

MASTER THESIS

---

THE PLACE TO BE:  
A QUANTITATIVE ANALYSIS OF CORPORATE  
HEADQUARTERS LOCATIONS IN LARGE EUROPEAN CITIES

---

By

**S.C. van Beek**

S2943085

University of Groningen – Faculty of Spatial Sciences

**MSc Real Estate Studies**

December 2018

Word count (excl. references and abstract): 8958

Supervisor: Dr. X. Liu

Co-assessor: Dr. M. van Duijn

**Abstract**

This research further expands the existing literature on location strategies of large corporates. Most of the existing research focuses on either an economic-, company- or location perspective from a single country or region. This research combines all these factors into one model and focuses on a multi-country and multi-city perspective. First, the odds of headquarters being located in a particular city has been tested, international connectivity and institutional quality are found to have a positive influence on these odds. Second, given the fact that headquarters are present in a particular city, the influence of variables on the number of headquarters is tested. Again, the earlier mentioned variables are found to have a significant positive influence.

Disclaimer

*Master theses are preliminary materials to stimulate discussion and critical comment. The analysis and conclusions set forth are those of the author and do not indicate concurrence by the supervisor or research staff.*

## INTRODUCTION

Looking at recent economic trends, globalization has been one of the most prominent over the last decades, where large firms emerge as the most important players in this new system. One thing these firms have in common is that their activities are dispersed all over the world. Furthermore, the internal organization of those firms promotes spatial separation of headquarters from production plants. As we already know from previous studies, headquarters are generally concentrated in a very few large metropolitan areas, while production sites are dispersed across a much greater demographic and geographic range.

Companies have a big influence on their surroundings, one could think of the providing of jobs and attracting other companies to the area, which makes it interesting for cities and urban areas to attract corporate headquarters. One of the focus areas of urban development and design is creating an environment that is attracting these companies. Furthermore, the decision regarding the location for a corporate headquarters has a great impact on the company and is therefore an important decision for the company. For example, the tax regime in the area where the company is located has big financial influence on the company, while on the other hand the general economics in that area can have an influence on the company as well. Therefore, it is clear that decisions regarding the location of a company have to be considered relevant due to their influence on the companies' operations.

This importance of headquarter location is further confirmed by the research of Birkinshaw et. al. (2006) who focused on the influence of this location from an international business perspective. Forsgren et. al. (1995) have studied the location of divisional headquarters and looked at the influence of the difference in location between the divisional headquarter and general headquarters. Klier and Testa (2002) also focus on headquarters, by looking at preferred location to locate a headquarters and the influence of demographic factors. Brouwer et. al. (2004) looked at the mobility of firms from a company perspective, by incorporating company related factors like the size and age of the firm. Lovely et. al. (2005) looked at the influence of the corporate headquarters location on the amount of exporting of the company. Henderson and Ono (2008) focused on the influence of the distance to production facilities or outsourcing options when choosing the corporate headquarters location. Davis and Henderson (2008) focused on US firms and the influence of geographic factors, like the presence of a large service industry. Finally, Strauss-Kahn and Vives (2009) also focused on the United States, and on the decision whether to relocate and afterwards on the decision where to relocate. They incorporated both company-related factors and location related factors. The study of Strauss-Kahn and Vives (2009) is the one that resembles this study the most, but they focus on a within-country perspective and cannot tell anything about differences between countries or cities in different countries.

Even though there is a large amount of existing research, the question remains which factors influence, and in what way do they influence, the number of HQs that locate in a particular area. It can be very beneficial for a country, and more specific for a city or region, to attract corporate HQs, due to the influences mentioned above. That is automatically the reason why focusing on the number of HQs is relevant. First, we can argue the importance of the number of headquarters located in a particular city from the perspective of feelings of nationalism and pride. The presence of a well-known multinational firm in a country could create a feeling of pride regarding the fact that the country is able to play a role in the world economy. One could imagine that an increase in the number of headquarters increases this feeling. Of course, the reasoning here is rather simple, which asks for a more thorough and supported argument, which can be found in existing academic literature and will be discussed next.

Second, if we look at existing academic research, the focus shifts towards the activities undertaken by the particular headquarters. As mentioned by Clausing (2010), the creation of jobs stimulates economic activity, which in turn increases the capital stock through investments and results in the ability to increase productivity and growth in the future. Of course, economists would state that the employment level and related factors will be determined by underlying macroeconomic forces. That is why macroeconomic factors will be incorporated in this research as well, to see what the influence on the number of headquarters is. Again, one could imagine that an increase in the number of headquarters would increase the benefits regarding job creation and resulting benefits.

