages of subsidiary evolution (Birkinshaw & Hood 1998).

In these initial stages of subsidiary evolution, the HQ transfers routines and corresponding (financial) resources to the subsidiary (Patterson & Brock 2002). Across time, subsidiaries can gain, keep or lose responsibilities. The assignment of charters is, although strongly influenced by the subsidiary's strategy, controlled by the HQ. HQ will retain a power of veto over the evolution of its foreign subsidiaries (Pedersen 2006). Taking this into consideration, it can be stated that the evolution of the subsidiary cannot be completely detangled from the HQ strategy.

Hogenbirk & Kranenburg (2006) distinguish two different MNE strategies. HQ can implement a multi-domestic- and a global strategy. In the former, HQ acknowledges the regional inequalities between foreign markets with respect to local practices, political structures and legislation by adjusting the product (and production process) or service to local needs. In a sense, foreign subsidiaries act as *miniature replicas* of the MNE. The latter HQ strategy is aimed on economies of scale. Multiple foreign markets are served from one particular location. These foreign markets are treated as being equal. By concentrating production functions in only one (or a select number) of regions MNEs aim to achieve economies of scale. From these location products are being exported worldwide not being hindered by regional requirements and preferences.

MNE's that incorporate a global strategy tend to treat all foreign subsidiaries as equal. Therefore there are fewer opportunities for subsidiaries to take initiative and become more autonomous. Patterson & Brock (2002) refer to this phenomenon as the *United Nations Syndrome*. As a consequence, the influence of the HQ in the evolution of *marketing satellites* is expected to be larger in contrast to *miniature replicas*. The latter subsidiary is operating in a particular market which requires a different set of routines as opposed to other regions. These routines are often developed by the subsidiary itself rather than allocated by the HQ which does not possess the specific routines required. Therefore the influence of the HQ on the evolution of the subsidiary is expected to be less.

However it is relevant to make a distinction between the intended and realized corporate strategy. Micro-political negotiations between the HQ and distinctive subsidiaries can alter the intended strategy. The corporate strategy of the HQ is further influenced by the internal culture which is formed by the values of the MNE that are embraced in the MNE's routines. This internal culture is also to a great extent shaped by the prevailing national culture of the MNE. By transferring these routines to their subsidiaries, the head office transfers its culture abroad. Lubatkin et al. (1998) elaborate on the concept of cultural heritage in explaining the differences in corporate control (centralization versus decentralization) and corporate identity among different headquarters. Corporate identity (e.g. branding, logo, company name and corporate colors) is partly shaped by its

geographical roots and prevailing culture (Chapman & Edmond 2000). Lubatkin et al. (1998) argue that MNEs are bound in their management by ethnocentric national administrative routines that represent the underlying national culture. Literature shows that French MNEs manage their overseas subsidiaries in general in a more strictly managed corporate control system (centralized) in comparison to for example English MNEs (more decentralized). While French MNEs (and their national government) are known for their interventionist policies regarding their subsidiaries, English MNEs have adopted a *laissez-faire* policy throughout the ages characterized by loose control systems, autonomy and decentralization. The differences between these two countries in corporate control systems can be traced back to the colonial era (1500-1800) defining the cultural heritage of both countries (interventionist policy versus *laissez-faire* policy regarding their colonies). The differences between these two countries are further expressed by the attitude towards FDI (see section 3.1.1).

A reflection of headquarter-subsidiary control and hence culture is expressed by the staffing policies of MNEs. MNEs can either employ Parent Country Nationals (PCNs), Host Country Nationals (HCNs) or Third Country National (TCNs) for their management positions in foreign subsidiaries. Staffing policy is influenced by a number of variables including the degree of regional embeddedness, the role of the subsidiary in the corporate system, risk avoiding nature of the MNE and cultural distance between the host and parent country (Harzin 1996). MNEs with a global oriented strategy are more likely to employ PCNs for the management positions than MNEs with a multi-domestic strategy which are in turn more likely to employ HCNs. These employment decisions are made because the local market knowledge is of key importance for their business (Harzin 1996).

Finally, next to corporate strategy and relationships with subsidiaries, the head office determinants are influenced by developments in the global environment such as globalization and the current financial crisis (Pedersen 2006).

### **3.3.3 The regional host environment and subsidiary evolution: a process of co-evolution.**

Aside from the above described internal factors, i.e. HQ strategy and subsidiary strategy, subsidiary evolution is also determined by an external aspect; the regional host environment. However, this is only a rather recent concept, since most scholars have been criticized for not considering external determinants in explaining subsidiary evolution (Pedersen 2006; Benito et al. 2003). Birkinshaw & Hood (1998) refer to this driver as environmental determinism. The evolution of subsidiary's charter and role in the corporate network can be explained as a function of emerging opportunities and constraints at different spatial scales. Benito et al. (2003) argue that the ability of the subsidiary to create superior routines is rooted in the external regional environment of the subsidiary; the so-called locational advantages. These advantages are, according to Birkinshaw et al. (2002), location specific as every location has got its particular and unique characteristics created by regional actors such as rivals, suppliers and customers. The regional host environment is further formed by institutional (f)actors e.g. regional cultures, legislation and education. Changes in the regional host environment will raise both opportunities and constraints to the subsidiary. To overcome potential hazards and threats, and take advantage of emerging opportunities, subsidiaries have to learn to do business abroad and developed an external network. When the subsidiary has

learned to cope with the complexities of the regional host environment, it will be able to create and develop superior routines (Drogendijk 2005). An important element in coping with the complexities of the regional host environment is the degree of subsidiary's embeddedness. The informal- and business linkages can support the subsidiary in overcoming hazards and utilizing business opportunities (Benito et al. 2003).

Although IB-scholars do acknowledge the critical role of the regional host environment in determining the evolution of the subsidiary, seen from an economic geographical framework, some deficiencies still exist (Jacobs et al. 2010; Tavares 2001; Cantwell et al. 2010). The biggest part of the criticism is based on the generic and static nature of the regional host environment. The regional host environment is often perceived as a repository in which assets are open-available to each individual subsidiary. Endowments are considered to be given by the external environment (i.e. by the natural environment, institutions and other actors) (Lengauer & Tödtling 2010). According to this perspective, all subsidiaries have equal access to this environment regarded less of their routines or charter (Jacobs et al. 2010). Studies to the regional host environment are often focused on a macro-level, i.e. on a national level, whereas regional assets are often overlooked. The specific nature of regional assets is under theorized. Finally, foreign subsidiaries are often perceived as passive recipients of assets located in the regional host environment. Hence, subsidiaries are solely adapting from the host environment (Tavares 2001).

Concepts and ideas of the EEG can be a valuable strand to amplify and develop theories of the regional host environment as driver of subsidiary evolution. Firms and hence subsidiaries compete through their routines. The regional host environment is a selection device which selects successful routines from unprofitable routines thereby forcing unsuccessful subsidiaries out of the market. Actors and resources in the regional host environment can be of great value to supplement existing routines (Madhok & Liu 2006). However, regional assets are not up for grabs and not necessarily available to subsidiaries. As mentioned earlier, subsidiaries are forced to develop an external network in the regional host environment, i.e. become embedded (Tavares 2001). Only after the establishment of a network, subsidiaries will be able to benefit of the regional assets and emerging opportunities and consequently supplement their routines (Jacobs et al. 2010). The dynamics in the regional host environment will endow the subsidiary constantly with new opportunities. These dynamics and relationships in the regional host environment have according to Tavares (2001) a regional foundation. This because: *"A (micro-)region's 'social capital' and 'relational assets' (Storper 1995) may hold a key to the differentiation of subsidiaries' capabilities, due to interactions with local human resources, suppliers, customers, collaborators, and regional innovation systems"* (Tavares 2001, p.144). The extent to which these relational assets are available to the subsidiary, depends on the routines<sup>11</sup> of the subsidiary and the degree of embeddedness in the regional host environment.

Jacobs et al. (2010) therefore conceptualize the regional host environment as a relational arena. Subsidiaries are not exclusively recipients of embedded knowledge but do also contribute to the

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<sup>11</sup> This routines are the result of a firm's absorptive capacity and are developed over time (Madhok & Liu 2006).

regional assets (see section 3.1.1) (Madhok & Liu 2006). Therefore subsidiaries and the local host environment co-evolve in a reciprocally process in which both have a significant effect on each other's evolution path in which routines are exchanged and selected (Cantwell et al. 2010). Co-evolution enhances the degree of embeddeness of the subsidiary in the local host environment.



### 3.4 Conceptual framework

To conceptualize the evolution of subsidiary territorial embeddedness, this thesis uses insights from the mainstream IB-literature complemented with views from the EEG. The focus is put on the evolutionary character of territorial embeddedness. Within the EEG approach, an important element is the creation of routines. The creation and development of routines and the corresponding development of competences is the basis of subsidiary evolution.

In figure 2 illustrated below, the phenomenon of subsidiary territorial embeddedness is conceptualized. The degree of territorial embeddedness of a foreign MNE subsidiary in its regional host environment (explained variable) is determined by a number of explanatory variables and their attributes. The arrows in the framework refer to the causal linkages between the distinguished determinants. It is important to notice that the evolution of subsidiary territorial embeddedness can both positive, negative and constant (not changing).

The degree of the subsidiary's territorial embeddedness in the regional host environment is initially determined by the motivation of the CBA. In this thesis the emphasis is put on four distinctive motivations behind foreign acquisitions each with their specific influence on territorial embeddedness. The motivation behind an acquisition is basically a reflection of the long-term strategy of MNE headquarters. Furthermore this motivation indirectly determined by the characteristics of the MNE as well as global- and sector developments.

The second distinguished driver of embeddedness evolution is the degree of territorial embeddedness of the domestic firm prior to the CBA. As this degree increases, the degree of territorial embeddedness of the subsidiary is also expected to increase. The degree of territorial embeddedness of the domestic firm prior to the CBA is largely the outcome of the interaction between the firm and actors located in the regional environment, in essence; of the relational characteristic in the regional environment.

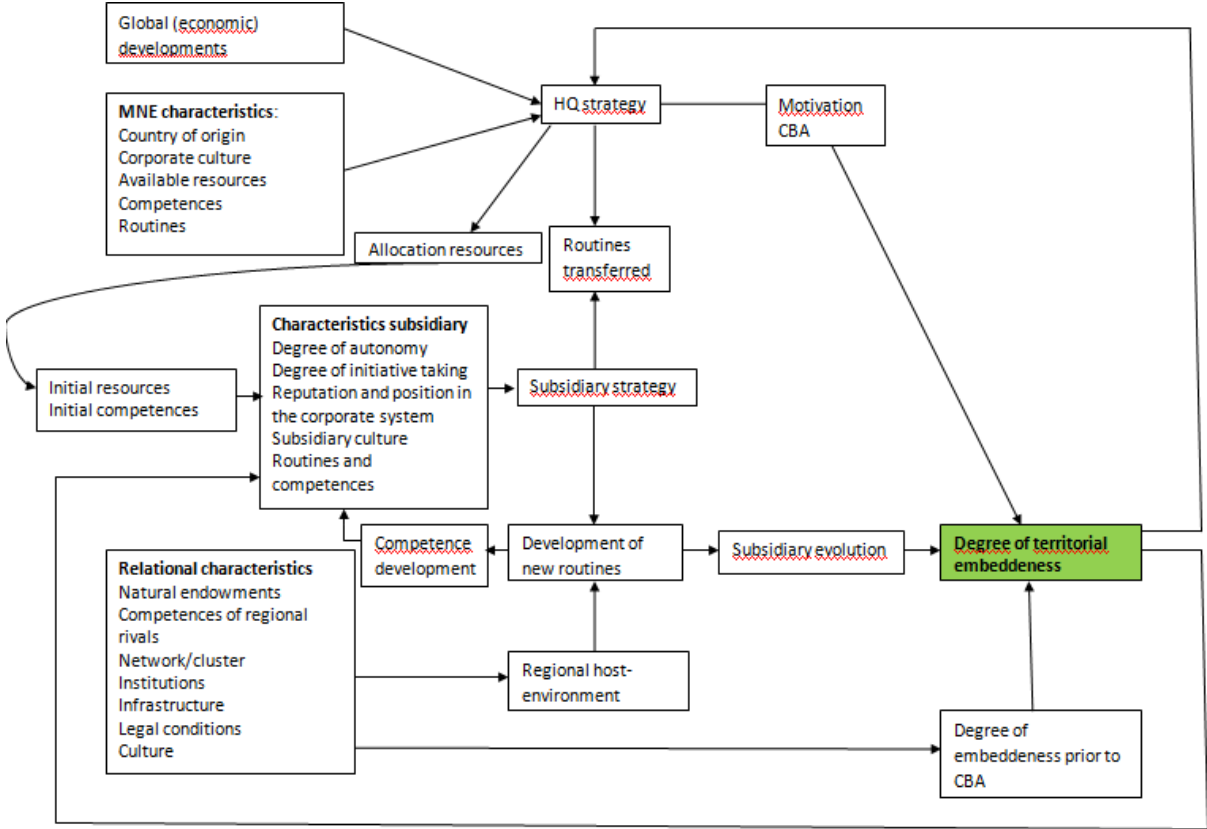
Finally, this thesis identifies subsidiary evolution as the key determinant of the degree of territorial embeddedness. Subsidiary evolution is reflected by changes in the mandate, product- and market scope and activities conducted by the subsidiary. Subsidiary evolution is determined by three factors; the corporate strategy of the HQ, subsidiary strategy and the relational characteristics of the regional host environment. The linkages between the three determinants are assessed to be of a reciprocal nature. Defined by the corporate strategy, the HQ will allocate resources and competences to the foreign subsidiary after the initial CBA. With this allocation, the HQ determines the mandate of the subsidiary and therefore its future development path. MNE strategy and the composition of its overseas activities is driven by the characteristics of the MNE and global economic developments. In turn, the allocated resources, competences and the corresponding mandate largely define the characteristics of the subsidiary. Key features of these characteristics are the degree of autonomy, ability to take initiative and the reputation and role within the corporate system which are all reflected by the strategy of the subsidiary. This strategy is further influenced by the regional host environment and the HQ strategy via the transfer of routines to the subsidiary.

The final determinant of subsidiary evolution is the regional host environment in which the subsidiary is located. By cooperating with external (to the HQ) actors, new superior routines can be created. This environment is the outcome of relational assets created by both domestic actors and the subsidiary itself and the composition of *hard* (tangible) regional characteristics (e.g. natural endowments, legislation and culture).

Trough the interaction between these determinants, new routines and competences are created. Therefore they determine indirectly the evolution of territorial embeddedness of the subsidiary in the regional host environment. Newly created routines are then transferred into the corporate MNE system and the regional host environment. The subsidiary’s territorial embeddedness in the regional host environment in its turn affects the HQ strategy, the strategy of the subsidiary and the relational assets of the regional host environment.

Therefore the degree of territorial embeddedness is the outcome of the repetitive interaction between the three determinants influenced by the degree of territorial embeddedness. Hence, the conceptual framework is bound to be evolutionary rather than fixed throughout time and space. The framework can therefore be presented as a cycle in which the outcome of the interaction between several determinants is also the input for further interaction.

Figure 2: conceptual model



### 3.5 Hypotheses

This thesis proposes a number of hypotheses which are derived from the theory in chapter 2 and 3 and the conceptual framework discussed above. The hypotheses comprise several concepts related to the evolution of territorial embeddedness. The concepts will be defined into measurable factors in section 4.6. Since the number of interviewed subsidiaries is rather small, this thesis can neither firmly reject nor accept the proposed hypotheses. However, the hypotheses are developed in order to investigate whether the empirical observations are in line with the conceptual framework. The outcomes of hypotheses testing are therefore rather indicative of nature and can be seen as building blocks for future research. From the discussed theory, the following hypotheses have been derived.

- 1) *Foreign pharmaceutical MNEs predominantly acquire Dutch firms to enter the Dutch pharmaceutical market.*

*Market seekers* aim to exploit their firm specific routines and assets on foreign markets. Acquiring domestic firms has become a popular entry strategy for foreign markets. Knowledge about the local market is a key asset in the acquisition decision. Domestic firms have the routines and knowledge to operate on the domestic market. This enables the MNE to adjust its products to the local legislation, needs and preferences. As there is no comprehensive European drug regulation, knowledge of local European markets is a requirement to enter the market. Regardless of the market size, every single national market has got its own unique set of requirements, both legally and in terms of regional needs and preferences.

- 2) *When the decision-making authority is largely decentralized rather than centralized, the mandate of the subsidiary will be extended in the post-acquisition period.*

Subsidiaries that are subject to the global strategy of the headquarters have fewer opportunities to take the initiative compared to *miniature replica's*. The latter are able to undertake entrepreneurial activities and seize local opportunities which will drive the evolution of the subsidiary in a positive manner, i.e. activities will be added to the mandate.

- 3) *Embedded subsidiaries have compared to disembedded subsidiaries a more central role in the corporate system of the MNE.*

Subsidiaries labeled *strategic leaders*, have been able to develop routines external to the internal network of the MNE. By translating external knowledge into new routines, subsidiaries can contribute to the MNE's competitiveness. By doing so, the subsidiary can develop into a valuable or even indispensable source of knowledge for the corporate system. Disembedded subsidiaries on the other hand will not be able to develop external routines and hence have a more peripheral role in internal network of the MNE.

- 4) *The interfirm co-operations of the subsidiary with regional partners will be focused on the development of innovative products and processes.*

Pharmaceutical firms that acquire Dutch firms in order to enter the Dutch market will have to make adjustments to their products to comply with the prevailing standards, both legally and in terms of customer preferences. As a result, subsidiaries are forced to establish local collaboration networks to adjust their products. These relationships with regional partners will hence result in the development of innovative products and/or processes. MNEs that acquire Dutch firms in order to augment their existing assets will also have to establish regional collaborations networks with their regional partners. As these MNEs aim to augment their existing assets, innovative products and processes will be developed. Finally, the management of a subsidiary wants to pursue an increase of autonomy and an extension of the range of activities. In order to achieve these goals, a subsidiary has to transfer new routines into the internal corporate network. By collaboration with regional partners, the firm will be able to develop new knowledge and routines.

*5) Acquired companies that possess unique activities (i.e. activities that the parent firm did not have prior to the acquisition) are able to remain largely autonomous in the post acquisition period.*

When the MNE is not familiar with a certain branch, market or activity, their influence on the development path of the targeted firm will be more limited. The lack of routines to manage the unfamiliar activities of the acquired firm, will enable the subsidiary to outline its own strategy and hence, the subsidiary will remain largely autonomous. On the other hand, acquired firms with similar sets of activities (e.g. rival firms) will witness a stronger headquarter influence after the acquisition.

*6) After the acquisition, the internal network of the MNE will provide the subsidiary with substitute relationships.*

According to the strategy of the headquarters, initial resources and competences will be allocated to the foreign subsidiaries after the acquisition. As the acquired firm becomes an integral part of the internal network of the MNE (i.e. the network comprising all subsidiaries and the parent company), some of its supplier- customer- service- and collaboration relationships will be replaced. By replacing the relationships of the subsidiary, MNE's headquarters can strengthen its control over the subsidiary. At the same time the MNE can reduce its average costs and hence increase its economies of scale.

## 4 Data and methodology

### 4.1 Research design

This thesis is structured and directed by a research design which gives the researcher a blueprint for the collection- and analysis of data. In this thesis a descriptive design is preferred. More specifically, this thesis uses a multiple case study design to observe the concepts outlined in the theoretical framework. Case studies are helpful to understand specific and complex cases and are often associated with specific firms, a certain location, communities or even remote tribes in rainforests. By using this multiple case study design, cross border acquisitions and their effects can be studied in-depth than using other research designs (Bryman 2008). With respect to the field of economic geography, White (2003) argues that a case study design is an appropriate and an effective research design. By using a multiple case design, new insights and dynamics can be developed which would not have been able by using a less intensive research design (Birkinshaw et al. 2005; Chang & Rosenzweig 1998). Furthermore, a multiple case study design enables the researcher to discover patterns- and differences between the cases. Considering the need for an in-depth design in analyzing the territorial embeddedness of pharmaceutical firms a multiple case study design is chosen (Kramer & Diez 2011). Finally, by using a multiple case study design, this thesis can identify and understand the causal linkages between different economic actors and processes that determine the evolution of the subsidiary's embeddedness.

### 4.2 Research strategy

Research can be conducted either via a deductive or an inductive approach, this depends on the aim of data collection and the relationship between theory and research. Data can be collected in order to test existing theories or to build new theories using collected observations. The research approach used in this thesis is mainly deductive; in essence testing existing theories. Starting point in this type of research approach are the existing theoretical considerations and concepts which guide the formulation of hypotheses, followed by empirical observations. The final step of the process of the deductive approach involves induction, as scholars infer their empirical findings to revise the existing theoretical considerations. The nature of the research in this thesis is thus mainly deductive. More in detail the approach of deduction is (1) defining theory/theories, (2) deducing a hypothesis (or multiple), (3) collection of data, (4) describing of the findings, (5) confirming or rejecting the deduced hypothesis/hypotheses and finally (6) revision of the theory/theories (Bryman 2008, P. 10). However, because this thesis is using a multiple case design, no formal testing of the hypotheses can take place, i.e. hypothesis will neither be formally rejected nor accepted.

Although the distinction between quantitative and qualitative research is ambiguous or even misleading, most scholars tend to draw a wedge between the two research strategies. Albeit the research approach in this thesis is mainly deductive, the general orientation (research strategy) of this research is mainly qualitative. However, some of the collected data are quantified. This quantification of data is one of the main characteristics of quantitative research. The combination of words and numbers in this thesis therefore refers to the use of mixed methods research. Despite the

use of numbers, the most important method of data collecting in this thesis is qualitative. A qualitative research strategy is commonly used for a multiple case-study design.

### 4.3 Research methods

Interviewing respondents is one of the most often used research methods in qualitative research. In order to collect detailed and extensive data, in-dept (focused) semi-structured interviews will be applied. A main goal of such interviews is to obtain information and understand the participant, rather than make generalizations about the topic of interests. Therefore, mainly open-ended questions will be used to explore the topics. An interview guide will be used to maintain control over the interview process and the cover all topics. Strengths of this research method is the flexibility of the interview process. Also the interviewee has a great deal of own input in answering the questions. Next to that, by using follow-up questions, the researcher can add questions when picking up new and interesting topics answered by the participant (Bryman 2008). Furthermore, the interview is easy to record and transcribe. Another strength is that complex question or issues can be clarified to the interviewee directly. Finally, by using in-depth semi structured interviews, emotions and feelings of the respondent can be revealed to the researcher (Bryman 2008).

Next to the interviews, this thesis will use a number of secondary resources to collect data about the cases and triangulate the research outcomes. (Online) newspapers, corporate website, annual reports and other online resources are used to obtain data of the acquired firms. These findings are also used in the interviews.

### 4.4 Research population

All pharmaceutical firms situated in the Netherlands that have been acquired between 2002 and 2009, and are still active on the market<sup>12</sup>, are part of the research population of this thesis. In order to select subsidiaries for the interviews, first a database comprising all qualified firms has been developed. To avoid pitfalls, a number of (technical) criteria has been used to develop the dataset.

- Target firms (i.e. the acquired firm), must have activities that directly contribute the development and/or manufacturing of pharmaceutical products or compounds. The value chain of a drug a shown in section 5.1. This thesis has used US SIC codes as main industry classification including. Industries included in the database are: 512, 2835, 283 and 5912.
- The targeted firm must have a physical presence on the Dutch pharmaceutical market. As a result, holding companies are not included. For example: Bulgarian firms have registered a Dutch holding 'located' in Amsterdam. In case of an acquisition, technically a Dutch firm is acquired. But since this type of acquisition does not have regional effects these acquisitions (both incoming and outgoing) are not incorporated in this research.
- **All** pharmaceutical firms in the Netherlands are taken into account. Also firms that already are controlled by a foreign parent.

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<sup>12</sup> See section 4.7.

- In order to avoid double counting's, restructuring deals are excluded. For example: Pfizer acquires Wyeth, and as a result Fort Dodge animal health Benelux is acquired by Pfizer animal health BV. Likewise the acquisition and absorption of Schering-Plough Nederland BV by Merck Sharp & Dohme BV is excluded as both firms were already wholly owned subsidiaries of Merck & Co (MSD) Inc. after the acquisition of Schering-Plough. Also the absorption of subsidiaries by the parent company is not included in the database. These are part of restructuring deals after the initial acquisition.
- Joint ventures are not included in the research since they are a new entities created by multiple parties.
- Stock building acquisitions are not taken into account. However, there is an exception when the bidding firm increases its stocks to a percentage higher than 50 percent. These stock building acquisitions are included in the research. Key rationale of this consideration is the change of ownership control. After an acquisition a firm is formally swallowed by the bidding firm and loses control over the firm. This thesis maintains threshold of 50+ percent as criterion for ownership changes. At this threshold, the targeted firm is no longer an associate company but a subsidiary.
- Both public (listed on a stock exchange) and private firms are taken into account in this research.