Finally, locations where headquarters are present are more likely to yield high wage jobs, as mentioned by Clausing (2010). A final argument for focusing on the number of headquarters can be extracted from this argument as well, since wage and company profits in general are related to taxation, an increase in the number of headquarters would lead to an increase in taxation benefits for the local government.

Based on recent events, like the Brexit, it can be assumed that headquarter locations are still a relevant topic these days:

*“Panasonic has cited the risk of Brexit upheaval for the decision to shift its European headquarters from the UK to The Netherlands in the autumn. The electronics company on Thursday justified its move by saying that Britain’s departure from the EU may result in changes to the transfer of labour, product, materials, services and data as well as potential fiscal obstacles by the application of different rules and regulations between the UK and EU” (Financial Times, 2018).*

From this statement we extract the question regarding the factors that influence the location of a corporate headquarter and how they influence (i.e. positive or negative) the location of corporate headquarters. The example of the Brexit is a clear example of corporate headquarters reevaluating their location, influenced by economic factors. Furthermore, the assumption can be made that one could think

of a number of other factors that, either positively or negatively, influence these companies to reassess their location.

The existing research mentioned earlier can be roughly divided in two groups, the first one focuses on the static situation, where the headquarters of a firm is not moved. In these studies, the location choice of the company is investigated from the current location and factors related to that location. The second group focuses on the relocation of firms and aims to explain why firms relocate, where the focus is on the previous location of the firm. This study falls in the first group, where current locations are studied. As mentioned above, existing research already provides some information on the location of headquarters. However, as can also be seen from the overview provided above, these studies each focus on a part of the explanation. This study aims to combine more relevant factors than previous studies focusing on this topic. The factors will be related to the current location, more specifically the economic, institutional, geographical and urban factors. Furthermore, this study also combines all these factors within one model, but also focuses on a multi-country perspective. This is even more specific by looking at cities within those countries instead of countries as a whole. By doing this, this study further strengthens the existing literature by combining earlier researched factors into one study and expanding this to a multi-city and multi-country research.

This study focuses explicitly on several important questions. First, from a theoretical perspective, what is the relevance of location for a corporate headquarters? Second, what is the role of a corporate headquarters in both macro- and urban economics? Fourth, from an empirical economic perspective, what is the influence of the employment rate and taxation level on the odds of a headquarter being located in a particular city? Fifth, from an empirical geographical perspective, what is the influence of the number of international flights and the institutional quality on the odds of a headquarter being located in a particular city? And finally, given the fact that headquarters are present, what is the influence of these factors on the number of headquarters located in that particular city?

## **LITERATURE REVIEW**

### *The corporate headquarters*

Corporations have changed over time from a traditionally organized company to a more modern form of the classic corporation. One of the most important stages in this process of change, is the introduction of the so-called 'M-form' organization. The most important changes were with regard to the decentralization of management and hereby enabling them to focus on their primary tasks (i.e. strategic tasks). The first signs of this change date back to the very beginning of the twentieth century (Sloan, 1963). This change in structure was accompanied by an increasing amount of organizational and geographical diversity. Additionally, company management teams started to fulfill more specialized functions which were also a result of this change (Hofer, 1975).

The role and responsibility of a corporate HQ can be divided into two parts. First, there is the 'administrative' role. The most important characteristics of this role are related to the activities that this part of the company performs, the tasks within this role are related to supervising these activities. Chandler (1991) states that this role is related to keeping track of the performance of these business units. Second, we can distinguish the 'entrepreneurial' role, which has a value-creating character. Chandler (1991) states that this role is related to formulating long-term company strategies in order to be able to sustain the corporate resources that are needed to follow these strategies.

When focusing on the location of HQ, limited information can be extracted from existing research. Forsgren et. al. (1995) have touched upon the topic of headquarter locations by looking at the influence of the exercising of power by several actors linked to the company. There is a strand of research which is concerned with the relocation of corporate headquarters, however the primary focus is mainly on the topic of clustering and the results that come from this way of locating the company. In addition to this, these studies approach the topic within a specific city or larger city region instead of across cities or countries (Ghosh, Rodriguez, and Sirmans, 1995; Semple and Phipps, 1982). Another line within the literature is focused on the transfer of stock listings to another country (Bancel and Mittoo, 2001; Pagano, Roell, and Zechner, 2002). However, we can conclude that none of these mentioned studies incorporate both economic and geographical factors at the same time into one research. In the next paragraphs the link between headquarters and economic- and geographical-factors will be made, and therefore the relevance of incorporating these into one study will be indicated.

### *The relevance of location of the corporate headquarters*

Creating a competitive advantage is one of the main focuses of a firm, they can either do this by selecting specific resources or creating their own capabilities, according to strategic management literature. In order to be suitable for a competitive advantage, capabilities have to be firm-specific. Implementing this

strategy is called the use of ‘dynamic capabilities’ with the goal to exploit competencies that are linked to the company, with the ultimate goal to take on adjustments in the business environment (Teece et al., 1997). This mechanism is mainly focused on developing managerial competencies and combinations of skills that are difficult to imitate. Furthermore, it is based on research in fields ranging from R&D to human resource management and it incorporates this in the mechanism (Rustambekov and Mohan, 2016).

The definition of dynamic capabilities has been discussed extensively in the existing literature, and more specific the discussion on using dynamic capabilities as a competitive advantage (e.g. Barney, 1991). From this research we know that dynamic capabilities have to be viewed differently and is a distinct form of knowledge (Makadok, 2001; Malik and Kotabe, 2009). No results that follow from this have been investigated in the literature so far.

However, one important finding resulting from these studies is the theory of geographical-localization. This theory emphasizes that exploiting the full potential of knowledge is dependent on the location (Jaffe et al., 1993). Logically following from this statement is the assumption that location is a relevant area of consideration within corporate strategy.

To strengthen this assumption, literature in the area of strategic corporate management and related fields such as international business studies provides more information. The most important literature regarding this topic is summarized by Teece et. al. (1997), who state that companies gain economically through two systems: (1) resource-picking; and (2) capability-building. The ultimate goal of companies, to outcompete their competitors, is achieved through the collecting of information and performing analysis, which are a part of the resource-picking mechanism. Capability-building systems are referred to as the creation of systems within the organization, which attempt to increase the results of the company with the use of resources acquired by the company. The approaches can be executed at the same time, and firms actually do this most of the time. Interestingly, an example of using both mechanisms at the same time, is the choice of location for a corporate headquarters. The location choice of corporate headquarters is the simultaneous use of both a resource-picking and a capability-building system and is thus also a highly relevant topic from a business strategy perspective.

#### *The corporate headquarters in macro-economics*

When countries experience a wave of foreign mergers and acquisition, there is mainly much concern domestically about the loss of domestic headquarters, this for example happened in Canada around 2005. These worries are often referred to as “hollowing out” of the corporate atmosphere in a particular country (Bloom and Grant, 2011).

There are several reasons to care about headquarters from a country's economic perspective. First, headquarters employ highly skilled people as senior management, accountants, financiers, and information technology and human resource specialists (Bloom and Grant, 2011). A large company's corporate headquarters may consist of multiple high-level executives, senior executives and senior managers as well as highly paid specialists. These people are well-educated and have a lot of work experience, this will be visible in their salaries.

Furthermore, headquarters' staff typically require extra supportive services from other highly skilled management consultants, lawyers, financial services companies, auditors and technology companies. Because of this need, headquarters are viewed as accelerators in the generation of high paying jobs, which in turn create spillover benefits for the local economy. Clustering often leads to technological spillover effects as headquarter centers provide economies of scale in industries that service headquarter functions (Klier and Testa, 2002). The infrastructure that exists after this event forms the basis for other companies to grow and excel. These positive effects can be assumed to increase by an increase in the number of headquarters being present. Due to this finding in the existing literature, a hypothesis related to this role as generator of jobs will be incorporated in the hypotheses development section.

The simple existence of a headquarters is not necessarily an indication of a high productivity enterprise or high productivity processes at headquarters. In recent years, there has been a tendency to reduce the size of corporate headquarters due to the fact that they become bureaucratic and they lose focus on corporate value (Bloom and Grant, 2011). Furthermore, a large difference exists between different types of headquarters and the contribution to corporate value, depending on the nature of the enterprise and headquarter structure (Bloom and Grant, 2011). For example, the function of a regional sales headquarters is different from the function of a regional manufacturing headquarters. If headquarters are the mechanism for that engagement, then a strong argument can be made that headquarters are productivity-raising and therefore contribute to national prosperity and well-being (Bloom and Grant, 2011). Therefore, again it can be assumed that an increase in the number of these headquarters increases the associated benefits, therefore it is relevant to focus on the number of headquarters.

Additionally, headquarters are decision-making centres. They are both part of global value chains and they create global value chains. They determine organizational structure which, in turn, influences headquarters structure. This has an effect on the role that a country has in global innovation and productivity processes (Bloom and Grant, 2011). Corporate headquarters, in particular, play a critical role in aggregating and distributing corporate resources. Participating in global value chains is generally viewed as an automatic participation in international markets and the search for efficiency. The OECD has found that countries that are engaged with global forces tend to have higher productivity (OECD, 2015). If we link this to the number of headquarters, one can imagine that an increasing presence of

these companies causes a stronger participation in these global value chains and thereby an increasing benefit resulting from this participation.