The main source for the construction of the database is the Bureau van Dijk ownership database called *Zephyr*. *Zephyr* offers information on acquisitions, of both cross-border- and domestic nature. Although this source has proved to be of great value, it is not completely comprehensive. Therefore some additional sources have been used. The website [overfusies.nl](http://overfusies.nl) collects information of acquisitions involving at least one Dutch party in acquisitions over €5 million. Furthermore, the acquisition advisory firm IMAP, newspapers such the *Financieel Dagblad* and Financial Times and other sources on the internet have been consulted. As a result, a unique database has been developed.

#### **4.5 Selecting of subsidiaries and interviewees**

This thesis uses non-random (nonprobability) sampling methods; purposeful sampling and snowball sampling. Nonprobability sampling is considered less accurate than random sampling methods. However, this type of sampling is often used in qualitative research with small populations (Bryman 2008). Purpose sampling enables the researcher to strategically select subsidiaries and ensures variety in the selection of cases. For this thesis this implies that different types of subsidiaries are selected. Main selection criteria was the main activity of the subsidiaries. The selected subsidiaries also differ in terms of size (both in terms of revenues and employees), age, product range (OTC, generic and innovative products) and nationality (of the acquirer). Another type of nonprobability sampling that is used in this thesis is *snowball sampling* (referral sampling). In this type of sampling, already approached respondents recruit other respondent from their network. Although snowball sampling can result in biased results (see next section), this type of sampling has proved its value for the recruitments of respondents in this thesis.

Also the researcher has used its social network to identify and approach possible subsidiaries. Since some pharmaceutical firms are notoriously reluctant to cooperate, it can be helpful to approach the target respondent via a mutual contact. In the end, 7 subsidiaries were willing to participate in this research. The main characteristics are outlined in section 5.1.5. Unfortunately one of the proposed managing directors has left the company just prior to the interview. Therefore it is decided to interview this person as being an expert informant, since this person has a great deal of knowledge about the industry in general and about acquisitions in particular.

The individuals that have participated in this research are all persons with knowledge about the key developments of the firm both prior and after the acquisition. The respondents are either managing directors, board members or other high ranked managers (e.g. pharmaceutical directors) of the subsidiary. The majority of the interviewees (except one director) were already employed by the firm prior to the acquisition. After the firm was selected from the developed database, the company website and social network sites (in particular *LinkedIn*) were consulted to select the interviewees. The intended person was subsequently directly approach by telephone. Most companies first requested additional information about the research design and anonymity of the data. All interviews were conducted in October 2011 and the duration of the interviews ranged from an hour to an hour and a quarter. Notes were made during the interviews. Most interviews have not been recorded as the interviewees did not agree with this request. In order to limit the loss of data, all the interviews have been transcribed directly after the interview. If certain aspects of the interview appeared to be unclear during the transcription process, an email was send to clarify the subject. All interviews were held with Dutch employees in their offices.

To complete the triangulation of the research data, five interviews with key informants were conducted. Key informants are individuals with extensive knowledge about the developments in the pharmaceutical industry in general, and about acquisitions in the pharmaceutical industry and foreign direct investments in the Netherlands in particular. These interviews were conducted during the various stages of the research. The first person that is interviewed is a former PhD student at the University of Maastricht. She wrote a dissertation on the subject of the determinants of inward FDI in the Netherlands. The second key informant is a project manager at the Leiden Bio Science Park. This cluster of biotech and pharmaceutical firms is the largest cluster in the Netherlands and home to a number of innovative collaborations between firms. The third person is a program director at Life Science and Health and former manager of Top Institute Pharma. The fourth key informant is a Life Science expert at PricewaterhouseCoopers consultancy. The final interview was held with a former general manager of an acquired firm. He has been active in the pharmaceutical industry for many years and held different positions at several firms. Except for the interview with the Life Science expert at PwC (conducted by telephone), all interviews were held at the office of the interviewees. Next to the interviews with key informants a number of other firms and institutions have been briefly consulted including: KPMG, industry associations Nefarma and Bogin and the Dutch central bureau for statistics (CBS). Finally, to figure out the main activities of foreign pharmaceutical subsidiaries, a number of subsidiaries have been approached by telephone and email.



## 4.6 Operationalization hypotheses

To be able to test the developed hypotheses in chapter 3, the concepts will be broken down into measurable variables for each hypothesis.

- 1) *Foreign pharmaceutical MNEs predominantly acquire Dutch firms to enter the Dutch pharmaceutical market.*

Based on Dunning & Lundan (2008), four rationales for cross-border acquisitions were distinguished in chapter 2. Market seeking acquisitions are driven by the entry of either; a new geographical- or a new product market. The first refers to the entry of the MNE on a new regional market, whilst the latter refers to an acquisition in adjacent industries (e.g. innovative firms acquire generic firms or vice versa). To determine the main rationale, interviewees were asked to mention the main reason to undertake the acquisition. The outcome was then triangulated with the rationales mentioned in the Zephyr database and interviews with the key informants.

- 2) *When decision-making authority is largely decentralized rather than centralized, the mandate of the subsidiary will be extended in the post-acquisition period.*

The degree of centralization is proposed as a continuum. In a strongly decentralized organization the important decisions (i.e. strategy decisions) are taken by the subsidiary. In the opposite extreme, the headquarters management is taken the important decisions. An extending of subsidiary's mandate refers to the adding of additional activities to the subsidiary's mandate. The latter is examined by asking directly for changes in the (main) activities of the subsidiary and for changes in the market scope. In order to explore the locus of decision-making, interviewees were directly asked where the important decisions are taken and what the influence of the HQ management and subsidiary management is.

- 3) *Embedded subsidiaries have compared to disembedded subsidiaries a more central role in the corporate system of the MNE.*

Embeddedness refers to the location and nature of the relationships between the subsidiary and its partners in the regional host environment. Embeddedness is measured by asking the interviewees to the location and nature of relationships with: supplier firms, customers, and service firms. Furthermore the degree of embeddedness is determined by the share of employees from within the region, partnership programs in teaching and education, the nationality of the higher management and the interfirm co-operations. Finally, interviewees were asked whether there had been repeat investments since the acquisition. The corporate system of the MNE comprises all domestic and foreign subsidiaries of the MNE. To determine the role of the subsidiary, interviewees were asked to describe the role of the subsidiary in the corporate system of the MNE. Since this can be somewhat arbitrary, other sources, whenever possible, have been consulted (e.g. newspapers, annual reports etc.). Indicators that are used to determine the centrality of subsidiaries in the MNE network, focuses around the degree of dependency of the MNE on the surveyed subsidiary. Reliance in this thesis is based on the possession of unique (in the corporate system) routines instead of solely on size (both in terms of employees and revenues) of the subsidiary.

- 4) *The interfirm co-operations of the subsidiary with regional partners will be focused on the development of innovative products and processes.*

Interfirm co-operations were addressed by three questions in the interview. First was asked whether the subsidiary maintains collaboration relations at all. Subsequently, the type (focused on R&D and innovation or not) of the co-operations was determined. Also interviewees were asked to describe the importance of these collaborations for the development of innovative products and processes. Finally it was asked how important the geographical proximity in the co-operations is.

- 5) *Acquired companies that possess unique activities (i.e. activities that the parent firm did not have prior to the acquisition) are able to remain largely autonomous in the post acquisition period.*

This hypothesis is tested by obtaining data on both the main activities of the MNE, and the main activities of the targeted firm prior to the acquisition. Also the acquisition motive has been taken into account. To check the validity of the data, information on these three variables was cross-checked with other resources (e.g. corporate websites and news articles). In order to determine the degree of autonomy, interviewees were directly asked where the important decisions are taken and what the influence of the HQ management and subsidiary management is on the strategy of the subsidiary.

- 6) *After the acquisition, the internal network of the MNE will provide the subsidiary with substitute relationships.*

To test this hypothesis, the relationships of the subsidiary prior to the acquisition will be compared with the relationships after the acquisition. Supply chain relationships that are examined include: supplier-, customer- and service relationships. Furthermore is determined whether changes in the co-operation partners have occurred. It is expected that the internal network will substitute some of the relationships in order to strengthen its control over the subsidiary and achieving economies of scale.

## 4.6 Operationalization embeddedness matrix

In order to compare the degree of territorial embeddedness of the domestic (subsidiary) firm prior- and after the acquisition, this thesis will use a largely modified version of the embeddedness matrix developed by Kramer & Diez (2011). First, this thesis determines the degree of territorial embeddedness prior to the acquisition, thereafter the same method is used to determine the degree of territorial embeddedness after the acquisition.

In their explanatory study to the embeddedness of MNEs of different industries in Germany and the UK, Kramer and Diez (2011) distinguish four levels of embeddedness. Subsidiaries can either be labeled *Mediator, facilitator, demander or scout* in their networks. The designation in this thesis is based on the two dimensions of the matrix (see figure 3). The vertical axis shows the location of subsidiary's relationships ranging from international to regional. The relationships indicators used in the interviews comprise: supplier-, customers (key accounts)-, service-, labour- and partnership relations in teaching and education and finally the interfirm co-operations. Interviewees were asked to the locations of their relationships. The horizontal axis displays the importance of the relationships in the creation of new knowledge and innovative products/processes. It measures the nature of the relationships. A low level of importance depicts arm-length relationships based on market-relationships, a high level refers to more intensified relationships. Interviewees were asked to range the importance of the relationships in the development of innovative products/processes. Rationale of this axis is that innovative relationships will drive the development of new routines and competences, and as a result the evolution of the subsidiary. The two axes combined depict the level of embeddedness of subsidiaries in their regional environment.

The matrix is based on the interviews with managers of the subsidiary and is controlled for by secondary sources such as corporate websites and expert interviews. Finally, it is important to mention that this thesis focuses on the embeddedness of the subsidiary, rather than the entire MNE. For example, GlaxoSmithKline has numerous inter firm co-operations both locally and worldwide. GSK's subsidiaries in the Netherlands on the other hand do not necessarily have been embedded in relationships. This thesis focuses only on the latter.

The vertical axis shows the location of subsidiary's relationships ranging from international (1) to regional (3). Intermediate category is the Netherlands (2). Interviewees were asked to indicate the location of their main supplier-, customer (key accounts)- service- and labour relationships. Other indicators that have been used are interfirm co-operations and partnerships in teaching and education. Responses of the interviewees concerning supplier-, customer, labour- and service relations are divided into four categories; local, regional, national and international. The former two are combined in one group; regional.

*Supplier-, customer- labour- and service relationships:*

Regional	→ 3
National	→ 2
International	→ 1

*Partnerships in teaching and education:*

No partnerships	→ 1
Partnerships with national or international institutions	→ 2
Partnerships with regional institutions	→ 3

*Location interfirm co-operations (1):*

Mainly international orientation	→ 1
Mainly national orientation	→ 2
Mainly regional orientation	→ 3

*Location of interfirm co-operations (2):*

Geographical proximity is important	→ 3
Geographical proximity is not important/not unimportant	→ 2
Geographical proximity is not important	→ 1

The horizontal axis displays the importance of the relationships in the creation of new knowledge and innovative products/processes. It measures the nature of the relationships. A low level of importance (1) depicts arm-length relationships based on market-relationships, a high level refers to more intensified relationships (4). Interviewees were asked to range the importance of the relationships in the development of innovative products/processes.

*Supplier and customer relationships:*

Very important	→ 4
Important	→ 3
Not important	→ 2
Not important at all	→ 1

As high skilled employees are more associated with innovative products and processes than low skilled employees the ratio of high-skilled employees is taken into account.

High-skilled ratio of 75 percent or more	→ 4
High-skilled ratio of 50 to 74 percent	→ 3
High-skilled ratio of 25 to 49 percent	→ 2
High-skilled ratio less than 25 percent	→ 1

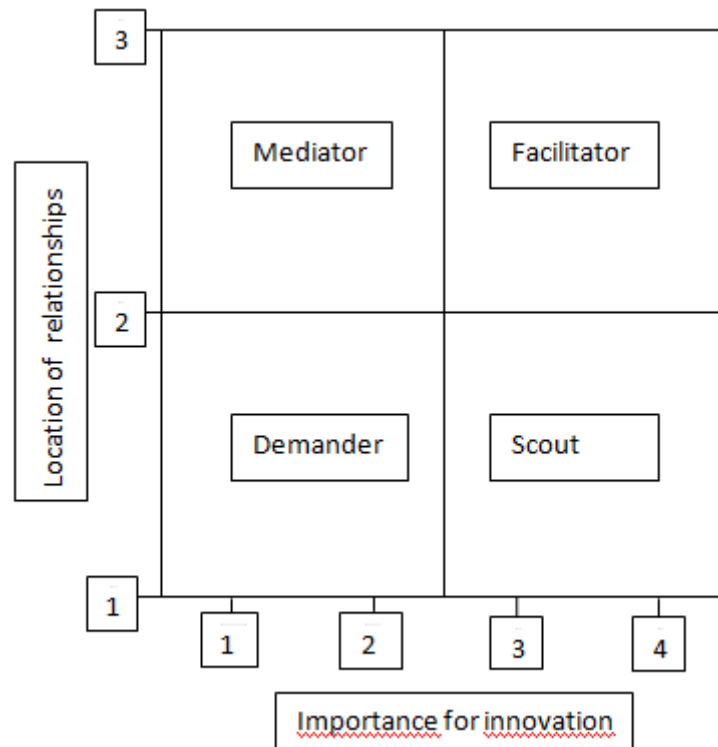
*Importance of interfirm co-operations in the development of innovative products and/or processes:*

Very important	→ 4
Important	→ 3
Not important	→ 2
Not important at all	→ 1

Finally, this thesis considers a number of other aspects as indicators for embeddedness evolution. The number of employees, repeat investments and the (geographical) scope of activities

are considered. Increases are displayed by an up arrow (↑) while decreases are shown by a down arrow (↓).

Figure 3 Embeddedness matrix pharmaceutical subsidiaries



Source: based on Kramer & Diez (2011)

#### 4.7 Research shortcomings

Most consulted literature, both theoretical- and empirical oriented, in this thesis is written prior to the Credit Crunch in 2008. This restriction can be an important bias. The global economic recession may have influenced the rationales behind cross-border on the pharmaceutical market. Another research bias is the skewed distribution among pharmaceutical firms. This thesis focuses on the degree and evolution of subsidiary's territorial embeddedness in the regional host environment after the foreign acquisition. Considering the plain fact that only subsidiaries that are not closed down are able to be embedded in the host environment, subsidiaries that have been terminated since the acquisition are not included in the research. Since a considerable part of all cross-border acquisition is destined to be unsuccessful due to the many pitfalls surrounding M&A (among others: Higgins & Rodriguez 2005 and Schenk 2007); this is an important bias. This consideration yields that the research outcomes are not representative for all incoming acquisitions. However, the research outcomes may also not be representative for the population considering the small number of respondents and the used sampling methods. Due to the small number of firms, the developed hypotheses cannot be formally tested (i.e. proved or disproved). The research outcomes are therefore only representative for the interviewed subsidiaries.

However, despite their limited number, the firms in this research compose a proper reflection of the pharmaceutical industry in general, and the Dutch pharmaceutical industry in particular. An

overview of interviewed firms is given in table 1. Each function of the pharmaceutical supply chain (globally from discovery to patient) is represented by a firm. Also, both innovative firms as generic firms are included in the research. Next to this, the sample represents several functions of foreign subsidiaries in the industry, including: sales and marketing offices, R&D- and production sites and registration offices. In terms of size (number of employees) this thesis includes only medium- and large sized companies. These companies are the main contributors to the Dutch economy and therefore key actors for this thesis. Also is ensured that not all acquirers were from the same country. In line with the general acquisition trends on the Dutch pharmaceutical market, 3 U.S. based acquirers have been selected. Also a firm from one of the (pharm)erging countries had been included in the sample. Finally, the sample was completed with a European firm and a firm from Canada both representing old and established trading partners of the Dutch pharmaceutical industry.

The choice of the main research design almost inevitably results in a number of shortcomings. Interviewees are inclined to exaggerate positive evolution characteristics and understate negative elements of the acquisitions. Although triangulation techniques have been used to overcome these shortcomings, research outcomes will always contain elements of subjectivity of both the interviewee and the researcher. Since only one person has been interviewed per company, interpretation differences could exist among different employees. A final characteristic of a qualitative research design is the difficulty to replicate a study resulting in a low external reliability. Anonymity of the interviewees and key informants enhances this difficulty.

Table 1: Interviewed foreign subsidiaries.

Subsidiary	Location	Parent company	Home country parent	Main activity	Market scope	Year	Nr. Employees
Pharmacin B.V.	Zwijndrecht	Aurobindo Pharma Ltd.	India	Market authorizations	EU + NED	2006	23
PRA Netherlands	Groningen, Assen and Zuidlaren	PRA	United States	Early development studies	Global	2006	450
Pfizer B.V.	Rotterdam	Pfizer Inc.	United States	Marketing & sales	Netherlands	2009	±150
MSD Netherlands	Oss	Merck & Co. (MSD)	United States	Production, R&D, registration	Emerging markets	2009	3100
Apotex Nederland B.V.	Leiden	Apotex Inc.	Canada	Generic market	Europe	2004	190
Disphar International B.V.	Baarn	Nordic Group	France	Developing & licensing generics	Global	2001	45

## 5 The evolution of pharmaceutical subsidiaries in their host environment: the evolution of their embeddedness.

### 5.1 Key trends in the Dutch pharmaceutical industry:

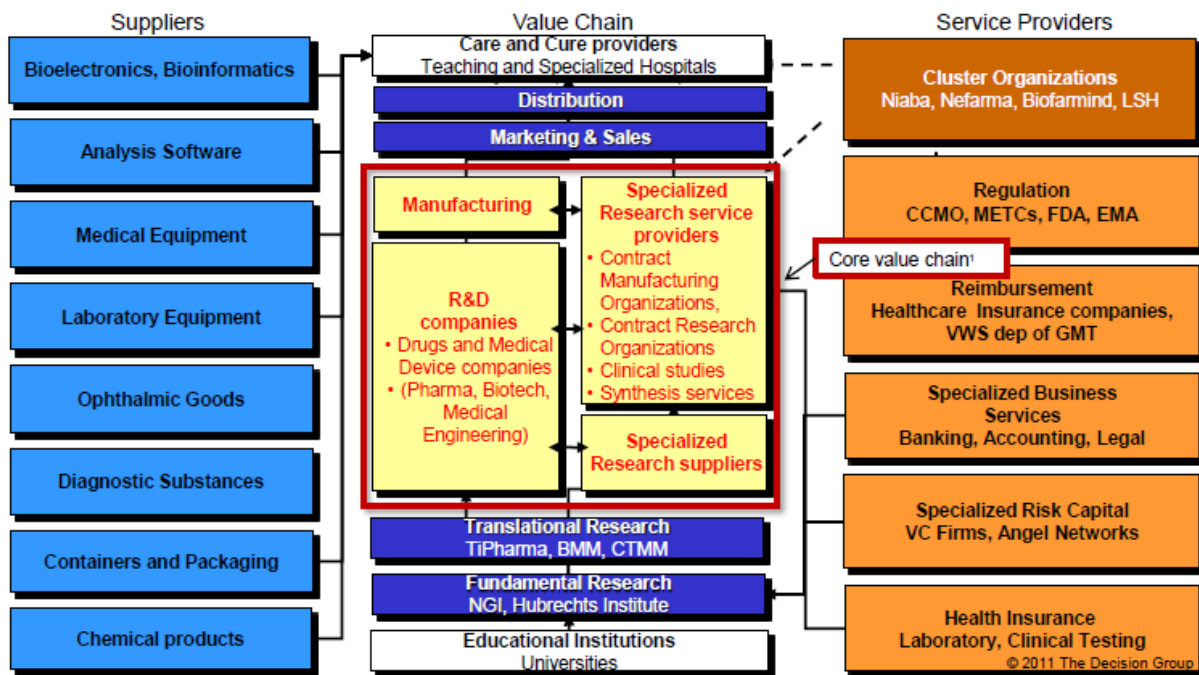
This section monitors some general developments in the Dutch pharmaceutical industry in order to provide the basis for the interview results. To understand the outcomes of the questionnaires, this section elaborates on some of the key practices by explaining the economic backgrounds of cross-border acquisitions. First, some key concepts of the pharmaceutical industry will be explained. Concepts that will be addressed are: branded firms, generic firms, patents, the value chain of pharmaceutical products/preparations, types of drugs and the relevant laws and regulations. Thereafter, trends in acquisition activity will be outlined, in particular the ongoing industry consolidation reflected by several blockbuster acquisitions. The emphasis in this part will be on the cross-border acquisitions in the Dutch market over the past ten years. Also the employment figures are discussed in relation with the number of pharmaceutical firms in the Netherlands. Finally, this section will examine the collaboration networks of innovative pharmaceutical firms.

As mentioned in the data and methodology section, the population of this thesis comprises all manufacturers of pharmaceutical preparations and –products and the firms in the value chain of these products<sup>13</sup>. The value chain is broken up into two classes (see figure 4). Functions in the core value chain of the pharmaceutical industry are R&D, manufacturing, specialized research suppliers and specialized research service providers. Important upstream activities outside the core value chain are Marketing & Sales functions and distribution hubs. Key functions downstream of the core value chain are translational- and fundamental research organizations and educational institutions such as universities. Along with suppliers and service providers they complete the value chain of the development and manufacturing of pharmaceutical products (both generic and brand named drugs). Drugs are usually prescribed by general practitioners (*huisartsen*) or doctors and dispensed to the patient by retail pharmacies, or community pharmacies. Drugs are usually transported via the manufacturer, prewholesaler and wholesaler to the pharmacies in the Netherlands.

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<sup>13</sup> Drugs can be divided in prescription drugs and over-the-counter (OTC) drugs. The former requires a valid prescription by a doctor, the latter is directly sold to the consumers.

Figure 4: firms in the value chain of pharmaceutical products.

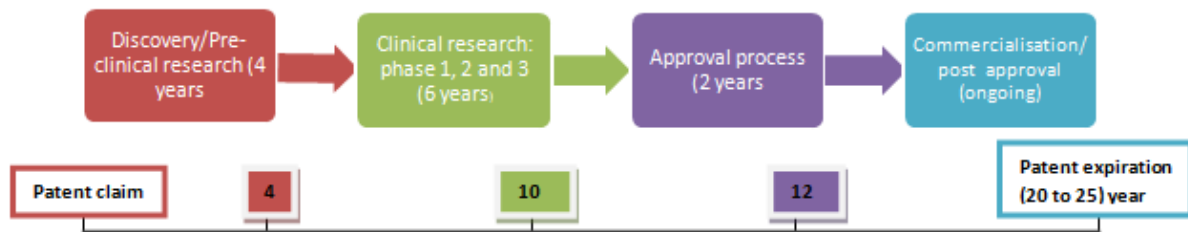


Source: Dutch Life Sciences Outlook 2011.

Pharmaceutical firms are often broken down into two categories. Branded/innovative pharmaceutical firms are manufactures holding a patent to an innovative drug or so called spécialité. These firms have the exclusive rights to produce and sell the drug under a brand name on the market. One of the best known brand names on the market is Viagra. This treatment for erectile dysfunction is still under patent protection granted to Pfizer. Patents are granted to innovative drugs manufacturers to allow these firms to earn back the huge development costs of a new drug which averages at \$ 803 million per newly developed drug (DiMasi et al. 2003). The process of the discovery of a new drug starts with the identification of a so called lead compound based on fundamental research (see figure 5). These experimental drugs are pre-clinically tested on cell cultures (in Vitro) and subsequently on animals (in Vivo). In the next stages of the approval process, the new drug is tested on humans. The three clinical phases are usually completed in six years. Finally an approval request is send to the regulatory authorities (Medicines Evaluation Board or MEB in the Netherlands) for the assessment of the drug. Once the drug has been granted with a marketing authorization by the MEB, it can be introduced on the market. After the approval process of a new drug has been completed, the drug can be exclusively manufactured and sold by the patent holder in the period protected by patent. The United States and Europe are leading (highest patent approvals) in the number of innovative drugs introduced on the market (IMS 2011).