### *The corporate headquarters in urban-economics*

The examination of spatial concentration and how this contributes to the formation of national and global management centers, and their role in the shaping of economic development has been one of the themes that have repeatedly been investigated in the current literature (Goodwin, 1965; Taylor and Thrift, 1984). Especially during the 1960s, when headquarters started to concentrate in cities rather than on the same location as their production activities, this became a popular theme of research (Chandler, 1977; Bosman and De Smidt, 1993). Most of this research focused on the advantages that resulted from being located in large urban centers, which included, among others, the access to communication and transportation and a large labor market (Borchert, 1978; Locksley and Ward, 1979; Taylor and Thrift, 1980; Hanna, 1983).

From the 1980s, the research agenda began to shift, with a reducing focus on national studies (Walker, 1989) and an increase of interest in networks of power within the global urban system (Friedmann, 1986). The larger amount of this literature shows a concentration of corporates in a number of global cities (Taylor et al., 2009). But research goes a step further, by focusing on not just the presence of these cities, but on the relationship and connection between these cities in forming a global network (Derudder et al., 2003; Taylor, 2007). According to existing literature, it is problematic to understand these complex 'global space economies' and the corporate control that is associated with it (Taylor and Derudder, 2004). Furthermore, Sassen (2006) pointed out that cities need to be seen as nodes within broader transnational spaces of power and capitalism. Moreover, Sassen (2006) argues that former sub-national centers should now be conceived as gateways through which capital, people, and power enter and exit national economies. Due to the mentioned complexity of understanding the effect of connectivity among cities and the relation to the corporate headquarters, a connectivity factor will be added to the research. This will be further discussed in the hypotheses development section.

This view is further supported by the work of Taylor (2004, 2005, 2007), which shows that corporate activity is often directed into national systems through particular, globally connected, centers. It is also clear that the corporate headquarters plays an important role in national systems by shaping local and regional development (Holloway and Wheeler, 1991; Chan et al., 1995; Quark, 2007; Klier, 2006).

As Testa (2006) has stated, headquarters play an important role in generating employment and investment within a city. The particular economic structures and locational contexts of cities also tend to foster a degree of corporate specialism within national urban systems (Wheeler, 1988, 1990). Tonts and Taylor (2010) show in their cross-sectional analysis of the largest 300 companies in 2005 that

company headquarters in Sydney were concentrated in the finance and insurance sectors, while Melbourne was oriented around banking, biotechnology and communications, and Perth specialized in minerals and energy companies. Testa (2006) has mentioned a number of reasons for these kinds of specialization, including the concentration of strategic sources of information, the presence of skilled and professional labour markets, proximity to related enterprises, and state support.

The literature review has showed a clear link among the corporate headquarters and economic and geographical factors. The economic relationship is mainly linked to the employment in a particular area, this economic area will be further extended in the hypotheses development section by adding another relevant economic factor from a headquarters' perspective. Furthermore, the relationship between the corporate headquarters and geographical factors, in the form of connectivity, is shown in the existing literature. Again, this link will be further extended by adding another relevant local factor from a geographical perspective in the hypotheses development section. We can conclude from the literature section that both economic and geographical factors play a role in light of the topic of corporate headquarters. In order to be able to test specific influence, this relationship will be translated to specific hypotheses in the next section.

## **HYPOTHESES DEVELOPMENT**

### *Economic factors*

First, the direct effect of two economic factors will be discussed. These factors are all measured at a national level.

### *Employment rate*

Based on the findings in the literature section, where the link between the availability of labor and the number of headquarters is emphasized, the assumption can be made that the employment rate has an influence on the number of headquarters located in a particular city. Arguments for a positive and a negative relationship can be formulated. First, a high amount of employment in a particular city is an indication of a flourishing economy and firms are likely to locate themselves in these areas to benefit from this positive economy. On the other hand, it could be an indication that the availability of people in this market place is low, which is obviously an employment risk for the company.

The latter reasoning is in line with the statements of Baaij et. al. (2015), who argue that a low availability of skilled people increases the probability of relocating the corporate headquarters to a country with higher availabilities of talent. Other research also argues the presence of a connection between the market place for labor and the location of corporate headquarters (e.g., Klier and Testa, 2002). It is clear that a company's expansion can be of such size that their needs cannot be fulfilled anymore in their

home country. Furthermore, this expansion will influence the employment needs of the company and their requirements can change, this can have an influence on the companies located in a particular area. These changes will also result in changing needs regarding the composition of the top management functions within the company, and consequently the composition of headquarter functions. In the study of Baaij et. al. (2015), the issue is also discussed with a large multinational, which confirms that their corporate expansion is fulfilled in emerging markets. Consequently, the larger part of their sales will be in those markets, while their corporate headquarters is located in their home country and their employees are mainly from the home country as well. They confirm that there are worried about this and they have to move their company and change their top management hiring policy. Hence, this study adopts the reasoning that is extracted from these sources, and therefore we view a high employment rate as a low availability of labor in that market, and thereby a lower availability of the needs from the company.

**Hypothesis 1a:** A high employment rate decreases the odds of headquarters being present in a particular city

**Hypothesis 1b:** Given the fact that a headquarters is present in a particular city, a high employment rate decreases the amount of headquarters located in that particular city

#### *Taxation level*

In the beginning of the 20<sup>th</sup> century, a number of large companies in the United States started to transfer their headquarters abroad through corporate inversions. These transfers were mainly on paper, rather than the company actually moving. These corporate inversions were characterized by the creation of a new parent company. This company was added to the current structure, while everything else was held constant (e.g. shareholder composition). The company that was previously the headquarters, was now a subsidiary of the new parent company, this raised to opportunity to transfer profits to this new parent company and hereby avoiding taxation in the United States. In the beginning, there was not much concern regarding these inversions, since they were viewed as necessary to keep up with the competitors. This reasoning was followed by Boise and Koenig (2002). However, when time passed, more worries started to come up due to the fact that these acts were now viewed as an attempt to avoid rules and regulation regarding taxation in the United States. This point of view is represented by Sheppard (2002) and Thompson (2002), who argue that the underlying reason of both inversions and consequently relocations, is to avoid taxation.

Desai and Hines (2002) investigated the role of taxation in a number of corporate inversions of U.S. multinationals. Their study provides evidence for the fact that foreign subsidiaries of firms that completed this process, in the end have lower levels of taxation. Furthermore, their results show that large firms and leveraged firms have a higher likelihood of relocating to another country. Seida and Wempe (2004) further investigate the deductibility of interest in relation to relocating the corporate

headquarters in their examination of corporate inversions and the financial consequences resulting from these inversions. Their results show that taxation levels for these firms are reduced as a result.

Huizinga and Voget (2009) examine another related question. Their research shows that cross-border M&As are likely to choose a structure that reduces the financial burdens. Based on these existing researches, the statement can be made that taxation definitely has an influence on firms that operate in an international environment. Due to the fact that the location of a firm largely determines that taxation levels of a company, it can be assumed that taxation has an influence on a corporate headquarters' location.

**Hypothesis 2a:** A high taxation level decreases the odds of headquarters being present in a particular city

**Hypothesis 2b:** Given the fact that a headquarters is present in a particular city, a high taxation level decreases the amount of headquarters located in that particular city

#### Local factors

Besides these economic factors on a national level, this study incorporates local factors as well. The three local factors cover main areas of interest in real estate related research which are: connectivity, institutions and agglomeration.

#### *Number of international flights*

International connectivity has been a concept of attention in recent economic geography literature (e.g., Bathelt et al., 2004) and more recently has been studied more specifically by focusing on the individuals and firms that create this connectivity (Lorenzen and Mudambi, 2013; Saxenian and Hsu, 2001).

In order to be able to further understand the concept of connectivity, three main approaches have been developed in the literature. First, the infrastructure approach, views this concept from a variety of systems and technologies that facilitate border-crossing (Derudder et al., 2010; Smith and Timberlake, 2001). From this reasoning follows that global connectivity among cities depends on the availability of air transport, forms of communication and the ability to transfer data through systems (Knox and Taylor, 1995).

Second, the corporate organization approach reasons from the standpoint that pursuing particular location strategies is what creates relations between cities (e.g., Alderson and Beckfield, 2004; Derudder et al., 2003; Wall and van der Knaap, 2011). Literature related to this topic reasons from the perspective that global cities facilitate the service of global capital through firms specified to produce these kinds of services like accountants and law firms. Due to these services, companies get connected through a global network, which allows information and knowledge to flow between organizations (Taylor, 2001).

Third, the knowledge-centred approach, has argued that, in order to be successful, a city (or larger region) is dependent on more than only their local knowledge, but needs external inflow of knowledge as well (Asheim and Coenen, 2006; Bathelt et al., 2004). Characteristics of dynamic regions and cities are the presence of both a local knowledge network and a strong international link to knowledge networks in other countries (Laud et al., 2009). Belderbos et. al. (2017) emphasize that world cities are seen as centers for the production of knowledge, which can be seen as a global space for the flow of knowledge. However, competitiveness of a city is more based on the degree to which the city is internationally connected than by local characteristics of the city, according to Doel and Hubbard (2002).