Figure 5: Approval process of innovative a drug



Source: Nilting (2011)

Once the patent on a spécialité has expired, other firms are allowed to manufacture the product under its generic<sup>14</sup> name or different brand name. Ibuprofen is one the best known generics either sold under its generic name (ibuprofen) or a brand name (e.g. Advil by Pfizer). Generics are the exact equivalents (duplicative copies) of the original innovative drugs. Generics have the same active ingredients (APIs<sup>15</sup>), the same pharmaceutical form, the same concentration and route of administration as the innovative drug. Generic alternatives are therefore referred to as bio-equivalents. Therefore the therapeutic efficacy and safety is also exactly the same. Generic drug manufactures are not obliged to go through the above described expensive phases of the approval process since the active ingredients are equivalent to the original innovative drug (CBG MEB 2011). Also the fierce competition among generic manufactures after the patent expiration contributes to lower prices. Therefore generic alternatives are most often considerable less expensive (80- to 85%) than the original drug (FDA 2009).

### 5.1.2 Innovative drugs versus generics on the Dutch pharmaceutical market

A growing number of innovative pharmaceutical manufacturers are making their appearance on the generics market. Pfizer and Novartis made a number of (cross-border) acquisitions to get a foothold on this highly competitive market. Since 2005, worldwide spending on generic drugs has almost doubled to \$ 234Bn in 2010. As a number of blockbuster patents is expected to expire in the next five years, generic spending is expected to rise up to \$ 400Bn in 2015. Which is 53% of the total segment of drug spending (\$ 1065 to 1095Bn). Although the United States will still account for 31% of total spending in 2015, the emerging countries<sup>16</sup> will exceed Europe's share of drug spending. This jump is primarily attributable to the spending on generic drugs in Asia and especially China. The world's most populous country is becoming an attractive market for low cost generic manufacturers.

<sup>14</sup> Generic names are the active ingredients of the drug. Pfizer's Viagra generic name is sildenafil. Brand names start with a capital letter, generic are written without a capital. Pharmaceutical firms can either produce innovative-, generic-, prescription and OTC drugs.

<sup>15</sup> Active pharmaceutical ingredients are the ingredients that ensure the effectiveness of the drug.

<sup>16</sup> IMS Health developed three categories for emerging markets. Tier 1 emerging markets: China, Tier 2 emerging markets: Brazil, Russia, India and tier 3 emerging markets: Pakistan, Ukraine, Egypt, Romania, Indonesia, Thailand, Mexico, South Africa, Turkey, Poland, Vietnam, Argentina and Venezuela. (In: IMAP 2011).

Also the political pressure of Western countries to provide affordable healthcare and drugs to emerging countries has led to an increase of the use of medications in those regions. The increase of drug use in Europe is mainly attributable to the ageing population. Spending on innovative drugs will practically remain unchanged in 2015. The looming picture of innovative drugs going of patent in the next five years (see section 5.2.1) has put pressure on innovative firms to diversify their portfolio with generic drugs (IMS institute 2011).

Despite its size, the Dutch pharmaceutical market is the second largest export destination of the American pharmaceutical industry and accounted for about twelve percent (of \$ 46 billion) of the total export figures in 2009. Furthermore the Dutch pharmaceutical market was ranked 18<sup>th</sup> worldwide by size in 2008. Although emerging markets are expected to show double digit growth rates in the near future, the Dutch market will continue to be an important market for large MNEs (OHCG 2010). The spending on drugs in the Netherlands in 2010 has slightly increased by 3% compared to 2009. Dutch citizens spend an average of €341 per capita on drugs, which is 15% below the Western-Europe average. This can be explained by looking to the cautiousness and other cultural preferences of Dutch doctors in prescribing drugs and the increase of (cheaper) generic drugs (Ecorys 2009). Spending on generics on the Dutch market has increased by 14% in 2010 (compared to 2009). 60% of all prescriptions were filled with generic drugs in 2010. This proportion is considerably higher than other countries, both globally and in comparison with other Western-European countries. Although the spending on drugs has increased in 2010, a decrease in total drug spending is expected for 2011 (SFK 2011).

A key determinant to explain this decrease are several policy measures and their significant impact on drug pricing. The prices of prescription drugs have decreased by a staggering 50 percent since 1996. This is largely attributable to the development of new generic drugs. Prices of key generics dropped by 90% sparked by a pricing war between generic suppliers. This intensification of competition was caused by the expansion of the implementation of the preference policy in 2008 by several insurers (including Menzis, UVIT, CZ and Agis). According to this implemented policy, insurers only reimburse one particular drug within a group of similar medicines to their patients. Other drugs not covered by the insurer are paid for by the patient. An additional factor are the lowest price agreements between the insurer and pharmacy. According to these agreements the insurer pays the pharmacy the lowest price available on the market. These agreements forced generic suppliers to minimize their prices in order to stay competitive. This price war resulted in a massive drop in generic drug spending. On top of these changes UVIT (single largest insurer in the Netherlands) introduced the concealed price model in which the insurer is able to privately negotiate with the drug supplier for discounts, resulting in another drop of nine percent of generic drug prices. Finally, the introduction of the Medicines Pricing Act (WGP) led to another decline in prescription drug prices. According this act, the four neighboring countries of the Netherlands are used as a benchmark. Drug suppliers are obliged to price their drugs equal to the average price of this countries (Belgium, France, United Kingdom and Germany). This reimbursement policy is referred to as *international reference pricing* (SFK 2011b). The progression of generic drugs, the evolution of pharmerging countries and the patent expiration of *spécialité* drugs has given the pharmaceutical industry a

different face. This section now proceeds to a topic that has received considerable political and media attention; foreign acquisitions of traditionally Dutch firms, in essence: the national champions.

### **5.1.3 Big Pharma and blockbuster acquisitions: ongoing consolidation and diversification process.**

During the last decade, the top 20 of world's largest pharmaceutical firms has been largely reshaped. Key determinant behind these mutations are the large mergers and acquisitions and ongoing industry consolidation. Driven by the ambition to counter the expiration of some of their key patents (see section 5.2.1) pharmaceutical firms strive for consolidation and/or diversification of their business activities. Pharmaceutical firms are becoming conglomerates involving multi-industry (foreign) subsidiaries. Johnson & Johnson for example has 250 firms in almost 60 countries around the globe diversifying into medical devices, biologics, vaccines (via the acquisition of Crucell) and pharmaceuticals including generic- and innovation driven drugs, both prescription and OTC drugs .

Table 2 below shows the world's top 20 largest pharmaceutical firms in 2010. Compared with last year's Exec top 50, Big Pharma has become even bigger with the top 10 accounting for 56.4% of total sales of prescription drugs. Pfizer Inc. has become the first pharmaceutical firm with a total sales over \$50 billion, largely driven by the acquisition of Wyeth in 2009. Through the acquisition of Shering Plough, Merck is ranked fourth (formerly 7<sup>th</sup> in 2009). Also the generic producer Teva Pharmaceuticals jumped significantly from 16<sup>th</sup> in 2009 to 12<sup>th</sup> in 2010. This growth is largely fuelled by acquisitions of smaller rivals. When looking at geographical distribution of the Big Pharma, it becomes clear that many of these firms are from Anglo-Saxon descent with their headquarters located in the United States or Great Britain. Furthermore it is shown that the United States are still the main supplier of Big pharma firms, followed by European countries including Great Britain, Switzerland, Germany and France. The list is completed by firms from Japan and Israel.

Another important feature of the table below is the fourth column. It shows that all top-20 pharmaceutical firms are present on the Dutch Market by means of a foreign subsidiary. Thereby indicating the importance of the Dutch pharmaceutical market as a marketing and sales stronghold to reach to whole of Europe. The majority of the Dutch subsidiaries have a sales mandate, often combined with Marketing-, research- and logistics activities. Only a small minority of the Dutch subsidiaries has a manufacturing function on site.

Most of the companies listed in table 2 have used (cross-border) acquisitions as an integral part of their growth strategy. The ongoing industry consolidation has reduced the number of pharmaceutical firms significantly since the late 1980s. The Pharmaceutical Researchers and Manufacturers of America (PhRMA) had 42 members in 1988. Nowadays, this number is reduced to eleven major players in 2010 (LaMattina 2011). One of the contemporary pharmaceutical giants is Pfizer. Since its establishment in 1849, the company adopted a growth strategy focused on internal R&D and organic growth. However, throughout the 1980s Pfizer achieved growth through numerous acquisitions and hence Pfizer's M&A track record skyrocketed. Since 1982 Pfizer has made 88 acquisitions including Warner-Lambert (2000), Pharmacia (2003) and Wyeth (2009). Pfizer's latest acquisition was the takeover of Excaliard Pharmaceuticals Inc in December 2011. Although Pfizer has

made the most acquisitions during the last decades, it is certainly not the only giant achieving business growth through acquisitions.

**Table 2: World's largest pharmaceutical firms in global sales of prescription drugs**

Rank	Firm name	HQ	Sales USD Bil	Dutch subsidiary	Main function Dutch subsidiary(ies)
1	Pfizer	US	58,5	Yes	Marketing/sales
2	Novartis	Swiss	42	Yes	Research
3	Sanofi-Aventis	France	40,3	Yes	Research/marketing/sales/logistics
4	Merck (MSD)	US	39,8	Yes	Manufacturing/logistics/Research
5	Roche	Swiss	39,1	Yes	Marketing/sales/research
6	GlaxoSmithKline	UK	36,2	Yes	Research
7	AstraZeneca	UK	33,3	Yes	Research/marketing/sales
8	Johnson & Johnson	US	22,4	Yes	Research/marketing/sales/logistics
9	Eli Lilly	US	21,1	Yes	Research/marketing/sales
10	Abbott	US	19,9	Yes	Research/logistics (HQ)/Manufacturing
11	Bristol-Myers Squibb	US	19,5	Yes	Sales
12	Teva	Israel	16,1	Yes	Manufacturing/marketing/sales/logistics
13	Amgen	US	14,7	Yes	Research/marketing/sales/logistics
14	Bayer	Germany	14,5	Yes	Marketing/sales
15	Takeda	Japan	14,2	Yes	Holding company
16	Boehringer Ingelheim	Germany	12,9	Yes	Marketing/sales
17	Novo Nordisk	Norway	10,8	Yes	logistics/marketing/sales
18	Astellas	Japan	10,5	Yes	R&D/manufacturing
19	Daiichi Sankyo	Japan	9,8	Yes	Marketing/sales
20	Eisai	Japan	8,4	Yes	Sales

Source: Cacciotti & Clinton (2011), 12<sup>th</sup> annual pharm Exec 50; own research to the main functions of Dutch subsidiaries.

During the review period (2005-2011), both the number- and disclosed value of acquisitions has increased compared to the first half of the decade. As sales of innovative drugs have slumped (IMS 2011), pharmaceutical firms are looking for deals to diversify their portfolio and meet their revenue goals. This development has led to a fierce competition to acquire generic drug- and biotechnology companies (KPMG International 2010). An overview of all acquisition rationales is provided in section 5.2.1.

Based on the total number (563)- and total disclosed value (\$161.2 Bil) of the acquisitions during the review period, 2009 was a record year for acquisitions in the pharmaceutical industry. Pfizer (Wyeth), Roche (Genentech) and Merck (Schering-Plough) were largely responsible for this transaction value. It is furthermore interesting to note that nine of the fifteen major acquisitions involved a Dutch subsidiary of the target firm (see table 3 and next section). Due to the credit crunch, both the number and transaction value of deals in the pharmaceutical industry decreased in 2010. The United States are leading the league tables by accounting for more than twenty percent of the total number of deals. Europe is number two. An important development in the geographical distribution of M&A activity is the shift to emerging countries. Especially China is becoming one of the most frequent targeted regions in the world. Due to its large population and high GDP, China is

becoming an interesting pharmaceutical market. Also tier 2 countries (see 5.1.2) are witnessing an increase in M&A activity recently. These countries are expected to show double digit growth figures in the next years. China is already leading in the micro-size acquisition deals (less than \$20 million), while India and Brazil are not far behind especially in terms of transaction value (IMAP 2011). The Indian pharmaceutical industry has witnessed a doubling of their number of transactions in 2008 comparing to 2007. Despite the current financial crisis, this trend is expected to continue (PwC 2010).

Although the value of acquisitions in Europe dropped to \$2.1 billion in 2011 compared to \$42.7 billion in 2010, analysts expect that European pharmaceutical firms may increase the number of transactions in 2012 and 2013 and follow their United States rivals. In absence of suitable acquisition targets firms have invested their hoarded cash on share buybacks and higher dividends for shareholders (Kitamura 2012). This strategy enables firms to finance acquisitions in the near future. European giants AstraZeneca, Glaxo and Sanofi all announced to step up acquisitions of strategic target firms (Kitamura 2012). Also Pfizer (Forbes 2012) and Merck (CBS 2012) continue their search for acquisition targets in both emerging and established markets.

**Table 3: largest mergers and acquisitions between 2005-2011**

Rank	Firm	Target	\$ billion	Presence in the Netherlands
1	Pfizer	Wyeth	68	Yes
2	Roche	Genentech	47	No
3	Merck	Schering Plough	41	Yes
4	Sanofi-Aventis	Genzyme	20	Yes
5	Bayer	Schering	19,7	Yes
6	Johnson & Johnson	Pfizer OTC	16,6	No
7	AstraZeneca	MedImmune	15,6	Yes
8	Schering Plough	Organon	14,5	Yes
9	Takeda	Nycomed	13,6	Yes
10	Takeda	Millennium	8,8	No
11	Sankyo	Daiichi	7,7	No
12	Teva	Barr-Pliva	7,5	No
13	Teva	Ivax	7,4	Yes
14	Abbott	Solvay	7	Yes
15	Novartis	Eon	6,8	No
41	Johnson & Johnson	Crucell	2,3	Yes

Source: Maggon (2011) M&A review: Pharmaceutical & Biotechnology industry; Thomson One Banker; overfusies.nl.

### Acquisition activity on the Dutch pharmaceutical market:

This section examines the acquisition activity over the past ten years in the Netherlands. In terms of total disclosed transaction value, the Netherlands are ranked fourth in Europe with a transaction value of \$716.1 million in 2010 (IMAP 2011). This IMAP figure does however not include the acquisition of non-Dutch pharmaceutical firms such as Organon, Solvay and Genecore Nederland, which were already foreign subsidiaries. Also the acquisition of Crucell by Johnson & Johnson (January 2011) is not incorporated. The total disclosed transaction value in 2010 is divided

over 16 deals. The majority of the deals were of incoming nature, i.e. Dutch firms were the target of an acquisition by a firm from abroad. This is in line with general M&A developments in Netherlands (Overfusies.nl 2011). Although none of the firms involved in the top-15 acquisitions (see table 2) are domestic Dutch firms, the consequences of these acquisitions will be relevant for the Dutch pharmaceutical market. Two-thirds of the targeted firms is present in the Netherlands via a foreign subsidiary. The acquisition of Organon NV by Shering Plough (US) is ranked 8<sup>th</sup> in the top 15 of acquisitions in the past five years.

Table 4 shows some key statistics concerning acquisitions on the Dutch pharmaceutical market over the past ten years. Over the 10-year period, 134 acquisition took place. These acquisitions are divided into both incoming-, outgoing- and domestic<sup>17</sup> acquisitions. A detailed explanation of this figure reveals some interesting developments and findings. First, there is no clear pattern in the number of acquisitions over the 10-year review period. Years of resurgence are followed by years of decline and vice versa. Secondly, compared with the European average, the Dutch pharmaceutical market shows a reverse trend. Worldwide 2009 turned out to be a record breaking year, whereas the Dutch pharmaceutical industry witnessed only 11 acquisitions, the second lowest in the past 10 years. This contradiction can also be applied reversely. Whereas European acquisition numbers have slumped in 2010 and 2011, where firms very active on the Dutch market.

However, an important and remarkable development in 2011, is the distribution between domestic- and cross-border acquisitions. In comparison to the previous five years, the percentage of domestic acquisitions seems to strongly deviate. On average, the ratio of domestic acquisitions to CBAs in the past ten years was 23 percent. With 40 percent in 2011 this average is well exceeded. This average ratio (23%) is particularly lower than the average ratio of domestic acquisitions in other Dutch industries. The pharmaceutical industry is historically more internationally oriented compared to other industries (overfusies.nl 2011b).

**Table 4: history of acquisitions on the Dutch pharmaceutical market (2002-2011)**

Year	Total acquisitions	% domestic	% CBA	% Dutch target
<b>Total 10 years</b>	134	23 (31)	77 (103)	56.2 (56)
2011 (1 November)	15	40	60	33
2010	16	19	81	62
2009	11	18	82	78
2008	14	14	86	25
2007	17	18	82	57
2006	19	21	79	47
2005	13	31	69	67
2004	8	13	87	57
2003	12	33	67	50
2002	9	22	78	86

Source: Bureau van Dijk, Zephyr (2011); overfusies.nl (2011); pharmarketeer.nl (2011).

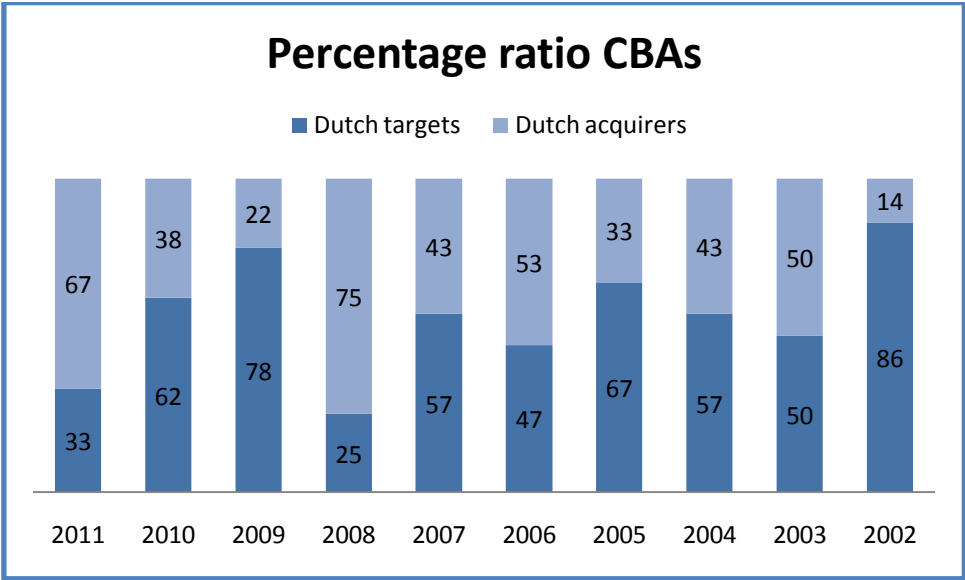
When looking in detail to the distribution of Dutch bidders and Dutch targets in CBAs, some important findings occur. On average, Dutch firms are subject to foreign acquirers. However, the 10-

<sup>17</sup> Dutch firms acquiring Dutch firms.

year review period shows two clear exceptions in 2008 and 2006. Dutch firms purchased more foreign firms than vice versa. However, since the number of acquisitions is rather small, this figure can easily be influenced by one firm on a shopping spree. In 2011, Mediq NV acquired three foreign firms, which account for fifty percent of all outgoing Dutch CBAs. The same rationale can be applied to 2008 with the unprecedented low ratio of 25 percent of Dutch subjects in CBAs. Again the OPG-group (since 2009 named Mediq NV<sup>18</sup>) can be held responsible for the majority of Dutch acquisitions behind national borders. When excluding this firm from the data, the average ratio of Dutch subjects increases.

As mentioned earlier, on average the subject of CBAs is Dutch (see also figure 6). Some argue that this development has started only recently since the acquisition of Organon BioSciences. However, acquisitions on the Dutch pharmaceutical market are a rather longstanding phenomenon which can at least be traced back to the mid-1990s. Foreign acquisitions of Organon BioSciences only counterbalanced the figures of incoming acquisitions for some time. Other than solely the number of acquisitions, it is important to examine the value<sup>19</sup> of the acquired firms. The acquisition of Organon BioSciences (\$14.5 billion) alone exceeded the transaction value of all acquisition between 2002 and 2007. Combined with the acquisitions of Crucell (J&J \$2.3 billion) this figure results in a net loss in terms of total disclosed acquisition value.

Figure 6: ratio Dutch bidders versus Dutch targets in cross-border acquisitions.



Source: based on own database.

As Dutch firms are subjects in most acquisition deals, it is useful to examine the geographical distribution of the bidding firms (see figure 7). Firms from the United States are the largest investors in terms of CBAs in Netherlands with 19 acquisitions in the past 10 years. However, firms from the

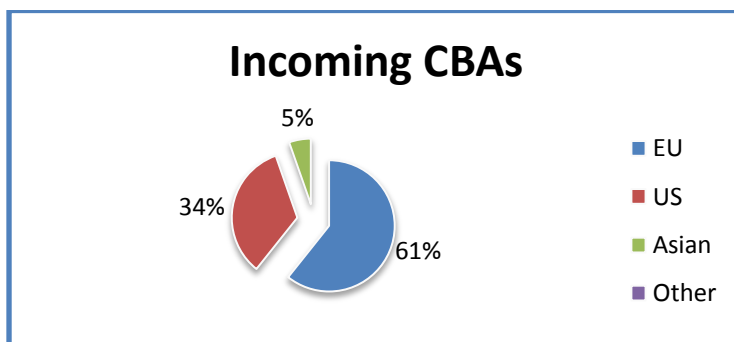
<sup>18</sup> Largest full-line wholesaler in the Netherlands.

<sup>19</sup> Other aspects of the value of Dutch pharmaceutical firms are discussed later in section 5.1.4 (employment), 5.2.4 and 5.2.5.

European Union are the largest source of incoming acquisitions. Particularly firms from Western European countries including Belgium (8), France (8), Switzerland (4) and the United Kingdom (4) often have acquired Dutch pharmaceutical firms. Although the number of acquisitions from Asian firms is still low, acquisitions from these emerging countries are increasing. Especially Indian (4) firms are finding their way to the Dutch market. Based on their market size and potential, firms from China and Japan are still lagging behind.

On the contrary, Dutch bidding firms (see figure 8) have found their way to the emerging markets of Eastern Europe (Romania, Hungary and Slovakia) and the gates of Asia with four acquisitions in Turkey. In Asia, India<sup>20</sup> is becoming an important target market, next to more traditional markets such as Japan. Also remarkable are the acquisitions in Mexico and South Africa by Dutch firms. Contrary to the large numbers of acquisitions made by U.S. firms in the Netherlands, Dutch firms have only acquired five U.S. firms. Most acquisitions are traditionally made in nearby European countries. Germany, Belgium, Denmark and Switzerland are the most targeted countries. With respect to this geographical allocation of cross-border acquisitions, the pharmaceutical industry does not differ from other Dutch industries and their acquisition patterns. The only deviating countries (compared to general acquisitions pattern of Dutch firms) are England and the United States. More outgoing acquisitions had been expected. This can be explained by looking to the historical events of English and U.S. firms in the Netherlands. Most pharmaceutical firms did already have Dutch subsidiaries before the period of review (2002-2011). As they are already present in the Dutch market, the need to acquire Dutch firms has declined. With this notion, an important rationale for CBAs in the pharmaceutical industry disappears (see section 5.2.1).

Figure 7: global acquirers Dutch firms



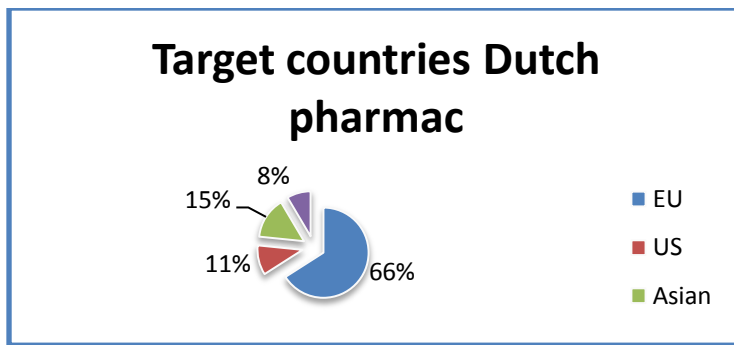
Source: based on database

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<sup>20</sup> The Indian government dropped the concept of product patent protection by only allowing process patents during the period 1970-2005. This enabled generic manufacturers to copy innovative drugs of Western firms. This allows Indians to buy the generic versions of Viagra which intellectual property is still under patent protection across the world. Since the Indian government decided to extend the patent protection on innovative products, India (with its huge market) is becoming an interesting market for foreign pharmaceutical firms again.



Figure 8: global market Dutch bidders



Source: based on database

#### 5.1.4 Statistics about pharmaceutical firms and the number of people they employ:

In the previous section, this thesis outlined the number and nature of cross-border acquisitions on the Dutch pharmaceutical market. This section examines the number of pharmaceutical enterprises on the Dutch market and the number of people that they employ.