Each concept of connectivity within the literature focuses on a specific aspect of linkages between locations. These are all relevant concepts for multinationals and their headquarters, however, in this study, the focus is on the infrastructural approach and therefore this study encompasses the effects of flows of people (airport passengers).

**Hypothesis 3a:** A high number of international flights increases the odds of headquarters being present in a particular city

**Hypothesis 3b:** Given the fact that a headquarters is present in a particular city, a high number of international flights increases the amount of headquarters located in that particular city

### *Institutional Quality*

States, by definition, make the laws within the territories under their control. They also incorporate the institutions that defend and enforce these laws, including the courts, police and armed forces. However, governments need additional capabilities to take strategic economic actions that require business cooperation. As Lindblom (1977) already pointed out, governments cannot 'command business to perform. They must induce, rather than command'. Murtha (1994) adopts this view, by stating that the ability of a government to implement an industrial strategy, depends on the instruments this government can use.

It is further stated by Murtha (1994), that any variation among countries or states regarding this concept is the result of different institutional arrangements, which interact along two dimensions. First, property rights are assigned different by countries and among public and private sectors. More specifically, there is a difference between countries regarding the activities that are assigned to public and private companies (Aharoni, 1986; Freeman, 1989). Second, variation also exists with respect to resource allocation, especially with respect to authoritative planning versus market governance of transactions (Murtha and Lenway, 1994).

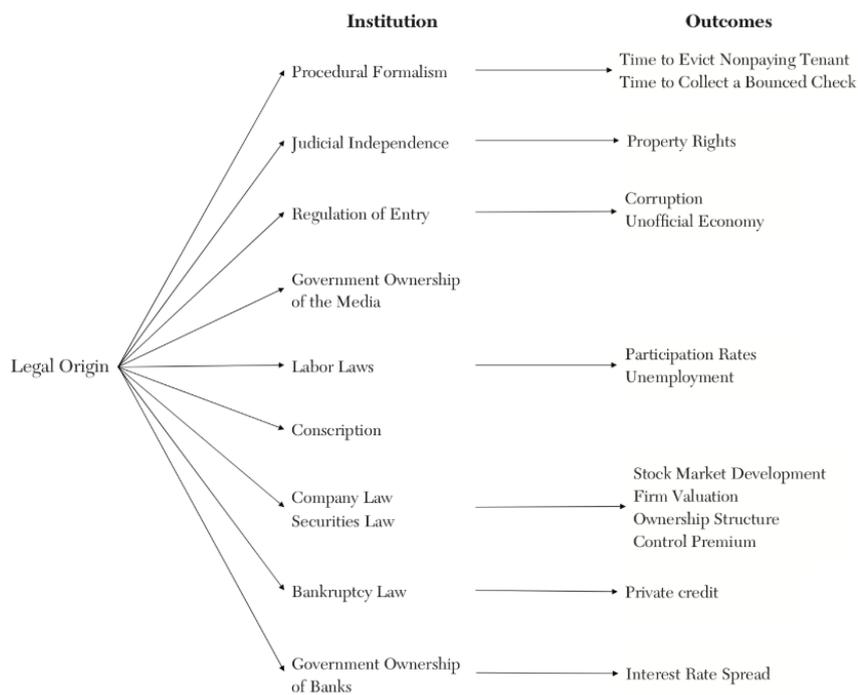


Figure 1. Legal Origin, Institutions and Outcome

Source: La Porta et. al. (2008)

Figure 1 by La Porta et. al. (2008) shows their extensive research on the economic consequences of institutions. If we expand this into an example for the real estate sector, and economics in general, it can be assumed that the quality of the institutional environment in a certain country is a relevant topic to incorporate, for example with respect to property rights.

**Hypothesis 4a:** A high institutional quality increases the odds of headquarters being present in a particular city

**Hypothesis 4b:** Given the fact that a headquarters is present in a particular city, a high institutional quality increases the amount of headquarters located in that particular city

## METHODOLOGY

### Data

The hypotheses are tested through the use of secondary data from a number of sources. Data on headquarter locations in 28 European countries are gathered, within these countries the 5 largest cities based on population are selected. The number of headquarters in these cities were collected through Orbis Database. This database is widely used in academic (mainly economic) research, with the large

benefit that the whole population of headquarters can be observed and extensive company information, such as location, can be extracted. In this particular case, the relevant data can be obtained by selecting the country of interest and adding a label of 'headquarter' and a minimum turnover of \$ 275,000,000. The number of relevant headquarters in a particular city can be extracted from the database. The minimum turnover is added in order to remove irrelevant local companies. The final sample therefore consisted of 140 cities in 28 different countries and a total of 3882 headquarters.