The Dutch Central Bureau of Statistics (CBS) only offers statistics on the number of pharmaceutical firms since 2006. The number of firms is based on NCEA (2008) economic activities codes from the CBS. The first group (hereafter manufacturers) of pharmaceutical firms consists of manufacturers of basic pharmaceutical products (NCEA: 211) and manufacturers of pharmaceutical preparations (NCEA: 212). The second (hereafter wholesalers) group consists of pharmaceutical firms with downstream activities of the manufacturers, including wholesalers of pharmaceutical goods, retail shops and other shops selling pharmaceutical products. Finally this thesis distinguishes a third category (hereafter research) comprised of firms and institutions with *possible* upstream- and diagonal activities, mostly related to research<sup>21</sup>. It is however hard to use a uniform definition for firms in the latter category since their main activities may not be related to the pharmaceutical industry (e.g. hospitals focus in general on health improvement for their patients and not necessarily to develop or test drugs). As a result, statistical information regarding this group may not be entirely accurate. Nevertheless, this number gives an idea of the development of the number of firms active in the upstream (research) industry.

This thesis uses index numbers to reflect an increase or decrease in the number of pharmaceutical firms on the Dutch market compared to the standard value (number of firms in 2006). As can be seen in figure 9, 155 manufacturers were active on the market in 2006. By adding up all the wholesalers this number grows to 1370 firms. Finally, 830 research firms were active on the market. The number of manufacturers, compared to 2006, has increased by six percent to 164 in 2010. In contrast to this increase, the number of wholesalers has decreased by two percent to 1342 firms in the same time span. The number of research firms comparatively increased the most by 27 percent.

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<sup>21</sup> This group comprises: medical laboratories; categorical hospitals; general hospitals; University hospitals; research firms on health; biotechnological research firms and firms active in other testing and analysis activities.

It is important to note that firms in the Netherlands acquired by foreign bidders are included in the statistical information of the CBS. All firms active on the Dutch pharmaceutical market are included regardless of their nationality or degree of autonomy. Therefore, also foreign subsidiaries are taken into account. Since there is no individual firm data available for this thesis, no general statements can be made on the continuity of acquired firms. Yet it can be stated that the organic growth on the Dutch market (new entrants – bankrupt firms), with respect to manufacturers and research companies, exceeds the number of business closures due to takeovers since the total number of firms has increased throughout the period 2006-2010. New small entrants are increasingly considered as growth engines and key for industry innovation (LSH 2011; Raaphorst 2011). Munos (2009) states that these small firms have outperformed their larger, and hence more cumbersome, counterparts since 2004. Small firms are relatively more productive in their research and development in terms of the introduction of new molecular entities<sup>22</sup> (NMEs). In short, new entrants are becoming key in the development of drugs (Kneller 2010). However, making an entrance in the pharmaceutical market is limited by some barriers. The global pharmaceutical market is dominated by pharmaceutical giants. To enter the market, high investments are necessary mainly due to high R&D costs associated with new pharmaceuticals. Substantial investments related to production, distribution, marketing and sales are required as well. Young and small firms are therefore often financially supported by other (larger) pharmaceutical firms to be able to successfully perform the entire approval process and develop their drugs, and subsequently introduce them on the market. Hence, the few giants consolidate their influence and market share (Ecorys 2009). This recent (since the 1980s) development explains the relatively low percentage of middle sized firms (see: employment statistics). Small firms are often innovative and able to develop new drugs. Once they are ready to start the expensive clinical trial phases (and have grown into a medium sized enterprise) they are either acquired or funded in order to further develop the drug. During this phase, many firms are acquired by larger competitors.

Wholesalers have been hit hardest by the financial crisis in 2007 and 2009 with a nearly eight percent decline in 2010. This drop may also have contributed to the earlier (see section 5.1.2) discussed pricing- and preference policies of the Dutch government. Manufacturers are less affected by the financial crisis with a decrease of four percent in 2010. Other than the manufacturers and wholesalers, research firms have witnessed a continuing increase since 2006. This increase might be attributable to the fact that most firms in this group are funded by public institutions. No hard data is available on the ratio between foreign subsidiaries, either greenfield investments or foreign acquisitions, and domestically owned firms. Regarding the manufacturers, all indicators however suggest that the vast majority of firms in the Netherlands are foreign affiliates. All members (35) of Nefarma<sup>23</sup> are foreign subsidiaries. They have either acquired a domestic Dutch firm or set up a new

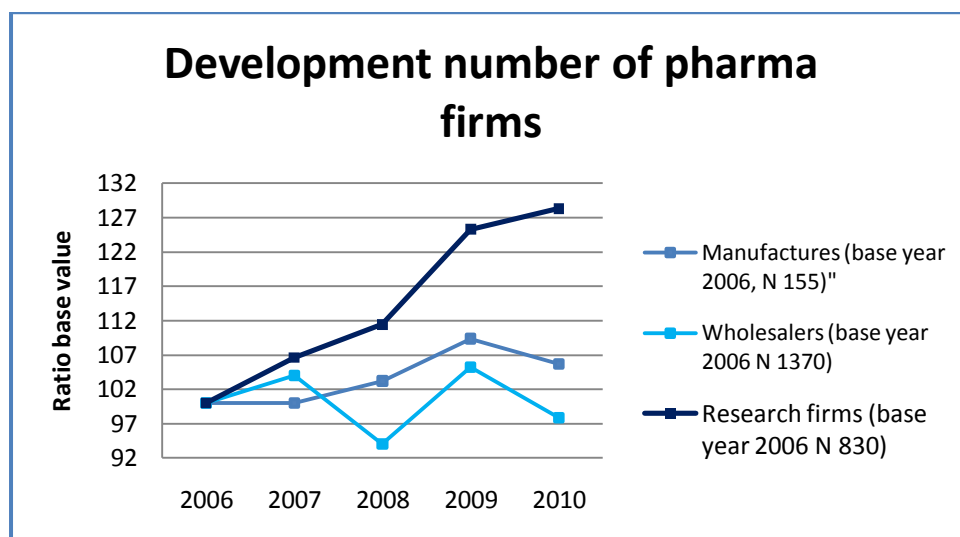
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<sup>22</sup> New molecular entity: "a medication containing an active ingredient that has not been previously approved for marketing in any form in the United States" (Paul et al. 2010, P. 203).

<sup>23</sup> Dutch industry association of innovative drug manufacturers.

venture in the Netherlands. Other industry associations<sup>24</sup> show a more diverse picture but are still dominated by firms which are part of a foreign MNE. To stress the international character of the Dutch pharmaceutical industry, most venture capital investors and seed investors in Dutch firms are foreign (Bureau van Dijk, Zypher 2011; Wolfs 2011). Therefore it can be argued that actually very few firms are wholly Dutch. Based on recent trends of the number of firms and the longstanding history of cross-border acquisition activity on the Dutch pharmaceutical market, this thesis estimates that one-third of all pharmaceutical firms with a direct presence on the Dutch market is a foreign subsidiary, established by a cross-border acquisition. Regarding the wholesalers, it is estimated that the proportion of CBAs is considerably lower. The rationale behind this difference is that wholesalers have less need for external funding, capital and knowledge to develop and maintain their business activities.

Figure 9: Number of Dutch pharmaceutical firms between 2006 and 2010.



Source: CBS, Heerlen 2011.

#### Employment statistics:

This section focuses on employment generated by manufacturers and wholesalers. Focus of attention are the manufacturers who provide most knowledge based employment of the pharmaceutical industry. 164 manufactures provide employment to just under 17.000 people in 2009. This figure has increased by six percent compared to 2004 (see figure 10). Employment development in the Dutch pharmaceutical manufacturing industry has witnessed a remarkable drop of seven percent in 2007, following years of growth. This drop represents a loss of 1100 jobs. This is however not the direct result of large foreign acquisitions. A likely reason for this decline are the policy decisions resulting in new legislation (discussed in section 5.1.2.) and the looming financial crisis. Employment figures are expected to slightly increase again in 2010 but to decline in 2011 and 2012. Due to the aging Dutch population, an increase in employment figures regarding wholesalers is expected.

<sup>24</sup> Including BioFarmind, Bogin, Niaba and Holland Biotechnology.

Unlike the drop in 2007, foreign acquisitions can be held accountable for the strong downfall in employment figures this time due to the forthcoming closure of the R&D sites of Solvay (Abbott) and Organon (MSD). Abbott announced a restructuring program and will cut 500 jobs in Weesp. MSD decided to phase out activities in Oss, Schaik and Boxmeer, resulting in a total loss of 2100 jobs. Combined, these restructuring programs will decline employment figures in the pharmaceutical manufacturing industry by about 15% (based on figures in 2009).

Some argue<sup>25</sup> that this recent and unprecedented wave of layoffs is the direct result of an unsuccessful and deteriorated Dutch FDI investment climate, which forces MNEs to relocate their R&D facilities. However, it appears that these imminent redundancies are not only confined to the Netherlands. It seems that the pink slips, received by researchers in the Netherlands, are part of a global trend in which (pharmaceutical) firms either eliminate or relocate duplicate R&D facilities to their home country (see section 3.1.3). Announcements of workforce reductions seem to be the order of the day at pharmaceutical enterprises. In any restructuring program (especially after an acquisition), reductions in employment are one of the first targets of the management to cut costs and realign research programs, particularly when firms are facing huge challenges such as patent cliffs (see 5.2.1) (Mitra 2006). The best part of the pharmaceutical giants recently used, or are going to use restructuring programs to lay off thousands of jobs. Based on Bride & Holmmer (2012), table 5 provides an overview of workforce reductions at major pharmaceuticals announced in 2011.

**Table 5: top 10 layoffs**

Firm	Job loss (*1000)
<b>Merck (MSD)</b>	13.000
<b>Pfizer</b>	4.220
<b>Takeda</b>	2800
<b>Novartis</b>	4000
<b>Abott</b>	1900
<b>AstraZenaca</b>	1550
<b>Teva</b>	1000-1500
<b>Johnson &amp; Johnson</b>	1000
<b>Eisai</b>	900
<b>Sanofi</b>	700*

\*Note: hundreds or more are likely due to the acquisition of Genzyme.

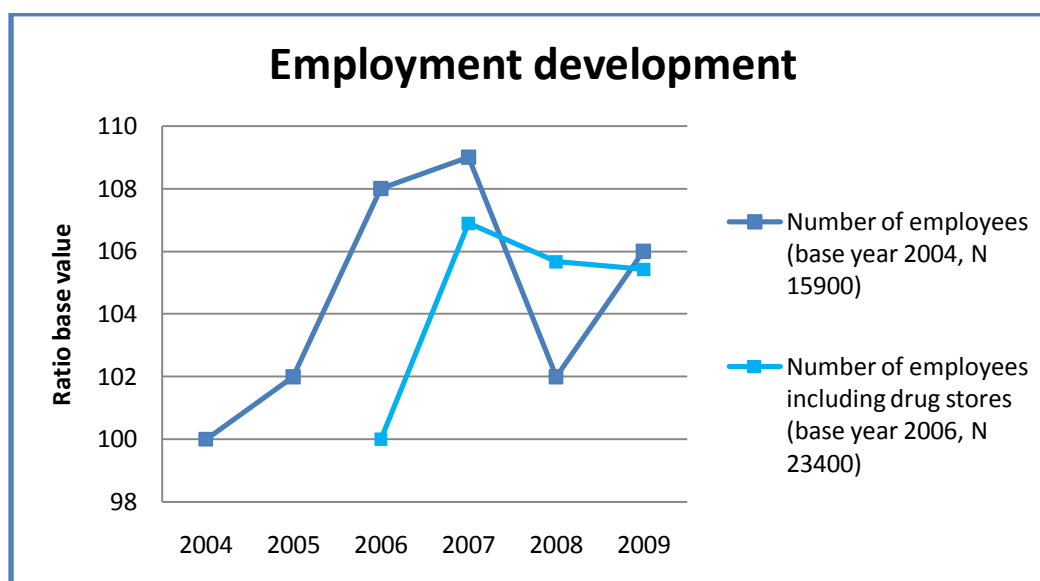
The announcement of Merck to slash 13.000 jobs, followed the earlier layoffs of 17.000 jobs after the acquisition of Schering-Plough in 2009. By eliminating 30.000 positions in total, Merck is absorbing the lost revenues of its key patent expiries. Alongside the R&D facilities in Boxmeer, Schaijk and Oss, Merck phased out another five R&D sites including Cambridge (100 jobs), Newhouse (250), Montreal (200), Walthrop (40) and Odense (not yet revealed) between 2009 and 2011. The women's-health research division in Oss will be relocated to the U.S. The reduction of the workforce is part of a global restructuring program. By centralizing its R&D facilities, Merck is aiming to improve its productivity. It does not seem to be that Merck is phasing out its R&D facilities in Oss due to a

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<sup>25</sup> See for example the opinion of Member of Parliament Jesse Klaver (member of the Green Left political party) in the debate about MSD in the House of Representatives on the 6<sup>th</sup> of April 2011.

deteriorated investment climate in the Netherlands. Costs reductions just outweighed the interests of the local stakeholders in Oss. The same rationale is applied by Pfizer for its research facility in Sandwich (UK) where approximately 2400 employees will be unemployed within months (Cressey 2011). From a corporate and economic point of view, these restructuring programs are considered to be acceptable. However, other stakeholders including governments, industry associations, the local society and others will oppose against these programs (Mitra 2006). Although the stakeholders were not legally empowered (see section 3.1.1) to prevent the layoffs at Organon BioSciences, their protests did yield significant results. Some of the scientific knowledge and activity, in the form of patents, know-how and relaxed non-competition clauses will stay in Oss (see section 5.2.2).

Figure 10: employment development



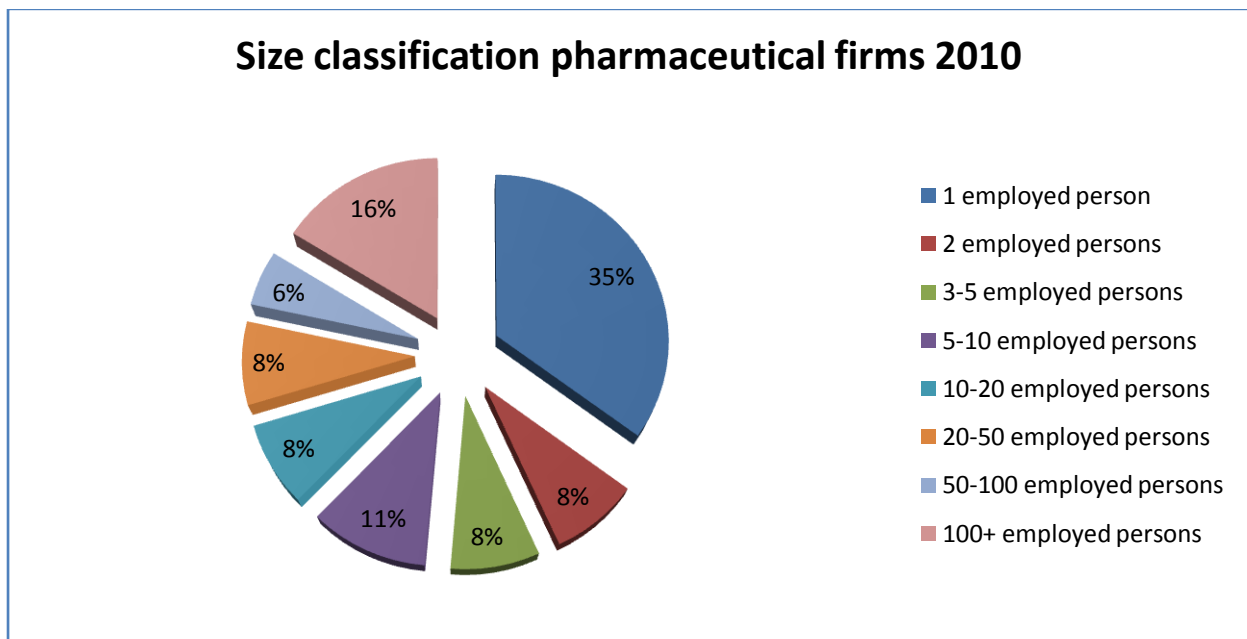
Source: CBS, Heerlen 2011.

Although the entrants on the Dutch pharmaceutical market (i.e. new ventures) are often small and innovative, the majority of the jobs can be attributed to just a small number of large MNEs on the Dutch market. In the circle chart in figure 11, the different proportions of firms size are illustrated. Small firms (1-10 persons) represent 62 percent of all pharmaceutical firms<sup>26</sup>, against 16 percent for medium sized firms (10-50 persons) and 22 percent for large firms (50+ persons). Another striking fact is the impact on the employment figures of the top ten largest pharmaceutical employers. They are accountable for over 80 percent of all jobs worldwide. Only the pharmaceutical division of DSM is Dutch, the remaining firms in top-10 employers on the Dutch market are all foreign subsidiaries (see table 6). GlaxoSmithKline, Novartis, Astellas and Teva have created jobs solely via greenfield investments. Johnson & Johnson through both acquisitions (Centocor, Crucell and Mentor Medical Systems) and greenfield investments in Almere and Leiden. Also Pfizer established itself already in 1954 via a greenfield investment in the Netherlands. The global merger of Wyeth resulted in an increase of Pfizer BV in the Netherlands. Abbott acquired Solvay and Apotex the former Katwijk

<sup>26</sup> Firms with economic activities in the manufacturing process of pharmaceutical products and –preparations.

Farma. The largest employer in the Dutch pharmaceutical market is however still MSD (see table 6). MSD opened a small subsidiary equipped with a sales mandate already in 1954 in Haarlem as their first European subsidiary. This site was expanded with a plant, multiple offices and a global distribution hub serving over 140 countries, thereby generating 900 jobs in the Haarlem region. Through the acquisition of Schering-Plough, MSD acquired Organon, Intervet, Nobilon and the Dutch subsidiary of Schering-Plough. Through this acquisition, MSD has become the largest employer in the Dutch market. Despite the restructuring programs, MSD still provides 6500 jobs in the Netherlands (LSH 2011).

Figure 11: distribution employment figures



Source: CBS, Heerlen 2011.

Table 6: top ten employers on the Dutch market

Rank	Firm	Job total
1	MSD	6500
2	Johnson & Johnson	1780
3	Teva	643
4	Astellas	575
5	Abbott	458
6	DSM pharmaceuticals	403
7	Novartis	400
8	Pfizer	350
8	GSK	350
9	Apotex	190

Source: LSH 2011: Dutch life sciences outlook 2011; Annual reports firms; corporate websites.

As mentioned in section 2.1.3, foreign subsidiaries use external collaboration networks to augment their knowledge. Drug discoveries and its underlying R&D models have become more complex and collaborative since the late 1980s (Carroll 2011). Changes in this model have caused an increase of partnerships with both small and medium sized pharmaceutical- and biotech firms in the past 10 years (Tralau-Stewart et al. 2009). Another more recent trend is the emergence of knowledge

based (instead of arm's-length relations) industry-university relations. Scholars and some CSOs believe that these partnerships may be able to increase to development of new drugs and thereby replenish pharma pipelines (KNAW 2004; Tralau-Stewart et al. 2009). Large pharmaceutical firms have been active in establishing relationships with academic partners and (partly) publically funded research institutes. AstraZeneca has more than doubled its academic collaborations since 2006 in 2010, and also Pfizer and GlaxoSmithKline have shifted their attention to public-private relationships (Ledford 2011). However, although the theoretical benefits are indisputable, a number of barriers still exist. Some universities have ethical or commercial conflicts of interest with their pharmaceutical partners. Long-term academic research and the need for a publication and openness after a breakthrough discovery, often differs from the commercial interests of the industry to create fast and continuing shareholder value. Universities are also facing difficulties protecting their discoveries by patenting (Tralau-Stewart et al. 2009). To overcome these barriers, industry-academic partnerships are increasingly defined in legal documents which defines the terms for both parties regarding commercial benefits, intellectual property and publication rights (Ledford 2011). The European Union is stimulating public-private partnerships in the European pharmaceutical industry via the European Federation of Pharmaceutical industries and Associations (PHRMA 2011). In the Netherlands, the government invested €130 million in Top Institute Pharma (TI Pharma) an organization that aims to stimulate public-private collaborations in the pharmaceutical industry. TI Pharma is financed by the Dutch government (50%) and universities (25%) and industry (25%). Projects within TI Pharma comprised over 500 different researchers, 102 academic participations and 54 private companies in 2008 (Van Giessel et al. 2008). Next to TI Pharma, the Dutch governments stimulates drug development by two other pharmaceutical top institutes; the Biomedical Materials Program (BMM) and the Center for Translational Molecular Medicine (CTMM). These three top institutes combined, participated in over 80 projects. Other participants in the projects are private firms, knowledge institutes and research institutes (e.g. TNO, Netherlands Cancer Institute and foundations) (Van Giessel et al. 2008). Collaborations can either be fundamental, translational or clinical. The Netherlands Cancer institute collaborated for example with MSD, Phillips, TI Pharma, AstraZeneca, Roche, Pfizer, TU Delft, University Medical Center Groningen and other research institutes as NWO, NGI and CGC in 2010 (NKI 2011).

Next to the introduction of the interviewed firm, this thesis will study the effects of acquisitions on the number and nature of collaborations between different parties in section 5.2.5.

### 5.1.5 Characteristics acquired firms

#### Apotex Nederland BV (Katwijk Farma) – Apotex Inc. HQ Canada.

The largest Canadian manufacturer of both prescription- and OTC generic pharmaceuticals was established in 1974. The main activities of Apotex Inc are the development and manufacturing of generic pharmaceutical products. Apotex's products are distributed across the world to over 115 countries exceeding a worldwide total sales of €720 million. Apotex employs 6.800 people in R&D, manufacturing, marketing, sales and distribution facilities worldwide. The Canadian based firm produces over 260 generic pharmaceutical products in a variety of doses. Research at Apotex recently also includes the development of innovative drugs via its subsidiary ApoPharma Inc. Apotex Inc. established subsidiaries across the world via joint ventures, greenfield investments and cross-border acquisitions.

Apotex Inc. established its presence in the Netherlands by the acquisition of the former family business Katwijk Farma, a firm active in the manufacturing and sales of generic pharmaceutical products. Katwijk Farma arises from the public limited company society for chemical industry Katwijk established by G.C.A van Dorp in Katwijk in 1914. After three van Dorp generations, UBS Capital acquired Katwijk Farma via an institutional buy out from its parent company. The Swiss venture capital provider enabled Katwijk Farma to expand their business activities across Europe. After informal investor De Raad Bouw BV retained Katwijk Farma of an impending bankruptcy, Apotex Inc. acquired the Leiden based firm in 2004. Katwijk Farma was renamed to Apotex Nederland BV in October 2008.

#### Disphar International BV (Disphar International) – Nordic Group – HQ Paris, France.

The first establishment of the privately owned Nordic Group was in Sweden with the opening of a Nordic drugs Marketing and Sales firm in 1995. After expanding their business in Scandinavia, the Nordic Group augmented their range of activities by incorporating a number of pharmaceutical services firms and the establishment of greenfield investments throughout Europe. Nowadays the Nordic Group operates under two corporate names; Nordic Drugs (Scandinavian countries) and Nordic Pharma (Europe) with the headquarters located in Paris, France. The Nordic Group has activities in two distinctive pharmaceutical segments; the marketing and Sales of pharmaceutical specialties and specialized pharmaceutical services including regulatory activities, logistics, product development and manufacturing activities. The Nordic Group has subsidiaries in the United Kingdom, France, Czech, Slovakia, Poland, Sweden, Denmark, Norway, Finland, Belgium and the Netherlands.

The Nordic Group established its presence in the Netherlands through the acquisition of the development firm Disphar International, located in Baarn since its foundation in 1994. Disphar International granted licenses of generic pharmaceutical products to its customers (business to business). Disphar develops, manufactures and distributes the drugs in bulk or packs to its clients.



Next to that, Disphar offered services including registration dossiers, marketing authorizations, regulatory affairs and support in QA/QC to its partners.

### MSD Nederland (Organon BioSciences) – Merck & Co., Inc. – HQ Whitehouse Station, United States.

The origins of world's fourth largest pharmaceutical firm trace back to Darmstadt, Germany in which an apothecary named Friedrich Jacob Merck bought a pharmacy in the early modern period in 1668. One of the successors of Merck, George Merck established a subsidiary in the United States; Merck & Co. During the First World War, the Americans confiscated Merck & Co and launched the firm as an independent US firm<sup>27</sup>. Nowadays, Merck's core activities particularly focus on the development, manufacturing, marketing and sales of innovative pharmaceutical products both for animal- and human health. After the reverse takeover of Schering-Plough in 2009, Merck employs 94.000 people in 54 subsidiaries across the world with a sales of \$ 39.8Bn.

MSD was already present on the Dutch pharmaceutical market through its subsidiary in Haarlem since 1954. Since the acquisitions of Schering-Plough, this presence has increased substantially. Zwanenburg-Organon was established as a subsidiary of Zwanenberg, a slaughterhouse based in Oss. Though pioneering collaboration between science (Ernst Laqueur) and industry (Saal van Zwanenberg) Zwanenberg-Organon was able to obtain insulin from the pancreas of pigs, and at later stages from calves. The first establishment of this firm in Oss was opened in 1930. Since its establishment in Oss, Zwanenberg-Organon quickly became an international organization with sales subsidiaries in 40 countries. The firm received the designation Royal, and became Koninklijke Zwanenberg-Organon (KZO 1). To prevent the firm for becoming a acquisition target, KZO 1 expanded their business through multiple acquisition (e.g. Intervet, Chefaro) in the following years. through the merger with Koninklijke Zout Ketjen, KZO 1 became Koninklijke Zout Organon (KZO). KZO established multiple subsidiaries across the world with production sites, R&D facilities and sales offices in 50 countries. Products of KZO were distributed to more than 100 countries, which made KZO the largest pharmaceutical firm in the Netherlands (which it still is). Through the merger with the Algemene Kunstzijde Unie (AKU), KZO was renamed to AKZO and later AkzoNobel. AkzoNobel decided to split the company and undertake an IPO with Organon BioSciences as a autonomous Dutch company in 2007. The stock market launch of Organon BioSciences was unexpectedly halted by the acquisition of Schering-Plough. Finally, Schering-Plough was acquired by MSD in 2009.

Since its establishment in 1923, Organon has expanded its business throughout the world. Subsidiaries were established in China, the United States and Eastern Europe. Although the company opened its international headquarters in New Jersey, Oss has remained the key location. Organon BioSciences was comprised of Organon, Intervet, Nobilon and Diosynth and employed over 7.5 thousand people in the Netherlands. Organon primarily focused on human healthcare with large

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<sup>27</sup> Merck & Co., Inc. should therefore not be confused with its ancestor; Germans oldest pharmaceutical firm Merck KGaA. For clarification purpose, Merck & Co Inc. is named Merck Sharpe & Dohme (MSD) outside the United States, while Merck KGaA is named EMD chemicals in Canada and the United States.

R&D- and production facilities in Oss. Organon BioSciences was number 1 in the top 10 of Life Science and Health patent applications in the Netherlands.

#### **Pfizer BV (Wyeth Pharmaceuticals BV) – Pfizer, Inc. – HQ New York City, United States.**

Founded by the German-American cousins Charles Pfizer and Charles Erhardt in 1849, Pfizer became the world's largest (sales of prescription drugs) pharmaceutical firm in 2010. Pfizer's growth began in the late 1880s sparked by the production of citric acid. Pfizer produced penicillin on mass scale to treat allied soldiers during the Second World War and just after the end of the war started to search for other, more profitable, antibiotics. During the early 1950s Pfizer became a pharmaceutical firm based on research. Also Pfizer began to geographically expand its activities across the globe. A period of rapid growth started with the discovery and marketing of some blockbuster drugs<sup>28</sup> during the 1980s and 1990s. Growth in recent years was accomplished through the acquisition of rival firms including the large acquisitions of Warner-Lambert (2000), Pharmacia (2003) and the record breaking acquisition of Wyeth in 2009. Pfizer's annual revenues amount to \$ 67.8 billion and the firm employs 110.600 people worldwide.

Prior to the acquisition of Wyeth Pharmaceuticals BV, Pfizer established a subsidiary in the Netherlands in 1954. This subsidiary customized the Pfizer products to the needs and requirements of the Dutch market. After the acquisition of Wyeth, Pfizer BV consolidated its position on the Dutch market. Wyeth was originated during the American civil war 1860. Wyeth Pharmaceuticals BV is located in the Netherlands since 1956. Wyeth Pharmaceuticals BV comprises Wyeth Consumer Healthcare, Wyeth Pharmaceuticals and Fort Dodge Animal Health. The Consumer healthcare branch comprised the OTC products of Wyeth, while the Pharmaceutical division focused on the development of prescription drugs and vaccines. Wyeth Pharmaceuticals BV employed 147 people.

#### **Pharmacin BV an Aurobindo Pharma Ltd subsidiary (Pharmacin International) – Aurobindo Pharma Limited – HQ Hyderabad, India.**

Aurobindo Pharma is a relatively young firm established by Ramaprasad Reddy and Nityananda Reddy in 1986. By listings its shares, Aurobindo Pharma became a public company midway the 1990s. Aurobindo Pharma is the fifth largest pharmaceutical firm in. Aurobindo Pharma is a fully integrated pharmaceutical firm with a value chain covering all steps in the production process of pharmaceutical products. The company manufactures generic pharmaceutical products and active pharmaceutical ingredients (API's.). It has a product portfolio of over 300 pharmaceutical products and is one the largest manufacturers of API's in India with the production of over 200 ingredients. A final activity of Aurobindo Pharma is AuroSource, the outsourcing branch of the company.

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<sup>28</sup> Pfizer's Lipitor (generic name: atorvastatin) has been the world's best selling drug for over many years with annual sales exceeding \$12.5 billion (2010).

Aurobindo BV had already two subsidiary companies in the Netherlands prior to the acquisition of Pharmacin International; Helix Healthcare B.V. and Agile Pharma B.V. Through the latter, Aurobindo Pharma acquired Pharmacin International in 2007. These three subsidiaries are among the 17 subsidiary companies of Aurobindo Pharma in Europe. Pharmacin International was established in 1986. The generic pharmaceutical company activities focused on the supply and trade of generic pharmaceuticals to European customers and the licensing of generics. Pharmacin International's offices and warehouses are located in Zwijndrecht. Aurobindo Pharma is a former contract manufacturer of Pharmacin International.

#### **PRA (Pharma Bio-Research) – PRA International – HQ Raleigh, North Carolina, United States.**

PRA originated as a data management contract research organization (CRO) in 1981. It expanded its activities to clinical trial management ten years later in 1991. The first European subsidiary was established in 1991 and the company name was changed into PRA International in 1996. PRA international rapidly expanded its activities across the world, especially in Europe through acquisitions of Valorum, Staticon, Valid Trio and ClinCare. PRA international became a public company by listing its stocks on the NASDAQ in 2004. The expansion strategy of PRA was again characterized by a number of cross-border acquisitions including the takeover of Pharma Bio-Research in the Netherlands and Pharmacon in Germany. PRA international's securities were removed from the NASDAQ stock market when it became a target of its largest investor prior to the IPO in 2004: Genstar Capital. The venture capital investor announced the completion of the acquisition in 2007 (\$ 797 million). After several years of quietness, PRA international acquired Kinship technologies in India. Nowadays, PRA international is among the top 10 largest CRO's worldwide with \$ 410 million sales and 3600 employees. The core business of PRA comprises clinical drug development services in all phases.

The acquisition of PRA international put an end to a tumultuous era in the development trajectory of Pharma Bio-Research (PBR) . Since its establishment in 1984, PBR expanded its business and employed over 300 employees in three location in Zuidlaren, Assen and Groningen. The period of relentless growth ended with the bankruptcy of PBR in 1999. The company made a new start with only 100 of the former 300 employees with the support of venture capitalists including the *Noordelijke Ontwikkelings Maatschappij* and Trimoteur. Only three years later PBR was again acquired, this time by the private equity investor HgCapital. After a brief period, PBR witnessed again a change in ownership as it was acquired by PRA international. PBR is specialized in early development studies. Their activities included first in human studies and standard phase-1 studies. PBR accommodated a clinical laboratory and pharmacy divided over two separated research locations.

## 5.2 Determinants and degree of territorial embeddedness of foreign pharmaceutical subsidiaries in the regional host environment.

### 5.2.1 Motivations of cross-border acquisitions in the pharmaceutical industry.

In the prior section, the key developments in the pharmaceutical industry have been discussed. This section will use that section as a background for the interview outcomes. In this subsection, the key outcomes of the interviews will be discussed. The focal point will be the evolution of the territorial embeddedness of a subsidiary after an acquisition. Following the conceptualization of territorial embeddedness elaborated on in section 3.2.1 this section thus focuses on the *depth and the quality of the relationships between inward investors and local firms and organizations*. Also this section will be shedding light on some of the determinants of subsidiary's territorial embeddedness evolution. In succession the motivation of the CBA, the evolution of subsidiary and the determinants of this evolution will be elaborated upon. The determinants will be discussed in their logical sequence, thus starting with the actual beginning of the embeddedness evolution process; the motivation behind the acquisition.

In this section, this thesis makes use of triangulation techniques in order to increase the credibility and validity of the interview results. This implies that the interview results will be cross-checked with sources such as expert interviews and other written sources.

As outlined in chapter two, four broad motives of foreign direct investments, derived from internationalization theories, are distinguished in this thesis. These are: *natural resource seekers*, *market seekers*, *efficiency seekers* and *strategic asset seekers*. These motives are not mutually exclusive, i.e. pharmaceutical firms can have multiple motives to acquire foreign pharmaceutical firms.

Historically, most pharmaceutical giants have expanded their business due to organic growth. Drugs were developed through internal research and development. Discoveries prior to the 1980s partially rested on serendipity<sup>29</sup> as researchers used a *shotgun approach* to randomly test large numbers of relatively simple chemical compounds against drug targets (Mittra 2007). Nowadays, the easy targets have already been discovered (Pammolli et al. 2011), which forces firms to find different sources of growth. Instead of organic growth, firms increasingly have relied on acquisitive growth (i.e. growth through acquisitions). During the 1980s and 1990s the pharmaceutical industry witnessed a unprecedented rise in acquisition activity (see section 5.1.3). The great majority of the top-10 pharmaceutical firms in the United States have been involved in an acquisition in the last 15 years (Danzon et al. 2007).

It is immediately noticeable that the rationales behind the CBAs in this thesis greatly vary among each other. The interviewees were first directly asked to elaborate on the main reasons to undertake the acquisition. One of the anticipated motives behind pharmaceutical acquisitions is the search for

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<sup>29</sup> Best example of serendipity in the pharmaceutical industry maybe Alexander Flemming and the drug penicillin.

innovative drugs (Van der Koenen 2011; Higgins & Rodriguez 2006). These *natural resource seekers* are motivated to acquire company assets (new innovative drugs or potential blockbusters) and/or routines (knowledge and routines to discover and/or develop new promising drugs) to counter looming patent cliffs. As Big Pharma are historically relying on the revenues of blockbuster medicines, patent expiration and the subsequent introduction of cheaper generic equivalents on the market, will result in a steep decrease (up to a staggering 70 percent) of their revenues. During the upcoming five year period, patent expirations will hammer the revenues of big Pharma. Patents of Pfizer's best selling drugs Lipitor and Viagra will expire in 2012. Some analysts even expect that generic competition will lead to a decrease of two-thirds of Pfizer's total sales over the next three years (Cressey 2011). Also Merck will soon be faced with patent cliffs worth over \$8 billion sales with the expiration of Cozaar and Singulair. Due to patent expirations, the pharmaceutical industry is facing a loss of \$21 billion in sales in 2012 (Kitamura 2012). To counter this looming picture, innovative pharmaceutical firms can either repack<sup>30</sup> their innovative drugs, invest in R&D to create new drugs or acquire a firm that possesses either already existing protected blockbusters or much promising compounds (Raaphorst 2011; Aurentz et al. 2011).

A much larger problem (next to patent expirations) is the remarkable low productivity and fast-drying of R&D pipelines of big Pharma (Sudarsanam 2010). Innovative pharmaceutical firms (including Pfizer and Merck) seem to have hit a dry-patch (Barrett 2005). Historically, firms focused on the development and exploitation of only a few *big bets* (blockbusters). Since the era of blockbusters seems already an old-fashioned one (Raaphorst 2011; Van der Koenen 2011), firms are forced to develop much more specific and personalized drug types instead of a mass-market approach. In order to meet these requirements, maintain profitability and create shareholder value, firms are tapping into new fields of expertise (e.g. generic markets and biopharmaceuticals). However, since the business model of pharmaceutical firms has historically centered around the (internal) development of blockbusters, firms do not possess the required competences and routines to discover new promising biological<sup>31</sup> compounds and thus create the required diversified product pipeline. In addition, generic equivalents of biotech drugs (biosimilars) are much more expensive to duplicate and therefore form an attractive market (IMAP 2011). Both Pfizer (\$9.4 billion) and Merck (\$8.12 billion) have huge R&D budgets but are not able to replace their former blockbuster by new drugs from their respective pipeline (Carroll 2011). The overall productivity of pharmaceutical firms has been deteriorating since 1996 (Danzon et al. 2007). Since the late 1990s more drugs are coming of patent, than being succeeded by new molecular entities (Higgins & Rodriguez 2006). In fact, the number of new drugs approved in recent years is not higher than 50 years ago (Munos 2009), whereas R&D spending skyrocketed during the same period. The top-10 spenders worldwide firms

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<sup>30</sup> Pharmaceutical firms can 'repack' their blockbusters into new products by employing innovative drug delivery techniques and claim a public disclosure by patent application for this 'inventive' blockbuster.

<sup>31</sup> Pharmaceuticals used methods to screen thousands of relatively elementary chemical connections to screen on all sorts of biological activity. They used a large educated guess to discover new medicines. These drugs were then exploited. As all obvious chemical connections are found. New biological drugs are identified by specific knowledge on biochemical pathways.

alone, invested \$67.41 billion in R&D (Carroll 2011). These major challenges can cause what Paul et al. (2010) call a *pharmaceutical ice age* with all its consequences. Some CEO's (e.g. Pfizer) therefore urge for radical changes in the R&D process of firms and devote their attention the internal R&D.

However, because of their cumbersome characteristics, these firms are unable to maintain a critical level of creativity and flexibility to keep developing new compounds. These firms do however have massive cash reserves due to the revenues of their former blockbusters. This allows firms to acquire product pipelines and therewith creating a diversified pipeline. This *strings of pearls* strategy or *corporate cannibalism* has become one of the most important determinants of M&A activity in the pharmaceutical industry (Sudarsanam 2010; Raaphorst 2011; van der Koenen 2011; Shields 2010).

The acquisition of Organon BioSciences fits in the above described motivation for acquisitions. With the acquisition of Organon BioSciences, Schering-Plough's pipeline is enhanced and diversified with five phase 3 compounds and additional biopharmaceutical compounds in phase 2. The acquisition also comprised two additional therapeutic areas and additional manufacturing capacity for biopharmaceuticals. Finally, by incorporating the animal health care division Intervet, Schering-Plough became a market leader in animal health care (Kennedy & Goldstein 2007). The bolstering and the diversification of the product pipeline was also an important rationale for Merck to subsequently acquire Schering-Plough. Merck's pipeline is complemented with nine drugs in late phases of development which means a doubling of Merck's promising drugs prior to the acquisition. Through the acquisition of Schering-Plough, Merck gained a stronger presence in animal healthcare, bio-tech and consumer health care and particularly in women's health (MSD Nederland 2011; Rockoff 2009). In other words, a considerable portion of the motivation to acquire Schering-Plough was based on the assets of the former Organon BioSciences. Finally will bring the acquisition of Schering-Plough Merck increased presence on the European market and the emerging markets of Brazil and China (MSD Nederland 2011).

Also the acquisition of Wyeth by Pfizer brings the latter a more diversified portfolio, strengthened by Wyeth's blockbuster drugs. Although Pfizer's CEO Kindler confirmed that the acquisition is: "*about creating a broad, diversified portfolio [...] and not about a single product or cost-cutting*" (In: Arnst 2009, p 1), this was however the case with the acquisition of Warner-Lambert (drug Lipitor) and Pharmacia (drug Celebrex). The acquisition of Wyeth brings Pfizer a number of blockbuster drugs. However, Wyeth's patent are set to expire around the same time as Pfizer's top selling drugs. Also Pfizer gains stronger presence in the vaccines, biopharmaceutical drugs, animal health care and consumer products markets. The rationale of this acquisition (and to a lesser extent also the acquisition of Schering-Plough by Merck) is the creation of continue shareholder value. Critics therefore often reproach Pfizer of short-term thinking. After the announcement of the acquisition, Kindler also announced a restructuring operation comprising some cost-cutting measures resulting in synergies.

Wyeth and Schering-Plough (Organon BioSciences) were considered as innovative firms. The development of new medicines was of top priority. Other pharmaceutical companies considered in this thesis have either activities up- or downstream in the business chain of these innovative firms or

are rivals in generic industry. Apotex (Katwijk Farma) belongs to the latter category. At the time of the acquisition, Apotex had the ambition to become a European leader in generic pharmaceuticals. By establishing a European foothold in the Netherlands, Apotex aimed to gain an increased market share in Europe. The on theoretical grounds (see for example Chapman & Edmond 2000; Danzon et al. 2007) expected presence of market-driven motivations is further empirically expressed by the acquisition of Pharmacin International by Aurobindo. The presence of Aurobindo in Europe is marked with multiple subsidiaries and marketing offices. The rationale of the acquisition of Pharmacin International was to widen the market presence in Europe and to control its activities downstream in the supply chain (forward integration). Through the increased market presence in Europe, increasing economies of scale and the acquisitions of superior routines, Aurobindo wants to achieve synergies. The acquisition of Disphar by Nordic was mainly driven by some of the strategic assets of Disphar, while PRA international acquired Pharma Bio Research to become a total clinical service provider.

Also the interviewees were asked for the key motivations to acquire a firm rather than building an establishment from scratch. As the acquisitions of Wyeth and Schering-Plough were globally oriented, these acquisition are not considered. Key rationales in the foreign establishment mode choice are the availability of superior routines (existing expertise), market share of the target company, tangible assets (e.g. plants and storage) and time. Most interviewees indicated that the intangible company assets were also an important rationale. Some directors explicitly mentioned however that the intangible regional assets only had a very marginal role in the acquisition decision. Focus has been on the assets of the target firm rather than the prospective host environment. Finally interviewees were asked to enumerate the five key characteristics of the regional host environment in the acquisition decision. Although the regional characteristics have played second fiddle to the characteristics of the target firm, some responses stand out. Particularly mentioned are the high standards of the Dutch innovation climate, the availability of research talents and the (medical) infrastructure. The Netherlands are often renowned as the gateway to European markets. Only PRA international (University Medical Center Groningen) and Apotex Nederland (Life Sciences Cluster in Leiden) mention the presence of a cluster as an important characteristic of the regional host environment.

To summarize, large pharmaceutical are increasingly acquiring rivals (both pharmaceutical- and biopharmaceutical firms) to boost their pipelines with promising compounds. Other pharmaceutical firms are looking for an expansion of their market presence in the Netherlands by acquiring Dutch firms.

### **5.2.2 Evolution of pharmaceutical subsidiaries after the acquisition.**

In this subsection light will be shed on the evolution of the firm after the acquisition and its corresponding role in the corporate system. Therefore interviewees were asked for the *enhancement/depletion of capabilities in the subsidiary, coupled with an explicit change in the subsidiary's charter*. Also respondents were asked for evolution of the market scope of the subsidiary since its acquisition. In the following subsection attention is paid to the determinants of subsidiary evolution.

All six interviewed subsidiaries witnessed a change(s) in their activities. It was however difficult for most interviewees to make a clear distinction between the main activities and additional activities. Therefore, all changes in activities are taken into account. It is striking that the great majority (4 out of 6 firms) experienced a positive evolution in terms of activities that have been added to the subsidiary's mandate. Only Organon BioScience and Wyeth Nederland witnessed a removal of some of their (main) activities. In case of the latter two firms, this is largely due to some heavy global reorganizations particularly in the research and development branches. Pfizer already announced to cut roughly 15 percent of the combined workforce after the acquisition of Wyeth. Part of the worldwide restructuring programs is the closing of six research sites and the consolidation of a number of other research sites including the R&D site in the Netherlands. Wyeth's clinical research site is therefore closed and as a result, Pfizer has no more research and development activities in the Netherlands. Also Organon BioSciences witnessed the consequences of profound global restructuring programs in R&D. A leaner global R&D organization implies the indented closing of Organon's renowned R&D division including an approximate job loss of 700. As Pfizer, Merck is centering its R&D activities around hubs in the United States. Organon BioSciences already experienced an explicit change in its charter when the international headquarters were closed down and incorporated in Schering-Plough global headquarters in Kenilworth, United States. Furthermore, jobs losses are expected in support services and manufacturing activities. Despite the heavy restructuring programs in R&D activities, not all innovative capabilities and routines are lost. MSD Nederland will center its activities around the production of APIs, Biotech products and pharmaceutical operations Oss (POO). Next to this production pillar, MSD Nederland will be responsible for the development of innovative routes of administration of drugs (e.g. oral or parenteral), the registration of some products and clinical research for some compounds. The sales office and assembly plant of MSD continue to be located in Haarlem.

Although not representative for all acquired pharmaceutical firms in the Netherlands; strikingly, most interviewees experienced an enhancement of their activities after the acquisition. Also remarkable is the change of the market scope as such and in combination with new activities. Apotex (Katwijk Farma) has become responsible for the logistical streaming and financial streaming in Europe and the EU releases and EU testing of generic drugs. Where the firm (Katwijk Farma) previously primarily focused on the Dutch market, has their market scope since the acquisition expanded to Europe. Also Disphar International witnessed an increase in its activities and market scope. Since the acquisition Disphar has gained activities in supply logistics, regulatory affairs, product registration and product development for Nordic. In order to live up to the latter responsibility, Disphar has established a development laboratory in Mumbai, India. According to the director, it is however questionable whether this growth is due to the actual acquisition or due to the organic growth of the firm.

In contrast with the development paths of the companies discussed above, Pharmacin witnessed an increase of its direct presence on the Dutch market, while keeping a European market scope. Since the acquisition, Pharmacin International introduced a private label drug on the Dutch market. As Disphar primarily focused on industrial marketing (business to business), the company



added a marketing sales branch to its activities. For this purpose new routines and capabilities were developed. PRA international has acquired Bio Pharma-Research for its expertise and routines in early development studies (Phase 1 clinical trials). The group of Early development service units (four units) is managed by the Dutch subsidiary. Although its market scope (international) has not changed since the acquisition, it has intensified its international scope. The market scope of Organon BioSciences has been shifted to the emerging pharmaceutical markets of India, Russia, China and Brazil.

Finally, interviewees were asked to describe the role and position (corporate status) of the subsidiary in the corporate system of the MNE. All respondents claim that their respective companies are key players in the global internal network of the parent. Some base their central role solely on the base of size. Also the interviewees can be biased. Pfizer Netherlands is the largest subsidiary within the second tier group (thus excluding: GB, Germany, France, Italy and Spain) of Pfizer in Europe. Therefore their influence in Pfizer's midsize markets is considerable. The pronounced centrality is however not reflected in the possession of unique routines in the corporate system. The lack of these routines (except for sales techniques and knowledge focused on the Dutch market) derives from the role of the subsidiary as sales office. Organon BioSciences is the largest subsidiary outside of the United States, while Pharmacin International is Europe's second largest subsidiary (after GB). The latter two have also a unique position compared to other subsidiaries based on their unique routines. Organon BioSciences is an important pillar in the emerging market strategy of Merck via the innovation driven Development Centre Oss (DCO) and has a large production plant. Merck is hence partly depending on the developments of routines in Oss for its increasing business activities in emerging markets. Therefore the position of the subsidiary after all the restructuring programs is still central. Pharmacin International is licensed to store- and import pharmaceutical products which gives them, compared to other European subsidiaries without such a permit, a unique position in the global MNE network. Disphar International is responsible for the development and registration of a large number of generic products for the entire Nordic Group. Disphar's expertise and routines are unique in the Nordic Group. This gives the firm an important role in the corporate system. Apotex Nederland is the European hub for Quality control, –assurance and the streamlining of a number of European wide business processes (see above). Next to a sales team, Apotex Nederland also provides the network with a lab and plant. PRA International in Groningen also has a central role in its internal corporate system. As its parent did not have any previous routines in early development studies, the subsidiary possesses unique routines on which the MNE depends. PRA EDS sets out the strategy for all four global early development business units (see also: *subsidiary initiative*). Despite their sizes and unique routines, none of the interviewed firms has a headquarter function. All interviewees either directly report to regional headquarters (Pharmacin, Apotex, Pfizer and Organon) or directly to the CEO of the parent (PRA international and Disphar).

To summarize, all interviewees noticed an evolution of their business activities and/or market scope after the acquisition. This evolution can be both positive and negative. Furthermore, all subsidiaries are according to their managers in the center of the corporate network. However, according to the indicators used in this thesis, not all subsidiaries are actually.

### **5.2.3 Determinants of pharmaceutical subsidiary evolution:**

Section 3.3 theoretically outlined which (f)actors are determining the evolution of foreign subsidiaries. The previous subsection described some of the key characteristics of the evolution of pharmaceutical foreign subsidiaries in the Netherlands. It is important to remember that all interviewed firms witnessed a change in activities and/or mandate. This section is shedding light on the determinants that can be held responsible for the observed subsidiary evolution. Attention is successively paid to determinants related to headquarters strategy, subsidiary's own strategy and the regional host environment.