### *Test of Normality*

Before the analysis is conducted, a normality test was performed (see Table 1 in Appendix). The results of this test show that the data is not normally distributed, due to the fact that all values are significant, except for the binary variable, this indicates that the variables are significantly different from a normal distribution. In order to be able to conclude that the data is normally distributed, the value of Prob > z has to be larger than 0.05. Furthermore, a correlation test is performed to indicate potential negative influences on the analysis due to high correlations between variables. Correlation is an effect size, high amounts of correlation among independent variables has a negative influence on the outcome of the performed tests. Variables that highly correlate are therefore removed from the dataset.

### *Correlation Matrix*

A correlation matrix is constructed in order to reveal potential multi-collinearity problems among the variables (see Table 2 in Appendix). Correlations between the independent variables used in the analysis are indicated, correlations higher than (-).5 are a sign of multi-collinearity in the study (Hair et al., 2005) or are referred to as a strong correlation. The correlation matrix below indicates that there are a number of variables that show correlation with other variables, however, none of them are above the specified threshold. For example, we see that the 'Number of passengers (log)' highly correlates with the 'Number of HQs', since the number of HQs is used as dependent variable in this study, we actually expect this correlation. We also see that for example institutional quality correlates with taxation level, this can be explained due to the fact that cities with a high institutional quality, are generally successful countries where taxation is higher as well. As mentioned, none of the variables exceed the limit for correlation, therefore the final sample consists of the variables that are displayed in the table.

### *Research Methods*

The hypotheses are tested through the use of a binary logistic regression for the a-part of the hypothesis since odds are estimated there, and a Tobit regression for the b-part of the hypotheses. This is due to the fact that we want to test the influence of our independent variables given the fact that headquarters are present. In other words, cities where zero headquarters are located have to be censored out of the sample in this part of the research. With a Tobit regression, the sample can be censored which results in a sample where cities are incorporated with a minimum of 1 headquarter located in that city.

Table 1 below shows the descriptive statistics of the original sample. It shows the spread of every variable by displaying the minimum and maximum value. Furthermore, we see that our sample consists of 140 observations, as mentioned before in the data section.

*Table 1. Descriptive statistics*

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Number of Headquarters	140	0	744	27,73	78,92
Taxation Level	140	9,00	35,00	21,51	6,69
Employment rate	140	79,10	97,60	92,864	3,8748
Institutional Quality	140	1,60	85,30	49,677	21,1156
Number of Passengers	140	0	170896223	8270613,34	20555214,87
Population	140	9332	12341418	643817,66	1371056,68
GDP (in millions)	140	11126	3277340	548222,21	826939,57

If we look at the spread of the variable ‘Number of Passengers’, we see that it is very large. Furthermore, the Test of Normality which is discussed above shows that this variable is not normally distributed. These results combined caused the fact that this variable is transformed into a log variable. In order to do this, all cities with ‘0’ number of passengers have been changed to ‘1’ to be able to convert it into a log. The interpretation of a log variable is further showed in the results section. The variables ‘Population’ and ‘GDP (in millions)’ are divided to create the variable ‘GDP per capita’.

Table 2 below shows the geographical distribution of the HQs incorporated in the sample. Logically there is a concentration in Western Europe, but this table also shows that all parts of Europe are incorporated in this research.

*Table 2. Geographical distribution of HQs*

Geographical distribution	Number of Headquarters
Northern Europe	440
Eastern Europe	317
Southern Europe	572
Western Europe	1907
Central Europe	646

## *Variables and Measurement*

Table 3 below shows all the variables incorporated in this research, the description explains how these variables are measured and constructed.

*Table 3. Variables and description*

<b>Variable</b>	<b>Description</b>
<b>Independent variables</b>	
Taxation level	The taxation level is measured as the current corporate taxrate in the corresponding country. The data is collected through 'Trading Economics'.
Employment rate	The employment rate is measured as the amount of people working in the corresponding country. The data is collected through 'Statista'.
Institutional quality	The institutional quality is measured as the score (0-100) on the institutional quality indicator of the European Union on a city level.
Number of International Flights	This variable is measured as the number of passengers travelling through the airport in a year, due to the fact that not every airport provides the number of flights, but every airport does provide the number of passengers, this measure is applied.
<b>Dependent variable</b>	
Number of HQs	The number of HQs is measured as the number of companies in the corresponding city labeled as 'headquarter' with a minimum turnover of \$275.000.000 in the Orbis Database.
<b>Control variables</b>	
Population	Population is measured as the current number of inhabitants, the data is collected through 'Eurostat'.
GDP	The GDP is measured as the current GDP, collected through 'Eurostat'.