#### ***Global economic developments:***

In the conceptual framework it was argued that the evolution of pharmaceutical subsidiaries and the subsequent territorial embeddedness evolution is subject to contemporary (global) economic developments. Economic events both influence the acquisition decision and the headquarters strategy. Although not specifically questioned during the interviews, many interviewees started this topic by themselves. Some important subjects that were mentioned during the interviews are the preference policy and other cost-containments policies (see section 5.1.2) of the Dutch government, the rise of pharmerging countries and the high penetration of generics in the Netherlands.

#### ***Headquarters determinants:***

As outlined in section 3.3, it is apparent that the headquarters strategy is key in the evolution of the subsidiary just after the acquisition. The rationale of the acquisition is of significant influence as this determines the intended initial role for the subsidiary in the corporate system. After the initial allocation and transfer of routines and (financial) resources, subsidiaries can either gain or lose responsibilities. Although the influence of subsidiary cannot be underestimated (see next section), the HQ will retain the power of veto over the evolution of its foreign subsidiaries.

Interviewees were asked where the important decisions regarding the activities of the subsidiary are taken. Although all interviewed subsidiaries declared that to a certain extent, the subsidiary's management itself was in the position to take strategy decisions, all interviewees indicated that the final say regarding key issues is always taken by the parent firm. Headquarters influence of the foreign activities of its subsidiaries greatly varies and seems to be subject to the general strategy of the MNE. As outlined in section 3.3, Hogenbirk & Kranenburg (2006) distinguish two different MNE strategies; a multi-domestic- and a global strategy for its subsidiaries, balancing between differentiation for specific markets needs and integration (economies of scale). An important characteristic of these strategies is the level of centralization. Firms will neither be completely centralized or decentralized. The degree of centralization must be viewed as a continuum. On the one side of this continuum are the very centralized MNEs whose directors make decisions and only inform the subsidiary's management, on the other last are very decentralized MNEs whose local managements make decisions and only informs the HQ management (Blanchard 2006). Pfizer and MSD-Nederland are examples of MNEs with a strong centralistic structure and a global strategy.

Although Pfizer acknowledges the regional differences between European countries by establishing national sales offices, regional subsidiaries have very little decisions making authority. The overall direction of the subsidiary is determined by the (regional) headquarters and all key decision are taken 'above the market'. Pfizer's European headquarters strategy comprises a global brands, global marketing (on a European scale) strategy, in contrast with a domestic marketing strategy in which the marketing is adjusted to a country's local circumstances. In the past years, Pfizer was restructured into business units, each with a distinctive management to which regional subsidiaries report. According to this global functional structure<sup>32</sup> all foreign activities are integrated in an particular unit, enabling Pfizer to gain economies of scale. This new corporate structure is however still characterized by a top-down management. All key decisions are taken by the HQ management.

The decision making- and authority structure of Merck shows great similarities with Pfizer's centralized organizational structure. Merck is known for its very top-down driven organizational structure. After pulling the management activities to New Jersey, a great deal of decision-making authority was moved from the Netherlands to the United States. All Merck's subsidiaries have the same uniform organizational structure and authority competences. Merck's overseas subsidiaries are therefore characterized by a low level of decision-making authority. Although to a lesser extent, the same structure applies to Pharmacin International. Aurobindo Pharma is characterized by strong hierarchical structures. The strongly top-down oriented structure can be explained through India's culture which is known for its hierarchical society and formal relationships between high ranked managers and subordinates. Important decisions are taken at the headquarters and trickle down to overseas subsidiaries. This sometimes causes a cultural mismatch with the Dutch consensus model (Polder Model). However, Aurobindo's headquarters acknowledges the (cultural) differences between India and the European market. In fact, Aurobindo partially acquired Pharmacin International to develop knowledge of the ins and outs of the generic European market. As a result, Pharmacin International is allowed a little leeway in decision making. Key decision are however taken in Mumbai.

Rationale behind differences in the extent of centralization has its roots in the cultural background of the MNE. The lack of cultural adaptability makes American MNEs often appear like a bull in a China shop. It is therefore not a coincidence that those firms taken over by American MNE loosed relatively much of their decision-making authority. After an acquisition, American CEO or HQ managers are often eager to implement their (personal) management style to the acquired firm without considering potential superior routines of the target firm. This tendency is reflected by the evolution of all three by American MNEs acquired firms, particularly by Pfizer and Merck and to a lesser extent by PRA International, which headquarters organizes its subsidiaries via a multi-domestic strategy.

Compared to Pfizer, Merck and Aurobindo are Apotex, Nordic Group and PRA International less centralized. The area of control for their subsidiaries is larger compared with the subsidiaries

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<sup>32</sup> Pfizer departures from the previous global geographic structure.

discussed above. As a result, there is more room voor subsidiary initiative and entrepreneurial activities.

As this section has outlined, the degree of headquarters influence varies between the several subsidiaries. Factor that is determining the choice for a centralistic or rather decentralized approach is the cultural background of the MNE. Subsidiaries that are managed via a centralistic organization are less likely to take initiative or show entrepreneurial activity than subsidiaries controlled by a decentralized structure.

***Subsidiary initiative:***

As mentioned in section 3.3.1, foreign subsidiaries are semi-autonomous entities. Although constrained by the veto-power of the parent company, subsidiaries are to some extent capable of developing their own strategy. Through entrepreneurial activities- and the development of superior routines in foreign markets, subsidiaries can contribute to the MNE competitiveness. Foreign subsidiaries can act as pioneering leaders in innovative projects, create products for the local and global market, and transfer their knowledge, experience and routines into the corporate system. Subsidiaries can thus become *strategic leaders* (Birkenshaw et al. 1998).

The locus of control and decision-making authority in PRA International, Disphar and Apotex Nederland is rather decentralized. In essence; subsidiaries take initiative in the process of decision-making. Subsidiary's management can either make decisions and inform the HQ management, sell the decision to the HQ management or present the problem with a solution to the HQ management (Blanchard 2006). In either way, the initiative lies with the subsidiary. Interviewees were asked to describe the role of the strategy of the subsidiary in the development of the mandate carried out by the subsidiary. Among the three mentioned subsidiaries it is generally acknowledged that they can go their own way. However, there is one important condition for this high degree of autonomy which subsidiaries are obliged to meet; financial performance or other related key performance indicators.

An illustration of the decentralized locus of decision-making is the establishment of the INDEUS Life sciences development laboratory by Disphar in Mumbai. Indeus is established as the R&D centre for pharmaceutical formulation services. As being an affiliate of Disphar, formulation projects are supervised and coordinated by Disphar's product development team in Baarn. Finished projects are then moved to contract manufacturers of Disphar in Europe for the manufacturing process. The idea of establishing an international center of excellence has existed already for a long time. Nordic provided the essential financial support to implement Disphar's initiative. In the formulation of Disphar's strategy, the role of Nordic's headquarters is restricted to a monitoring role. The same decentralization strategy can be (more or less) applied to Apotex Nederland although the rationale behind the authority decentralization of Apotex is rather different. Apotex Nederland has managed to stay under the radar of its headquarters by living up to the financial goals. In addition, Apotex has good manufacturing practice issues with the FDA resulting in an import ban of drugs from two plant facilities. As the generic market of the United States is Apotex' largest market, full attention was paid to resolve the alleged deficiencies in drug manufacturing. Now the shipping ban has been abolished,

Apotex Netherlands expects the HQ to reassess its policy concerning foreign subsidiaries soon. For now, Apotex Netherlands is still largely autonomous in its decision making. This also applies to PRA International (PBR). PBR is PRA's anchor company and blueprint concerning its global early development studies (EDS). All global phase 1 units are controlled from PRA EDS in the Netherlands. The Dutch subsidiary also outlines the scope of activities and the development trajectories of these phase 1 units including the laboratories in Lenexa (US) and central- and eastern Europe. The reasons for the high degree of autonomy lies between the various routines and activities of both firms. Main activity of PBR were early development studies, while PRA international focused on the later phases of clinical development. As a result, both companies have developed a different set of routines applicable to different areas of expertise (activities). PRA acknowledges these differences and allows PRA EDS to set and follow its own strategy.

The same attitude towards acknowledging various sets of routines and activities is visible in the Nordic Group. Nordic originated as a marketing and sales company in 1995. With the acquisition of Disphar, Nordic expanded its activities into another pharmaceutical segment; specialized pharmaceutical services. Disphar has already developed routines in this market segment since 1994. Nordic acknowledges Disphar's know how in doing business in a segment largely unknown to them. As a result, Disphar is allowed (with financial performance restrictions) to develop its own strategy. As mentioned earlier, Wyeth Nederland and Organon BioSciences are subject to very centralized headquarters. Unlike Disphar and PBR, Wyeth and Organon were the same kind of firms as their acquirers and relying on similar sets of routines and activities<sup>33</sup>. Therefore it is easier to take control over the subsidiary and manage its strategy and scope of activities.

Another theoretically expected determinant for subsidiary's autonomy is the staffing approach policies by MNEs headquarters. Firms can either follow an ethnographic approach, that is filling managerial positions with parent country managers, or follow a polycentric staffing approach, i.e. subsidiary management comprises managers from the host countries. It is striking that the three firms with the highest degree of autonomy are all managed by managers from the home country. Also Aurobindo is following a polycentric staffing approach. This approach is best suited to a multi-domestic strategy.

To summarize, the locus of control and decision-making authority largely differs among the interviewed subsidiaries. Also some of the subsidiaries had the same practices as their acquirer. Subsidiaries with different routines and activities have a greater degree of decision-making authority. The final distinguished determinant of subsidiary evolution is the regional host environment.

### ***Influence of the regional host environment:***

This section divides the regional host environment determinants into two groups. The first group comprises the predetermined determinants which are equal to each foreign subsidiary. The second

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<sup>33</sup> At least in general. Although every firm has its unique set of routines (reason d'être why firms differ), both acquirer and target firms main activities centered around the development of innovative pharmaceutical drugs.

group includes the relational assets of the regional host environment. The latter group of determinants is not generically available and is regarded to be more dynamic than its static counterparts in the first group. Economic geographers conceptualize the latter group host environment determinants as a relational arena. Key in this arena is the territorial embeddedness of the subsidiary in its regional host environment. Without being embedded in regional relations, the arena will be empty. Before shedding light on the relationships of the subsidiary within the regional host environment, the predetermined determinants will be outlined. As most determinants already discussed in section 5.1.2. this will be done briefly. Yet it is important to mention some key determinants a second time as the interviewees underscored their importance in the evolution of the subsidiary in the interviews.

The most frequently cited determinant by the interviewees are the legal conditions, both by the national government and regional- and European authorities. These legal conditions comprises the earlier mentioned preference policy by the Dutch governments which causes massive price pressure of generic fabricators, regulations by the European Medicines Agency (EMA) and regional governments (both on city- and provincial level). Amendments in legislations force subsidiaries to reevaluate their businesses constantly. An example is the Dutch legislation for clinical drug research in minors. This is currently only allowed when children are very likely to directly benefit from the drug effect. As a result, firms like Prosensa are forced to conduct their clinical trials in other countries than the Netherlands (Raaphorst 2011). Another example is the separate approval process by different national regulatory bodies. As a result every national markets requires very expensive adjustments of medicines. It is also important to mention the perceived regional differences in Europe. Although the geographical distances between European countries are often perceived as small (by non-Europeans), the actual differences in terms of legislations, needs and preferences between the member states are major. A drug (with a particular shape or doses) that has proved to be profitable in France does not necessarily has to be profitable in the Netherlands. To serve the regional markets, large MNEs have therefore established a subsidiary with a sales mandate in almost every European country.

#### **5.2.4 Firms territorial embeddedness prior to the acquisition:**

In this subsection this thesis will approach the regional host environment as a relational arena as recommended and described by economic geographers including Jacobs et al. (2010). First this thesis will outline the economic spatial relations in the regional host environment prior to the acquisition. To what extent were firms embedded in the region prior to the acquisition? The outcomes of this section are summarized in figure 14 and table 8 in the conclusion. Several indicators are used to the operationalization of the concept (see 4.6). Due to the limited number of interviewed subsidiaries, each subsidiary is discussed separately. Starting (in random order) with PRA International.

As *PBR's* main suppliers are all volunteers (i.e. people who undergo the clinical tests), it is not relevant to examine these relationships in detail. Other supplier-firms (e.g. computers, medical devices and beds) were located outside the region. The same can be applied to the client-relations. *PBR* focused obviously on the innovative pharmaceutical firms. Directors estimates that 50 percent of the clients were located in the US, 30 percent in the EU and the other 20 percent in Asia. Customer-

relations were considered to be very important in the development of new products (drugs). The location of the service relations (in particular high-skilled relations) was also interregional. Low skilled service (e.g. cleaning) partners were located in the region. Pharma Bio Research almost exclusively (share of 95%) employed people from the regional labour force. A key source for qualified employees was the University of Groningen and Hanze Hogeschool. PBR did have formal partnerships with the Hanze Hogeschool for lab research. It also accommodated the firm interns from different departments of the University (mainly medicine- pharmaceutical students). In terms of interfirm co-operations PBR had strong relationships with the university. The company actively sourced knowledge within the co-operations and sporadically used equipment from the University hospital. The partners did have a formal agreement aimed to increase the collaborations projects. PBR contributes to campaigns at the university to show business opportunities at Pharma Bio Research. The co-operation with the hospital is also partly of a necessarily nature. The university hospital possess an intensive care unit which PBR can use in emergencies<sup>34</sup>. PBR indicates that the collaboration with the university was of massive importance in the development of new products and processes. Other co-operation partners (of minor importance) were located outside the region.

Important upstream supplier relations of *Disphar* comprised the suppliers of Active Pharmaceutical ingredients (API's). Due to the relatively low shipping costs, supplier-firms were not forced to locate their business near Disphar. Disphar's key accounts were located mainly in Europe and Asia. Disphar's main contract manufactures were also located across the world, mainly in Asia and Europe. Local supply was only relevant in the supply of office equipment (computers, shredders etc.). Relationships with the main suppliers were considered as very important to the development of innovative products and processes. As Disphar market scope was mainly focused on the European generic market (TEVA, Sandoz, Mylan are important customers), the majority of the customers (business to business) were located in Europe. Some of the customer-relationships were more closely located in the Netherlands. As with the client-relations, relationships with key customers were considered important to the development of innovative products and processes. Disphar's key service-relationships comprised mainly high-skilled services such as law- and consultancy firms located in the Randstad. Law firms were often consulted in (international) competition and regulation affairs. The share of regional recruited employees was significantly lower than the share of PRA international. Most employees were graduates or post docs from the universities of Leiden, Utrecht or Amsterdam. Disphar maintained no formal partnerships in teaching and education. Disphar did however occasionally accommodate interns from universities. In terms of interfirm co-operations the company did have partnerships with contract research organizations, development organizations and universities. These relationships were focused on R&D and innovation and are mainly located in Europe and Asia. Disphar considered the geographical proximity not at all important. Co-operations with other firms/institutions are however important in the development of new products and processes. Also the company was represented in several industry associations. Since the Dutch market is however of minor importance to the company, their influence in these networks is minor.

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<sup>34</sup> Not yet been used.

The third interviewed firm is Apotex Nederland, nowadays subsidiary of generic Canadian giant Apotex Inc. Katwijk Farma multi supplier relations (for its plant) were prior to the acquisition mainly located in Asia, in particular China and India and to a lesser extent in Europe. Despite of its very small proportion, a number of suppliers was located in the Netherlands. Clients supporting the production process of Katwijk farma were considered very important in the development of innovative products and processes. In contrast to the aforementioned firms, Katwijk Farma targeted the Dutch pharmaceutical market as their main market. Key customers were located in the Netherlands and were also considered of importance for the development of innovative products and processes. Katwijk Farma predominantly used regional service relations, both high skilled (law firms, consultancies) and low skilled (cleaning companies) service firms. Katwijk farma almost exclusively employed regional employees. The majority of the labour-relations is even of local nature, i.e.; most employees are living in the direct vicinity of Leiden. This regional labour orientation is further expressed in the partnerships in education and teaching with the *Hogeschool*- and university of Leiden. Direct purpose of internship placements and annual guided tours is to recruit prospect employees. Beyond the already discussed client- and customer-relations, Katwijk Farma maintained a number of interfirm co-operations with rival firms. The type of formal relations was mainly market- or supply chain oriented. Although the geographical proximity of these relationships was considered to be important, the interfirm co-operations were not considered to be important for the development of innovative products or processes. Although all interviewees indicated the importance of personal networks in the pharmaceutical industry, this seems to be even more the case with Katwijk Farma considering the long-term relationships with some of their customers.

The next firm to be discussed is Wyeth Nederland, active on the Dutch pharmaceutical market since 1956. As Wyeth specialized in the marketing and sales of its own products (both prescription and OTC products) its main supplier-relations comprised relations with several distribution centers of Wyeth. Other supplier-relations consisted of relations with printing companies and advertizing agencies. Since Wyeth's foreign subsidiaries were autonomous in developing their own marketing- and sales strategies, these relations were very important in the development of innovative products and processes (i.e. successful new sales and marketing campaigns). Key accounts in the business activities of firms such as Wyeth are the prescribers of medicines such as, general practitioners. Because Wyeth competed solely on the Dutch market, all customer-relationships are located in the Netherlands. Although these relationships are key in terms of sales figures, their importance for the development of innovative products and products is negligible. The service relations of Wyeth were predominately located in the Randstad and comprised of attorneys and consultancy firms. These firms are often affiliates of multinationals. Wyeth's employees are mainly recruited from the Netherlands without a regional-, let alone local, focus. The firm did not have formal partnerships with education institutions. However, occasionally Wyeth accommodated internships placements. These interns were most often employed in the clinical research branch of Wyeth. Regarding the complexity of the pharmaceutical market, Wyeth maintained a number of interfirm co-operations with selected consultancy- and law firms and firms specialized in market research. These relationships were often of problem solving nature and also included outsourcing and subcontracting of activities, especially market research. Finally, Wyeth did have a number of relations focused on



their research and development activities. These latter were important for the development of innovative products and processes. The former relationships are important for accessing new markets and the commercialization of knowledge.

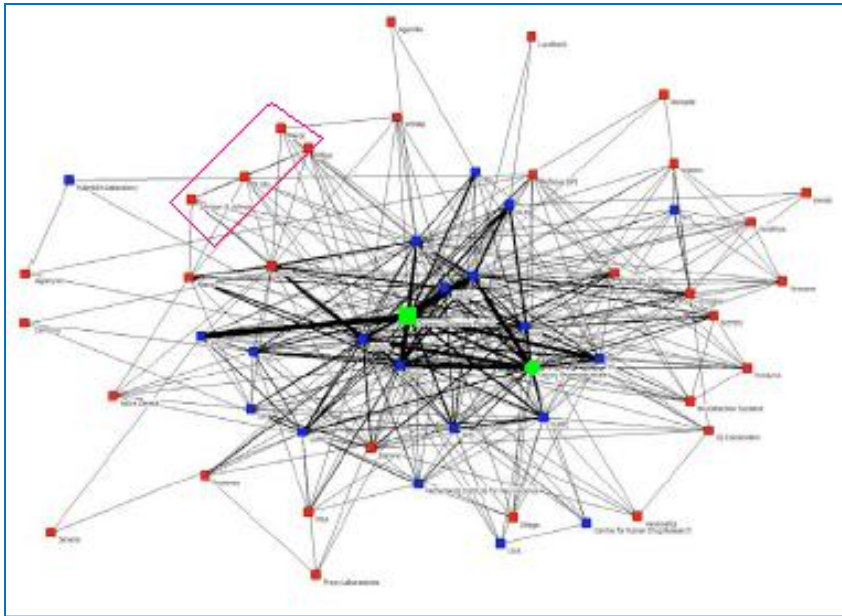
The fifth investigated firm is Pharmacin BV based in Zwijndrecht since 1986. Upstream linkages with the suppliers of API's and contract manufactures were the key supplier-relationships of Pharmacin. The majority (about 60 percent) of these relationships were based in Asia and particularly in China and India. Pharmacin was one of the clients of Aurobindo prior to the acquisition. The other relations were scattered over the world. Linkages were important for the development of innovative products and processes (development of generic drugs). Pharmacin's downstream relationships (key clients) with pharmaceutical wholesalers and to a lesser extent large pharmacy chains, were located in Europe and the Netherlands. The clients role in the development of innovative products and processes were not deemed to be important as Pharmacin's activities were supply driven and based on market opportunities. Pharmacin's business service relationships were situated in the Netherlands, mainly in de Randstad. Pharmacin's relationships in teaching and educational were limited to a small number of accommodated internships. The recruitment of high-skilled employees did have a national character, whilst the recruitment of lower-skilled employees had a strong regional orientation in the direct vicinity of Zwijndrecht. Pharmacin did maintain a number of interfirm co-operations relationships. Important partners are contract research organizations which provided, often on a outsourcing or subcontracting basis, pharmaceutical research services. Other collaboration relationships are supply and customer oriented, i.e.; market oriented. The majority of these interfirm co-operations was situated in India, Europe and the Netherlands. Although the geographical proximity of the collaboration partners was not considered important at all, their influence on the development of innovative products and processes was massive. In particular, the relationships with the former were important for innovative purposes.

Finally, one of the most controversial pharmaceutical acquisitions in the Dutch history is discussed. Since its foundation in 1923, Organon had become an attractive anchor tenant for the establishment of a network of supplying companies. In close proximity to Organon, a number of specialized pharmaceutical distributors, -storage companies, firms specialized in medical equipment and pharmaceutical wholesalers arose. Although the local sourcing ratio of related suppliers was very high, main suppliers of pharmaceutical commodities were located across the world. Other upstream relationships consisted of linkages with (fundamental) research companies and institutions for the formation of new pharmaceutical compounds. These linkages were located both in the Netherlands and worldwide. Obviously these relations were very important for the development of innovative products and processes. The largest Dutch pharmaceutical company operated on a global level and sold its products in over 100 countries. More than half of these countries are equipped with a subsidiary through which knowledge was gathered. Relationships with customers were important for the development of innovative products and processes. Maintenance firms were often located in the direct presence of Organon in Oss and the surrounding area. Other service firms such as law- and consultancy firms are mainly located in the Randstad. Organon was the largest employer in Oss, with 5300 employees in 2007 (only in Oss). These employees are predominantly residents of Oss and

adjacent cities in the province of Noord-Brabant. Especially in the production divisions a large percentage is recruited regionally. 50 percent of all employees were highly qualified. Organon did have a major influence in the scientific world. Over 150 interns were accommodated annually, the majority in the R&D. Next to that, Organon partly funded PhD students at several universities and appointed a number of part-time professors. One-third of the researchers at Organon were PhD. The strong relationship between the scientific community and the industrial organization Organon is further reflected by the number of interfirm co-operations. Organon participated in dozens of research projects and over 100 collaborations with both regional as international partners. About one-third of the research funds (€400 million) was devoted to collaborations with research institutes, universities and young innovative firms. These research based collaboration relations were both on a regional- national and global scale. A few examples of such partnerships include the public private partnerships with universities (including six Dutch universities) and companies in the BioMedical Materials program, The KERN program that stimulates entrepreneurship and the LifeTec Network which is partly founded by Organon. In many of the collaboration relations, Organon was one of the anchor firms and provided a great portion of the funding.

To stress the importance of Organon BioSciences in collaboration networks, the collaboration network of TI Pharma in projects (see section 5.1.4) is shown in figure 12. The thickness of the black line corresponds with the number of participations in projects and hence the collaboration intensity of an actor, either a private firm (red square) or research/knowledge institute (blue square). Knowledge institutes are at the center of the collaborations of the network, with numerous participations in TI Pharma projects. Particularly, the University of Leiden, the Univeristy Medical Center Utrecht and the University of Groningen are very active. Most firms are at the outskirts of the network. Johnson & Johnson, Eli Lilly, Pfizer and Merck do participate in the Dutch network, albeit with a small number of participations (see left upper corner in pink box). Exceptions to this trend are Organon BioSciences (green square, 97 participations in 20 projects) and Solvay Pharmaceuticals (green circle, 77 participations in 12 projects) with a central position in the network. Organon BioSciences is one the main initiators of collaboration institutes as TI Pharma, CTMM and BMM (Van Giessel et al. 2008).

Figure 12: Importance of Organon BioSciences in the collaboration network of TI Pharma (2008)



Source: Van Giessel et al. 2008.

### 5.2.5 Subsidiary territorial embeddedness after the acquisition.

In this subsection this thesis will outline the changes of subsidiary's embeddedness after the acquisitions starting with PRA international.

The location and nature of the supplier-, consumer- and service relations has not changed since the acquisition. Consumers are still innovative firms mainly from the US, Europe and Asia and are important for the development of innovative product and/or processes. The share of regional labour force is still very high and has not changed since the acquisition. Roughly 50 percent of all employees (450) are highly qualified (HBO, university or higher). A large number of the high-skilled employees are graduates from the university, indicating the regional labour function of PRA International in the Groningen region and the importance of the University of Groningen vice versa. This importance is further expressed by the continued co-operations between the neighboring institutions. PRA International is still focusing on knowledge sourcing. A vivid example is the collaboration with the academia from Oxford (neuro imaging) and Groningen and industry partner Organon BioSciences in a large pain research project granted by Top Institute Pharma. PRA International is leading the project since 2007. PRA's collaboration relationships are always knowledge driven. Since the acquisition however, part of the required knowledge is sourced from the internal network instead of externally. The company is also active in multiple industry- and network organizations.

Disphar's supplier-, consumer and service relations have not changed since the acquisitions. Clients are still located in Europe and Asia while the market scope is still mainly Europe and for a minor part the Netherlands. These relationships are still considered to be of importance for the development of innovative products and processes. Also is Disphar free to select its main service relations. Some changes however occurred in the share of the regional labour force within in the

company. An increasing number of the employees (15 percent) and job applicants are recruited outside of the Netherlands in other European countries or Asia. This can be related to the high application requirements set by the company for new employees. Over 80 percent of the current employees are graduated on University level of higher (PhD). Therefore the qualified pool of potential Dutch candidates is rather small. The remaining part of employees is still derived from the university cities with pharmaceuticals degrees. Although third-party co-operations continued to exist after the acquisition, an increased share of partners are companies within the Nordic Group; in essence, other subsidiaries located mainly in Europe. The reciprocal exchange of routines to other Nordic's subsidiaries is a distinctive element in the strategy of Disphar. The co-operation relationships of Disphar are still focused on R&D and the development of innovative products and processes. An example of an interfirm co-operation is a partnership with Activis a neighboring pharmaceutical firm in Baarn. They share exhibition stands, restaurants and airplane but also collaborate in research projects. Because the two companies are located next to each other it is easy to maintain relationships. However, Disphar indicated that if this was not the case, the two firms had been become partners in anyway.

Contrarily to Disphar and Pharma Bio Research, Katwijk Farma witnessed changes in the location of its supplier-relations. An increasing proportion of pharmaceutical ingredients is now coming from Asian suppliers. Dutch suppliers almost belong to the past as their share has decreased. The focus on the Dutch consumer market has been extended to other European countries since the acquisition. Supplier- and consumer linkages are still considered to be critical in the development of innovative products and processes. The predominance of local service providers still exists after the acquisition. Also Apotex Nederland remains autonomous in choosing its service relations. The share of regional employees within the firm is still characterized by a overwhelming local orientation with people from Leiden as the great majority. Among the group of interviewed subsidiaries, the ratio of highly educated employees is the lowest with a ratio of 30 percent. The number- and purpose of educative partnerships has not changed since the acquisition. Neither did they the number- and function of interfirm co-operations. These partnerships are aimed at market- and supply chain collaborations. Co-operations partners are still located in the Netherlands, and some of them are based at the Leiden BioScience park (cluster of biotech and to a lesser extent pharmaceutical companies).

Since Wyeth is part of the world's largest pharmaceutical company, the subsidiary witnessed a number of changes in both their mandate and relationships. In terms of supplier-relations, no changes have been observed. As the core activities of Pfizer in the Netherlands still focus on the sale and marketing of their own pharmaceutical products, only the name of the distributor (Pfizer instead of Wyeth) has changed. Other supplier-relationships focus on advertising agencies and printing companies. However, an important difference is that Pfizer Nederland is not responsible for the development of a distinctive sales and marketing campaign. And mentioned earlier, these campaigns are outlined and developed at an international (European) level. Therefore the relationships are no longer of importance for the development of innovative products and processes (sales and marketing campaigns). The nature and location of consumer- and service relations have not changed since the acquisition. However, in most cases Pfizer Nederland makes use of the service providers preferred by

the headquarters. Also no changes (at firm level in general) in the labour relations occurred. A very small portion (5 percent) of the employees is recruited outside of the Netherlands. The ratio of highly educated employees is approximately 90 percent. Since the clinical research branch of Wyeth has been closed after the acquisition, all educational activities focused on clinical research have been terminated. Although the number of interns has been reduced still some students (mainly HBO) are accommodated with internship places. Pfizer's co-operation-relations based on the creation of knowledge (on serving markets) are still situated in the Netherlands and Europe and considered as important for the development of innovative products and processes.

Also Pharmacin International witnessed a number of changes in their value chain relationships after being acquired by the India based pharmaceutical Aurobindo. An increased portion (Aurobindo did already have supply agreements with Pharmacin) of Pharmacin's supply is manufactured in Aurobindo's plants situated in India. The interviewee also emphasized the long-term arrangements between suppliers and demanders that exist in the pharmaceutical industry. It is not common to change long standing relations with suppliers especially when it comes to the development of products in which suppliers play an important role. The majority of the clients is still located throughout Europe and the Netherlands. The latter region has become more important since the introduction of Pharmacin's own label on this market. Linkages with these customers are not important at all for the development of innovative products and processes. After the acquisition, Pharmacin is still autonomous in choosing its service partners, both high- and low skilled. Although the number of employees increased after the acquisition, there is still a geographical breakdown between low- and high skilled (about 40 percent of the workforce) employees. Also no changes in formal partnerships with educational institutions have occurred since the acquisition. Pharmacin sporadically offers interns a placement at the company. Neither did the interfirm collaboration type and location of partners, which are still mainly situated in India, Europe and the Netherlands. As previously indicated, the geographical proximity is often not considered of great importance in choosing collaboration partners. The shipping costs are relatively low (compared to other industries) and research results are commonly easy to interpret and exchangeable between the partners. Despite the geographical indifference, the role of these linkages is large in the development of innovative products and processes.

Much has been said and written about the two consecutive acquisitions of Organon by Schering-Plough and Merck. Following the acquisitions numerous developments, both within and external to the company emerged. After Merck had taken an axe and closed down the R&D site in Oss as part of the worldwide restructuring program<sup>35</sup>, a number of abundant supplier relationships were ended. The same applies to Organon's former customers both located in the Netherlands and abroad. These relationships are however still of great importance to the development of innovative products and processes. With respect to the service relations a number of important alterations have occurred. Merck abandoned Organon's internal service provider as a component of global deal with Johnson

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<sup>35</sup> Merck has planned to cut \$3.5 billion a year by cutting over 16.000 jobs. In total Merck earmarked 16 sites for closure, including 8 R&D units and 8 plants.

Control International. All non-core activities are outsourced to other companies, often global partners of Merck. As a result a number of regional oriented service relations have been ended. Of the 5300 jobs in 2007, approximately 3100 will be left in 2012. 80 percent of all the employees will working in the manufacturing division. The ratio of high qualified employees as a result will drop. In terms of percentages, the share of employees recruited in the region will increase. As a result of the job losses at Organon it is expected the firms in the supply chain of the firm will also suffer. Some argue that 1 FTE at Organon was equivalent to 1 FTE outside Organon. Also the number of partnerships has dropped due to the closure of the R&D site in Oss. As some of the networks relied to a great extent on the funds and manpower of Organon, some fear for the continuation of these networks.

As figure 12 in section 5.2.4 pointed out, Organon BioSciences has previously been one, if not the main initiator of the three top institutes. The plain fact that only one new project has been started (in TI Pharma) since Merck acquired Schering-Plough in November 2009, is likely to be a prelude for what lies ahead when the current projects in which Organon BioSciences participates are finished. Projects in TI Pharma and CTMM are likely to be reduced by a significant part due to the reorganization of Organon BioSciences and consequent job losses in R&D. Organon BioSciences participated in 22 of the 51 projects in of TI Pharma in 2012 (4<sup>th</sup> of February 2012). As most projects were initiated in 2007, 2008 and 2009 and run for four or five years, it is very likely that is participation grade will plunge. The acquisition of Schering-Plough by Merck has been devastating for the participation of Organon BioSciences in networks, both scientifically and public-private collaborations. Another result of the R&D closure is the loss of internship places at Organon and the number of PhD funds. Finally Organon is not able to appoint part-time professors.

This looming picture has caused great distress among scientists, trade unions, local authorities and the national government. Combined efforts of these stakeholders has resulted in the conservation of some of the R&D positions that were earlier announced to be terminated. Nevertheless, the layoffs will be felt all over the Dutch pharmaceutical industry.

### 5.3 Analyses hypotheses

This section analyzes the developed hypotheses in section 3.5. As is mentioned in section 4.7, it is not possible to either prove or disapprove the developed hypotheses. As the hypotheses are however developed according to the theoretical framework outlined in chapter 2 and 3, it will be investigated whether the empirics are in line with the expatiations set out within the hypotheses. This following section provides the basis for the conclusion in the next chapter. For the sake of surveyability, the hypotheses will be discussed one by one.

- 1) *Foreign pharmaceutical MNEs predominantly acquire Dutch firms to enter the Dutch pharmaceutical market.*

Prior to the interviews it was expected that cross-border acquisitions were predominantly market driven. MNEs were expected to acquire foreign firms in order to be able to penetrate new markets. This is however not entirely confirmed by the research outcomes. The acquisition motives are distributed over *natural resource seekers*, *market seekers* and *strategic asset seekers*. However, in a number of cases *efficiency* motives seems to be an important rationale (not mentioned as the main acquisition motive however). It would appear that innovative firms acquire foreign firms mainly to augment their resources and routines (fill their pipelines with new drugs). Firms with a focus other than the development of innovative drugs, appear to acquire foreign firms predominately in order to enter new markets, both geographically and in adjacent industries. It is furthermore noticeable that none of the firms mentioned the regional host environment as a key determinant in the acquisition motive. Intangible firm assets in terms of knowledge and routines (e.g. knowledge about the market and innovative products) did however prove to be important drivers for the acquisition. This is mainly due to the fragmented character of the global pharmaceutical market. Regardless of market size, almost all European markets require different approaches, both in terms of needs and preferences and legality.

- 2) *When the decision-making authority is largely decentralized rather than centralized, the mandate of the subsidiary will be extended in the post-acquisition period.*

It is above all remarkable that all subsidiaries witnessed changes in their activities after the acquisition. Activities have been either added or removed or the market scope of the firm has been either increased or decreased after the acquisition. In essence, all subsidiaries witnessed an evolution which was either positive or negative. The latter occurred in two of the six subsidiaries. Where other firms gained responsibilities, these two subsidiaries lost activities. Both lost their (main) R&D units which were relocated to the home country of the MNE. Five firms also witnessed a change in their market scope of which four gained geographical markets. The research outcomes largely confirm the expectations set out in the hypothesis above. Although the decision-making authority is never fully decentralized, the locus of decision-making authority is rather *decentralized* in three subsidiaries. This means that the subsidiary management takes the initiative in important decisions regarding the subsidiary's strategy. These three subsidiaries witnessed all an increase of their mandate in terms of activities that have been added. Three firms are subsidiaries of very centralized

MNEs with little room for subsidiary initiative. Two of these subsidiaries witnessed a removal of some of their activities.

- 3) *Embedded subsidiaries have compared to disembedded subsidiaries a more central role in the corporate system of the MNE.*

It is expected that embedded subsidiaries are able to develop superior routines by tapping into the regional host environment and transfer these routines into the corporate internal network. By doing so, they secure a central role in this network. Although all interviewees claim a central part (often solely based on size in terms of employees or revenues) for their respective subsidiaries, four firms comply to the requirements for a central role set out in this thesis. Four subsidiaries are regarded to possess a central role in the internal network of the MNE. Each of these subsidiaries have unique routines on which the MNE is depending. However, only two of these firms are considered to be embedded in the regional host environment. Routines of these subsidiaries are developed in reciprocal relationships with regional suppliers and regional interfirm co-operations based on innovation. The other two firms develop their unique routines either in-house, in collaboration with global partners or received these routines after the acquisition by its headquarters. Following these arguments it can be stated that embeddedness is not necessarily a condition to establish (in terms of unique routines) a central role in the corporate network.

- 4) *The interfirm co-operations of the subsidiary with regional partners will be focused on the development of innovative products and processes.*

Subsidiaries use regional interfirm co-operations in order to develop innovative products and processes. In doing so, a subsidiary may increase its mandate and hence its role in the corporate system. Firstly it is important to determine the regional sourcing ratio of interfirm co-operations partners. Four subsidiaries source a substantial proportion of the collaboration partners from within the region. The type of these regional interfirm co-operations range from: market oriented, supply- and customer oriented, focused on outsourcing, subcontracting and focused on R&D and innovation. Two subsidiaries with regional partners focus on the latter type of interfirm co-operations and hence use their regional partners to develop innovative products. They both indicate that these relations are important for the development of innovative products and processes. The two remaining firms that maintain regional relationships focus primarily on the outsourcing and subcontracting of activities to regional partners. One firm indicates that these co-operations are important for the development of new products and/or processes. It can therefore be stated that 3 out of 4 subsidiaries use their regional interfirm co-operation partners to develop innovative products and processes. The two other firms without an orientation towards regional co-operations, source their collaboration partners mainly in Europe. These relationships do however focus on R&D and innovation and are considered to be important for the development of innovative products and processes.



- 5) *Acquired companies that possess unique activities (i.e. activities that the parent firm did not have prior to the acquisition) are able to remain largely autonomous in the post acquisition period.*

On the basis of the main activities of both the target and bidding firm in combination with the acquisition motive is determined whether the acquired firm did have unique activities prior to the acquisition. In three cases the targeted firm did have a number of distinctive activities compared to its parent company. Two MNEs acquired rival firms, whilst the other firm acquired a much smaller counterpart active on a different geographical market. However, as every national pharmaceutical market is considered to be unique (see section 5.2.3) each market requires a distinctive set of routines. Therefore the latter firm is counted as a firm with distinctive activities. As mentioned earlier (see the second hypothesis), three of the four firms with unique activities are considered to have decision-making authority. From this it can be deduced that these firms have remained, to a large extent, autonomous after the acquisition. The research outcomes are in line with the hypothesis above, as three out of four firms with a unique set of activities have decision-making authority after the acquisition. The exception can be attributed to the culture of the parent company referring to both the company- and nation culture.

- 6) *After the acquisition, the internal network of the MNE will provide the subsidiary with substitute relationships.*

The research outcomes largely confirm the theoretical expectations as outlined in hypothesis. Five out of the six subsidiaries witnessed a change in some of their relationships. Some of these relations were sourced locally. This applies particularly to service firms which are in two cases replaced by global partners of the parent firm. As a result of the acquisition, one firm sourced knowledge within the internal network of the MNE instead of regionally. In the two other cases, global oriented supplier relations were substituted. One firm did not witness any changes in its relations (i.e. relationships replaced by the parent). This is probably attributable to its unique sets of activities (see hypothesis number 5). These outcomes seem rather contrasting to the earlier mentioned degree of autonomy of three subsidiaries. However, it is noted that a subsidiary can never be entirely detangled from its parent firm. As long as the important decisions are taken by the subsidiary, the subsidiary is considered to be (largely) autonomous.

## 6 Conclusion and recommendations

This chapter will provide an answer to the research question(s) developed in chapter 1. The final conclusion is found in section 6.2. Also some recommendations for further research will be given as well as policy recommendations. These recommendations are outlined in section 6.3. First this chapter will evaluate the theories that have been used in this thesis.

### 6.1 Theoretical evaluation

Although not statistically tested, the research outcomes in chapter 5 largely support the theoretical expectations as outlined in chapter 2 and 3, since 5 out of the 6 developed hypotheses have 'proven' to be in line with the theory. Only the third hypothesis was not in line with the theoretical framework. Since the number of interviewed firms is particularly small, the outcomes of the interviews may not be representative for the entire population. In essence; the research outcome is only valid for the interviewed subsidiaries.

This thesis predominately uses two theoretical approaches as building blocks for the theoretical framework and the hypotheses. International Business (IB) theories focus on FDI- and international trade patterns of MNEs. IB theories aim to explain the international trade pattern of countries (and at later stages, firms) by shedding light on the costs advantages created by differences in labor productivity (Adam Smith 1776), law of comparative costs advantages (Ricardo 1817), labour and capital differences between countries (Heckscher 1913 & Ohlin 1933) and trade policies combined with investments in human resources in countries (Travis). In years of prolonged worldwide economic growth (1950-1960) the attention of IB-scholars shifted towards explaining foreign direct investments of multinationals. During this period, Pfizer and Wyeth penetrated the Dutch pharmaceutical market while Organon expanded its business across the world through its subsidiaries. IB-Scholars developed a number of theories explaining the FDI patterns of multinationals. Some of these theories have been used in this thesis including the Product Life Cycle Model (Vernon 1966) and the Eclectic paradigm (Dunning 1979, based on Hymer 1960). The latter theory can be seen as synthesis of all the previous developed (mostly) IB-theories. Although the country's host environment already played a part in one of the first theoretical approaches (MNEs don't have knowledge about the foreign market), the role of the regional host environment has always been a passive one in subsequent theories (Vernon's model and the transaction cost approach). Later versions of the Eclectic Framework and other theories explaining FDI, enhanced the role of the host environment in determining the evolution of the subsidiary. According to Economic Geographers (among others), IB-theories explaining the establishment and evolution of subsidiaries are however still deficient. In order to amplify on these theories, perspectives of the Evolutionary Economic Geography (EEG) have been used. Based on the seminal work of Nelson & de Winter (1982) EEG-scholars aim to explain the *uneven* distribution of economic activities and firms in space as an evolutionary process influenced by historical processes, path dependence, lock-in, creative destruction, firm dynamics, routines and core competences (Boschma & Frenken 2006). According to Jacobs et al. (2010) the regional host environment must be conceptualized as a relational arena in which subsidiaries are embedded. Subsidiaries are not longer seen as cathedrals in an arid desert

(Grabher 1994) but can *use* the regional host environment to develop superior routines. To do so, subsidiaries must become embedded in the regional host environment by developing reciprocal relationships with regional actors. Thereby transferring (both voluntary and via spillovers) routines to the regional host environment; the process of co-evolution. As territorial embeddedness is the outcome of historical events and an ongoing selection process, this thesis approaches territorial embeddedness as an evolution.

Some of the IB-theories are however still applicable on contemporary developments and spatial patterns of subsidiaries in the pharmaceutical industry. IB-theory can be a valuable strand of literature in describing the evolution process of foreign subsidiaries (e.g. Birkinshaw) and determine the motivation behind foreign acquisition (especially the Eclectic framework of Dunning). Also, rather forgotten and historic theories of international trade and FDI patterns can be applied in this thesis. An example is the role of transportation costs in the spatial distribution of MNE subsidiaries. Costs of transportation (due to size and volume) of pharmaceutical ingredients and –products are rather low (compared to other industries). As a result, MNEs can disperse their chain functions globally without compromising costs advantages.

This thesis assumes that the degree of territorial embeddedness is the outcome of a firm's embeddedness prior to the acquisition, the acquisition rationale and subsidiary evolution. As the former two are definite and invariably (although not less important) after the acquisition, much attention has been paid to the drivers of subsidiary evolution. The central hypothesis proposes that when subsidiaries witness changes in the scope of business activities and/or geographical scope over time, the degree of territorial embeddedness in the regional host environment will subsequently evolve. It is assumed that a mandate reinforcement is associated with an increase in territorial embeddedness and vice versa as the relationships in the region diminish. When a pharmaceutical R&D unit is relocated, the subsidiary loses relationships with universities, hospital and clinical service providers. IB-scholars provide three factors determining the evolution of the subsidiary. The first distinguished determinant is the headquarters' strategy converted into hierarchies of structure and the locus in decision-making authority. Secondly, IB-scholars label subsidiary initiative as driver of evolution. This strategy is the outcome of initiative, taken by the subsidiary management, degree of autonomy and role the in the corporate system. Subsidiaries are thereby subject to the HQ attitude towards initiatives, translated by the strategic control and HQ strategy. The third determinant is the regional host environment comprising the cultural environment, legal conditions and economic conditions. According to the IB-literature, the host environment *determines* the evolution of the subsidiary. However, according to EEG-scholars the host environment must be conceived as a *relational* arena in which subsidiaries and their external network *co-evolve*. It was assumed (based on EEG theories) that subsidiaries collaborate with regional partners in order to develop routines. The development and transfer of routines into the corporate network allows the subsidiary a more central role in the network and an increase of its mandate (i.e. evolution of the subsidiary). Hence, the subsidiary increases its territorial embeddedness in the regional host environment. However, this theoretical foundation is fairly controversial and raises a causality dilemma as subsidiaries must be embedded in the regional host environment to develop new routines and hence evolve.

Summarizing, without subsidiary evolution no evolution in embeddedness will occur and at the same time, without embeddedness evolution no subsidiary evolution will occur. Therefore this thesis proposes a different approach to explain subsidiary embeddedness evolution. Embeddedness evolution must be seen as a virtuous circle in which events (subsidiary evolution and embeddedness evolution) reinforce itself through positive feedback. The virtuous circle can be transformed in a vicious circle (lesser degree of embeddedness → loss of mandates and vice versa). External factors that can break the virtuous/vicious circle are the strategies of both the subsidiary itself and the MNE's HQ that can alter the direction of the subsidiary. The circles are sparked by the initial degree of embeddedness of firms prior to the acquisition.

This thesis proposes to break down the regional host environment into two parts<sup>36</sup>. The first part is based on the *determining* approach of most IB-scholars and comprises legislation of both regional-, national- and European level, economic conditions (e.g. infrastructure, labour supply etc.) and cultural aspects. This host environment is the same for all subsidiaries. The second part is the *relational* arena emphasized by EEG-scholars. Each subsidiary will consider this environment as different, due to differences in their set of routines. The way subsidiaries approach, use and benefit from the host environment is depending on historical events, developed routines and competences of both the regional actors and subsidiaries.

## 6.2 Conclusion

This thesis addresses the implications of cross-border acquisitions on a firm's territorial embeddedness in its regional host environment. Is this degree becoming greater or lesser after a foreign acquisition, or does the acquisition did not have an effect at all? The central research question in this thesis was stated as follows:

*To what extent are pharmaceutical firms, after a foreign acquisition, embedded in the regional Dutch economy and which factors determine this territorial embeddedness?*

After developing a theoretical- and conceptual framework based on insights from the IB- and EEG literature, a number of hypotheses had been developed to test whether the observations were in line with the developed framework. These observations were gathered by interviewing six representatives of acquired pharmaceutical firms, five expert interviews and secondary resources. The interviews have revealed some interesting characteristics of the evolution of the acquired firms, and their territorial embeddedness in their regional host environment.

Firstly, it is important to put an end to, a by politicians and media widely conveyed misunderstanding. On average, Dutch pharmaceutical firms have more often been acquired by foreign bidders than vice versa over the past ten year. This has not been a development embarked

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<sup>36</sup> These two parts should not be considered as Chinese walls. Both parts influence each other. Legislation for instance determines the way and extent to which firms are allowed to exchange knowledge while collaborations can alter for example the infrastructure of a region.

just recently as some opinion makers and politicians may suggest. Also the total number of cross-border acquisitions has not increased alarmingly, but has been rather fluctuating throughout the years under research. Pharmaceutical acquisition activity however has increased dramatically worldwide in the last decade. After the gun-smoke of a period marked by unprecedented global M&A activity has cleared, it is time to take stock of the acquired firms on the Dutch pharmaceutical market.

The most prominent cross-border acquisition on the Dutch pharmaceutical market was obviously the acquisition of Organon BioSciences by Schering-Plough (€ 11 billion) in 2007, and the subsequent acquisition of Schering-Plough by its domestic rival Merck (MSD) in 2009. Also the megamerger of Pfizer-Wyeth fits into the global consolidation picture of the pharmaceutical industry. As with the Merck-Schering-Plough merger, the acquisition of Wyeth by Pfizer has left its traces on the Dutch market. Both acquisitions were motivated by looming patent expirations and deteriorating R&D productivity. After the deal was sealed, both acquirers announced extensive global restructuring programs. Both Pfizer and Merck decided to phase out their Dutch R&D sites with far-reaching consequences for the employees of Organon Biosciences. As this thesis showed however, many pharmaceutical giants are streamlining their R&D activities into leaner operations. Both Pfizer and Merck have phased out several R&D sites worldwide. This phenomena is not only restricted to the Dutch pharmaceutical industry. Other (high tech) industries have also reconsidered the geographical location of their research sites. Also Dutch MNEs, including: Phillips, AkzoNobel and Shell have recently relocated some of their foreign research sites to the Netherlands. Although some may argue so, the loss of research and development activities to other countries is thus not directly attributable to the (perceived) deteriorated investment climate for pharmaceutical firms in the Netherlands.

The other surveyed acquisitions in this thesis were isolated acquisitions. In terms of evolution and territorial embeddedness this difference has proven to be an important determinant.

All six surveyed subsidiaries witnessed an evolution of their activities. Pharmacin B.V., PRA Nederland, Apotex Nederland B.V. and Disphar International have gained business activities and hence gained mandate in the period following the acquisition. The same companies also increased their market scope after the acquisition. Contrarily to these four firms, Organon BioSciences and Wyeth experienced a decrease in their business activities. In terms of territorial embeddedness, both firms became to a lesser extent embedded in their respective regional host environments, after the foreign acquisition, as is shown in table 7. Organon BioSciences dropped a box from a facilitator to a scout. The location of supply chain relationships and collaboration partners, shifted on average towards a more international level, instead of a national- or even regional level. Due to the large scaled global reorganizations, both subsidiaries were deprived of their R&D units. Also the number of employees decreased significantly in these subsidiaries. Finally, both subsidiaries did not secure corporate repeat investments of any significance after the acquisition. Especially the disembeddedness of Organon BioSciences will have far-reaching consequences for both the scientific community, the Dutch pharmaceutical industry in general and the regional economy in Oss. Organon BioSciences used to be an anchor tenant in a number of collaboration networks. Both locally- and national oriented. It remains to be seen how these networks will cope with the future absence of

Organon BioSciences. Furthermore, Organon BioSciences has always been an important education place for students studying pharmacy, biologics or chemistry by providing internships and funded PhD places. Although most researchers were not residing in Oss but in nearby cities, the phasing out of the R&D site will have (indirect) effects on the labour market in Oss, enhanced by redundancies in supportive-, facility services and production functions.

Both subsidiaries show some important similarities. Pfizer and Merck both structure their foreign subsidiaries in a uniform manner. All subsidiaries are managed in the same way, with little consideration for local affairs in terms of management styles and cultures. This is largely due to the very centralistic management style of United States based enterprises. Subsidiaries are only allowed little leeway in the daily management. Both Organon BioSciences and Pfizer Nederland are not in a position to formulate their own strategy. Due to the intervention of different stakeholders, Organon BioSciences was able to retain some of its R&D in Oss. Therefore the position of Organon BioSciences deviates from other subsidiaries in the corporate network of Merck, and is somewhat more central. The acquisitions of both Wyeth and Schering-Plough were largely motivated by the expansion and broadening of the pipeline with potential blockbusters varying from compounds in phase one studies, to drugs already in the registration process.

Contrarily to Organon BioSciences and Pfizer Nederland, the remaining four surveyed subsidiaries became more embedded (albeit marginally) in their regional host environments after the acquisition. The locational decisions stemming from the dialogue between the subsidiary and its headquarters, resulted in a greater degree of territorial embeddedness. Despite this increase in territorial embeddedness, all four firms have remained in their respective categories as set out in section 4.6 due to the marginal increase (see figure 13). The location of the supply chain relations remained unchanged after the acquisition. Supplier- customer- and service relationships remained a national or even regional affair for Apotex Nederland and PRA Nederland, whilst Pharmacin B.V. and Disphar International continued to source their supply chain related relationships more internationally. The importance of collaboration partners in the development of innovative products and/or processes also remained unchanged after the acquisition for all four subsidiaries. Game changer in the degree of territorial embeddedness for these firms, are the final three indicators showed in table 7. All four subsidiaries witnessed an increase in their mandate, either in terms of a broadened market scope, or an increase in business activities (or both). Also the number of employees has increased in the period after the acquisition. Apotex Nederland and PRA Nederland secured repeat investments after the acquisition.

A number of factors are likely to determine the degree of territorial embeddedness of the subsidiary in its regional host environment. The first distinguished factor in this thesis is the *motivation* or *rationale* of the acquisition. Corporate cannibalism, as seen be seen at Pfizer and Merck, is likely to be followed by disembeddedness of the concerned subsidiary. MNEs that acquire foreign firms to exploit their firm specific assets on a foreign market, are likely to achieve the opposite for their subsidiaries (i.e. increased embeddedness). The second, by this thesis distinguished factor, is the *evolution of the subsidiary*. Subsidiary evolution shows consistencies with territorial embeddedness evolution. As mentioned in the theoretical evolution, this consistency must

be seen as a virtuous circle, since the direction of the dependency is theoretically inconclusive. Furthermore, this thesis distinguishes a number of other interrelated factors that revolve around the concept of *autonomy of the subsidiary* thereby focusing on the level of *initiative-taking* and the locus of *decision making authority*. This thesis shows that subsidiaries with a great deal of autonomy (compared to their depended counterparts) are likely to be more embedded in their regional host environment. Determinant of the level of autonomy is the prevailing *corporate culture*, expressed in different management styles. MNEs can either implement a management style based on interventionist policies or a laissez fair driven approach. Very centralized MNEs (Pfizer, Merck and to a lesser extent also Aurobindo) manage their subsidiaries according to the former style, whilst more or less decentralized MNEs (PRA, Nordic Group and Apotex) implement a laissez faire strategy. As the theory claims, the possession of *unique business activities* is also a good predictor of the degree of territorial embeddedness. Finally, this thesis distinguishes the *regional host environment* as a factor that determines the degree of territorial embeddedness. The first part of this environment (see section 6.1.) comprises laws and legislation, general economic conditions and the Dutch culture. Of particular interests is the Dutch reimbursement- and pricing policy. The Dutch cautious attitude towards to use of medicines is influencing the market conditions for pharmaceutical firms. Also the set of specific Dutch (compared to other European countries) laws and regulations concerning the approval- and market authorization process of new drugs, results in a unique market. This *determining side* of the host environment is amplified by the *relational assets* of the host environment. Subsidiaries can establish relationships with local suppliers, customers and service firms and become dependent on these supply chain oriented relationships. Also regional collaboration networks can strengthen the degree to which the subsidiary is embedded in its regional host environment.

Figure 13: Territorial embeddedness prior and after acquisition

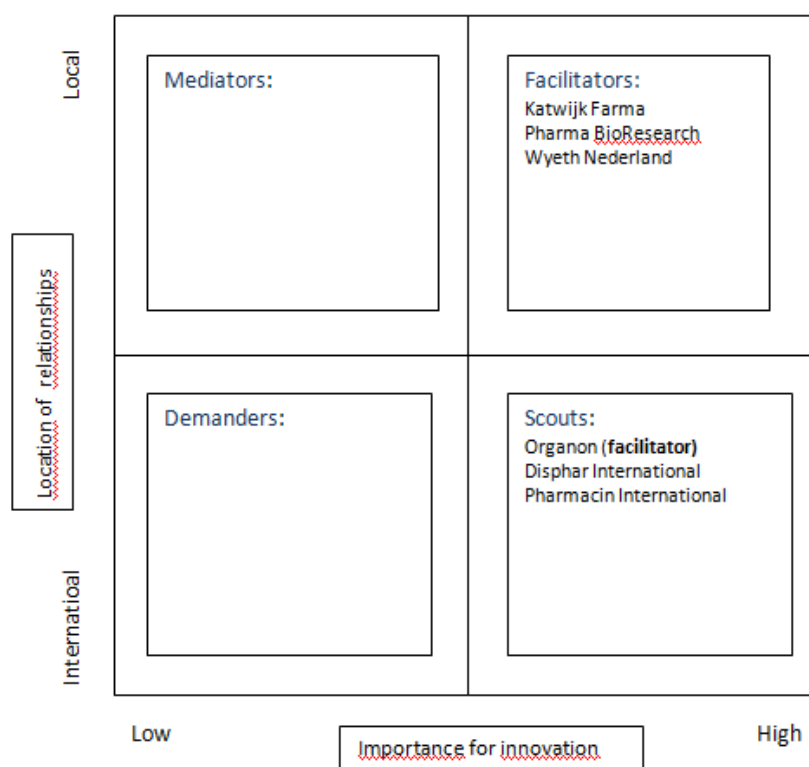


Table 7: Territorial embeddedness prior and after acquisition

	Katwijk Farma	Pharma BioResearch	Organon	Wyeth	Disphar	Pharmacin
Location prior	2.57	2.16	2	2.14	1.28	1.28
Location after	2.57	2.16	1.83	2	1.28	1.28
Innovation prior	2.75	3.66	3.75	3.25	3.75	3
Innovation after	2.75	3.66	3.25	3	3.75	3
Scope of activities	↑	↑	↓	↓	↑	↑
Nr of employees	↑	↑	↓	↓	↑	↑
Repeat investments	↑	↑	-	-	?	?



### 6.3 Recommendations

At the conclusion of this study, a number of recommendations is given. The first part of this section will be dedicated to policy recommendations as to how the Dutch government strategies should be developed according to the recent developments in the pharmaceutical industry. Also the role of other governmental institutions, including local governments and investment agencies is addressed here. Thereby this section is contributing the social relevance of the thesis as first outlined in section 1.4. The second part of this section proposes some recommendations for further research addressed to the academic community. Also, the research used in this thesis is briefly evaluated. As it is observed in this research, the acquisition of Organon BioSciences exemplifies the darker side of an acquisition scenario, but does however not tell the entire story. Despite the catastrophe for the Dutch innovative pharmaceutical- and adjacent industries of the Organon BioSciences acquisition, other surveyed firms show the positive side of cross-border acquisitions by becoming more embedded in their regional host environment and as a consequence, contribute the Dutch (regional) economy. Despite the limitations of this research (see next section), some recommendations can be derived from the observations.

It is obvious that the Schering-Plough- Merck merger could never be prevented, or blocked by the Dutch government. Neither could the following global restructuring programs. The research and development sites in Oss were regarded as redundant and hence closed down. Limited in its legal options to intervene in the removal of thousands of high-skilled jobs, the Dutch government did well to retain some of the superior technologies and routines in Oss. In a decade in which pharmaceutical giants build up their deal-making muscles, Organon BioSciences was too small to continue as an independent company. The adage 'acquire or be acquired' was certainly on during the mid-2000s. Once Organon Biosciences was sold to Schering-Plough, the subsidiary was subject to the very centralized corporate strategy of the headquarters in the United States, in which corporate interests were (and are) prevailed over the interests of other (local) stakeholders. Now the largest turmoil since the acquisitions and announced redundancies have largely disappeared, the government can use its influence again to retain foreign subsidiaries. In this particular case, policy strategies should be aimed at the evolution of business activities at MSD Nederland. The subsidiary has to become a central player in the network of Merck again. Dutch governments and regional investment agencies (in this case the Brabant Development Agency or BOM) can make a valuable contribution by establishing personal and continuous relationships with Merck's executive board. Both parties should highlight the strengths of the Dutch knowledge economy. Authorities can also stimulate collaborations between the new established *development center* in Oss and regional knowledge institutes. By developing new administration routes for drugs in emerging markets, Organon BioSciences can gain a central role in Merck's corporate network. As a result, Organon BioSciences is less likely to be affected by another wave of layoffs. As subsidiary evolution and embeddedness are supposed to go hand in hand, the region will equally benefit from the revived Organon BioSciences.

The plain fact that Dutch firms are being acquired on a more or less constant level is an indicator of the strengths of the Dutch pharmaceutical industry. The constant growth of new businesses outweighs the acquired and bankrupt firms. This notion should be of major unconcern for the

government. An important development is collaboration between universities and young firms. A significant proportion of these new established firms are originally spin outs from universities. Some testimonials of the many examples are: OctoPlus, Crucell, Pharming, Galapagos and Centocor. Governments should stimulate the collaboration between universities and firms. For example exchange programs could lower the threshold for researchers to start their own venture and commercialize their research projects. Once these firms obtain a certain size (in terms of revenues and employees) they become an interesting acquisition target or can aim to acquire another firm themselves. An example of this trend is Crucell which tried to merge with Wyeth, but was eventually acquired by Johnson & Johnson in 2010. The U.S. based giant has not announced restructuring programs since the acquisition. An explanation for this could be embeddedness of Crucell in the Leiden Bio Science Park. Research companies, public/private companies and the University of Leiden are all situated in proximity to each other. Both local and national governments should continue to encourage (foreign) firms to establish a site in this park. Related to this cluster of actors are the networks of firms, governments, research institutes and universities in so-called top institutes (e.g. Top Institute Pharma). Almost all foreign subsidiaries have participated in a number of these private/public projects. By participating in these networks, foreign subsidiaries are becoming more embedded. Although Organon BioSciences will be a great loss for the network, governments must stimulate both foreign and domestic firms to participate in these networks.

Therein lays an obstacle for the government. From a government point of view, the importance of relationships with foreign subsidiaries is rather easy to understand. Foreign subsidiaries however look at these relationships quite differently. None of the interviewed subsidiaries considers the government as an important mechanism to drive prosperity. Following the reasoning of these subsidiaries (both embedded- and disembedded firms), it might be expected that the role of the government in the embeddedness of subsidiaries is rather small. However, the attitude of firms is more likely to stem from ignorance and unfamiliarity regarding the benefits of relationships with (local) governments. The government is often regarded as an organ that solely establishes and monitors (restrictive) laws and prohibitions for companies. Herein lies an opportunity for governments to inform subsidiaries more thorough about the possibilities which can be offered by governments. Governments can help to attain additional activities by stimulating entrepreneurial activities and the establishment of network opportunities for subsidiaries. Governments should however be selective and discriminate between firms. Acquisitions of firms that have already been merged into another parent company (i.e. that are already a subsidiary) reduce the opportunities of the government to exert influence (as for example the acquisition of Schering-Plough by Merck). Stand alone acquisitions offer greater opportunities for the government. Contrarily to portfolio acquisitions, the MNE here specifically selects the company with its relationships in the region. Also the degree of autonomy and the degree of initiative taking of the subsidiary will determine whether or not government involvement is likely to be successful. The last part of this section will address two specific functions of pharmaceutical subsidiaries in the Netherlands.

In the absence of a uniform European legal framework, every national market requires another approach, both legally and in terms of local consumer preferences. Thus, under circumstances in

which a local approach is required, firms are forced to establish regional sales and marketing offices. As a result, most Dutch pharmaceutical subsidiaries are equipped with a marketing and sales function. In order to meet to the requirements described above, subsidiaries initiate regional collaboration networks and take part in (regional) network organizations. As a result, these subsidiaries become embedded in their regional host environments. However, talks about a unification of the European pharmaceutical market are increasing. Although such agreement still seems far away, authorities should be prepared for such a deal. If a European unification is realized, danger is looming for Dutch subsidiaries. In order to accomplish economies of scale, MNEs will have large incentives to concentrate their sales and marketing offices in one, or a few countries.

Also a considerable number of subsidiaries have activities in research and development, especially in clinical research. Firms regard the excellent facilities, infrastructure of hospitals and intensive collaboration networks between firms, universities and research institutes. Dutch laws and regulations are also still in favor for the retention and establishment of foreign subsidiaries, compared to other European countries. In order to keep this leading position, authorities must keep investing in the above mentioned strengths. Cutbacks in education and science do not contribute well.

In times of severe cutbacks, the government must make choices. This also applies to the policy regarding cross-border acquisitions in the pharmaceutical industry. Due to the increasing attention for biopharmaceutical companies by pharmaceutical companies, more incoming cross-border acquisitions are likely to follow. This should be understood as a sign of appreciation for the quality of Dutch pharmaceutical -and biopharmaceutical companies, rather than a deteriorated Dutch investment climate. This thesis has shown that the majority of acquired firms becomes more embedded and hence contributes to the Dutch (regional) economy. The Netherlands has no need for rigid laws that enables the government to block foreign acquisitions. Primary focus should be on the new entrants and the establishment of collaboration networks such as TI Pharma. Subsequently, each acquisition must be seen as a unique event and judged accordingly. Not every MNE is *pulling a Pfizer* on its acquisitions.

### ***Recommendations for further research:***

The research conducted in this thesis has uncovered a number of factors determining the territorial embeddedness of pharmaceutical subsidiaries in their regional host environment. Important outcomes have been achieved by using qualitative research methods. *A posteriori* can be stated that both the research design as the research methods have proved their value in this research. Semi-structured interviews complemented with other resources revealed some detailed information regarding the embeddedness of subsidiaries. Subsequently, these research methods were suitable to determine the motivation of the MNE for the acquisition, the evolution of the subsidiary afterwards and the factors determining the evolution of the subsidiary. This research however also has a number of shortcomings. Firstly, since unsuccessful acquisitions (i.e. subsidiary is phased out after the acquisition) are not considered, this leads to biased research outcomes. Further

research needs to be done to determine the failure rate in cross-border acquisitions of Netherlands based firms. Secondly, since the sample used in this research is rather small, the results cannot be generalized. Further research relating to the embeddedness of foreign subsidiaries can use structured questionnaires to overcome this shortcoming and statistically test the outcomes of this research. Next to these key shortcomings, some other related areas are interesting to investigate. A comparison between European countries can be drawn to determine the influence of the Dutch government in embedding foreign subsidiaries and stimulate their evolution. This thesis has taken the entire value chain of the pharmaceutical industry. Future research can break up this chain and focus the research on a particular function. This can be however a daunting task due to the limited number of pharmaceutical firms.

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## Appendix a: Interview questionnaire

### *General characteristics subsidiary*

- 1) Name of the subsidiary
- 2) Name firm prior to the acquisition
- 3) Year of initial establishment on this location
- 4) Year of acquisition
- 5) Name of the parent firm
- 6) Nationality of the parent firm
- 7) Name interviewee
- 8) Function of the interviewee
- 9) What is the main business of the parent company?
- 10) Is this subsidiary supervised by a regional headquarters?

### **Motivation of cross-border acquisition**

- 11) What was the main reason to undertake the cross-border acquisition?  
(Natural resource seeking, market seeking, strategic asset seeking or efficiency seeking)
- 12) What was to main reason to engage in a cross-border acquisition (rather than a greenfield investment)?
- 13) What were the main reasons to acquire this firm?
- 14) What were the five most important characteristics of the regional host environment in the acquisition decision?
  - a. Availability of a qualified workforce (Labour market);
  - b. Political structure (regulations/tax rate/legal structure/bureaucracy);
  - c. Presence of a cluster of related firms;
  - d. Competitive business environment (presence rival firms)
  - e. Infrastructure (both physical and organizational)
  - f. Natural endowments
  - g. Culture
  - h. Innovation climate
  - i. Availability suppliers, customers and service firms
  - j. Location nearby already existing co-operation partners

k. Other ....

15) How important were intangible assets of the regional host environment as motivation for an acquisition (especially knowledge and human capital)

## **Evolution of the subsidiary**

16) What was the main function of the firm prior to the acquisition? (main activities carried out)

17) Since the acquisition, did any changes in the (main) activities of the subsidiary occur (have been added or removed)?

a. Yes → Which activities have been added or removed?

b. No → What is the main reason no activities have added or removed?

18) What was the market scope of the firm prior to the acquisition?

19) Since the acquisition, has this scope changed over time?

20) How would you describe the role and position of the subsidiary in the corporate system of the MNE? Also compared with other foreign subsidiaries (corporate status)

## **Determinants of subsidiary evolution**

21) Where are the important decisions regarding changes in the main activities taken (Subsidiary, HQ/RHQ)

22) How would you describe the role of the strategy of the subsidiary (subsidiary initiative) in the development of the mandate carried out by the subsidiary? (degree of autonomy)

23) How would you describe the role of the HQ (HQ strategy) in the development of the mandate carried out by the subsidiary

24) To what extent has the regional host environment influence on the changes of activities carried out by the subsidiary?

## Economic spatial relations of the firm prior to the acquisition in the regional host environment

- 25) What was the local **sourcing ratio** of this subsidiary (where were the suppliers located)?
- .. % from the home country of the MNE
  - .. % from third countries
  - .. % domestically owned firms from the regional host environment
  - .. % Foreign owned other subsidiaries in the regional host environment
- 26) What is the regional **sourcing ratio** of this subsidiary (where are the suppliers of this subsidiary located)?
- .. % from the home country of the MNE
  - .. % from third countries
  - .. % domestically owned firms from the regional host environment
  - .. % Foreign owned other subsidiaries in the regional host environment
- 27) Were the relationships with these suppliers important in the development of innovative products/processes? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure
- 28) Are the relationships with these suppliers important in the development of innovative products/processes? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure
- 29) What was the location of the **customers** (key accounts/users) of this subsidiary?
- .. % of the customers was located outside of the Netherlands
  - .. % of the customers was located in the regional host environment (domestically owned)
  - .. % of the customers was located in the regional host environment (foreign owned subsidiaries)
  - .. % of the customers was located in the home country of the MNE.
- 30) What is the location of the **customers** (accounts/users) of this subsidiary?
- .. % of the customers is located outside of the Netherlands
  - .. % of the customers is located in the regional host environment (domestically owned)
  - .. % of the customers is located in the regional host environment (foreign owned subsidiaries)
  - .. % of the customers is located in the home country of the MNE
- 31) Were the relationships with these customers important in the development of innovative products/processes? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure.

- 32) Are the relationships with these customers important in the development of innovative products/processes? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure.
- 33) What was the location of the main **service relations** (including **high skilled services** as law firms, consultancy firms, IT service firms and other service firms).
- Local
  - Regional
  - National
  - International
- 34) What is the location of the main **service relations** (including **high skilled services** as law firms, consultancy firms, IT service firms and other service firms).
- Local
  - Regional
  - National
  - International
- 35) What was the average share of **employees**:
- .. % Within the region
  - .. % Within the Netherlands
  - .. % Abroad
- 36) What is the average share of **employees** in the subsidiary?
- .. % Within the region
  - .. % Within the Netherlands
  - .. % Abroad
- 37) What is the ratio of high-skilled employees in your company (HBO or higher)
- 38) What was the nationality of the higher management?
- 39) What is the nationality of the higher management and has the management composition changed after the acquisition?
- 40) Did the firm have any partnership programs in teaching and education? (PhD, internships etc)
- 41) Does the firm have any partnership programs in teaching and education? (PhD, internships etc)
- 42) What was the number of **interfirm co-operations** of the firm (including joint ventures, research institutes, universities, membership in networks, industry associations, competing rivals and other firms).

- 43) What is the number of **interfirm co-operations** of the firm (including joint ventures, research institutes, universities, membership in networks, industry associations, competing rivals and other firms).
- 44) What was the type of the co-operations of the firm?
- Market oriented collaborations
  - Supply and customer oriented
  - Focused on R&D and innovation
  - Outsourcing and subcontracting
- 45) What is the type of the co-operations of the firm?
- Market oriented collaborations
  - Supply and customer oriented
  - Focused on R&D
  - Outsourcing and subcontracting
- 46) What was the location of the collaboration associates?
- .. % Within the region
  - .. % within the Netherlands
  - .. % international
- 47) What is the location of the collaboration associates?
- .. % Within the region
  - .. % within the Netherlands
  - .. % international
- 48) How important was the geographical proximity in these collaborations? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure
- 49) How important is the geographical proximity in these collaborations? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure
- 50) What was the importance of these co-operations in the creation of new knowledge and innovative products/processes? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure
- 51) What is the importance of these co-operations in the creation of new knowledge and innovative products/processes? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure
- 52) How important were personal networks (both business and informal) in establishing and maintaining this collaborations? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure
- 53) How important are personal networks (both business and informal) in establishing and maintaining this collaborations? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure

- 54) What was the role of different government bodies in doing business? (including regional, national and international bodies and PPPs). Referring to advice, restrictive and opportunities created by these bodies.
- 55) What is the role of different government bodies in doing business? (including regional, national and international bodies and PPPs). Referring to advice, restrictive and opportunities created by these bodies.
- 56) Apart from the above described changes in spatial relationships, which other developments do you consider as important after the acquisition?

### **Current competitiveness of the regional host environment**

- 57) How would you assess the current competitiveness of this location regarding:
- a. Availability of a qualified workforce (Labour market);
  - b. Political structure (regulations/tax rate/legal structure/bureaucracy);
  - c. Presence of a cluster of related firms;
  - d. Competitive business environment (presence rival firms)
  - e. Infrastructure (both physical and organizational)
  - f. Natural endowments
  - g. Culture
  - h. Innovation climate
  - i. Availability suppliers, customers and service delivery firms
- 58) How important are the regional linkages in the development of knowledge and new routines? Ranging from 1 (not at all important) to 5 (very important)  
Very important – important – not important – not at all important – unsure
- 59) Is this subsidiary depending on actors (linkages) within the regional host environment?
- 60) What is the influence of this subsidiary on the regional host environment? (does this firm have influence on the evolution of the regional host environment?)
- 61) Have there been repeat investments on this location since the acquisition?
- 62) How do you perceive the future competitiveness of your current location?