The specific regression equations that will be tested differ per hypothesis, the dependent variable in the first model will be a binary variable regarding the presence of headquarters. The dependent variable in the second model will be the number of headquarters. This will be further discussed in the results section. First, hypotheses 1a till 4a will be tested through a binary logistic regression. Second, hypotheses 1b till 4b will be tested through a Tobit model.

The odds of headquarters being present in a particular city will be tested through a binary logistic regression. The regression equation that will be tested is:

$$(1) P(\text{presence of headquarters} = 1|X_i) = \Phi(\gamma)$$

Where  $X_i$  is composed of the following independent variables:

Employment = The employment rate in a particular country

Taxation = The corporate tax rate in a particular country

Flights = The number of international flights in a particular city

Institutions = The institutional quality in a particular city

and where:

$P(\text{presence of headquarters} = 1|X_i)$  = The probability of the presence of headquarters given the independent variables

and where:

$\Phi(\gamma)$  = The effect of the independent variables on the odds of headquarters being present in that particular city

Due to the fact that some of the cities in the sample do not consist HQs (i.e. 45 out of 140), a Tobit model is added to the research in order to test the influence of the independent variables, given the fact that a headquarters is present (b-part of the hypotheses). The basic equation for the Tobit (i.e. censored normal regression) model is:

$$(2) y^* = x'\beta + \varepsilon$$

With

$$y = \begin{cases} y^* & \text{if } y^* > 0 \\ 0 & \text{if } y^* \leq 0 \end{cases}$$

Where  $x'$  is composed of the following independent variables:

Employment = The employment rate in a particular country

Taxation = The corporate tax rate in a particular country

Flights = The number of international flights in a particular city

Institutions = The institutional quality in a particular city

and where:

$y$  = The number of headquarters in a particular city

The lower function of the function showed at (2) shows that the y-variable, which is the number of headquarters in a particular city, will take the observed value if this is larger than 0, otherwise it will take the value of zero. Due to the fact that we focus on cities that have headquarters present, the cities that take the value of zero (i.e. no headquarters present) will be censored out of the regression.

## RESULTS

### *Regression Results*

Table 6 shows two models. Model 1 only incorporates the control variable. Model 2 shows the regression results for the binary logistic regression. In Table 7, Model 3 shows the regression results for the Tobit regression. The coefficients in Model 2 are displayed as odds-ratios. These odds tell that every increase of the independent variable multiplies the odds of headquarters being present in a particular city ( $y=1$ ) with a certain percentage. All models and the interpretation of the coefficients will be discussed separately in the paragraphs below.

### *Model 1*

Model 1 only consists the control variable. This model aims to test whether the control variables on itself has a significant effect on the dependent variables used in the research. We see that the independent variable explains 2,9% of the variation in the dependent variable. The results show no significant effect. The control variable is further incorporated in models 2 and 3.

### *Model 2*

First, we see from the Pseudo R-square that the independent variables explain 25,2% of the variance in the dependent variable. Second, the overall model is significant, as we can see from the Prob > Chi2. The variables in model 2 will be discussed one by one. No significant results have been found for the influence of the employment rate, this is not in line with the existing research mentioned in this study (e.g. Baaij et. al., 2015) who state that a high employment rate suggests that the market place is saturated. According to Baaij et. al. (2015) this causes the fact that companies find it hard to acquire skillful people. It can be assumed that corporates are less tied to a certain location in order to be able to find skilled people, but no hard evidence is found in existing literature, so further research is needed to support this statement. With respect to hypothesis 1a, formulated as: *A high employment rate decreases the odds of headquarters being present in a particular city*, we find no significant results for this variable.

Furthermore, no significant result has been found for the influence of the corporate tax rate, if we look at the existing literature this can be explained by stating that more complex structures underlie the decisions of companies to locate their headquarters in a particular place. Or that companies make deals with local governments regarding taxation. A clear example of this mechanism is the new headquarters of Amazon as mentioned by The Guardian (2018): “Amazon first arrived in Luxembourg in 2003, and within a few months secured a confidential agreement with the country’s tax authorities.”

As mentioned by Desai and Hines (2002), corporates undergo complex transformations (i.e. inversions) in order to change their taxation regime. It can therefore be assumed that something ‘simple’ as corporate

tax rates are rather a result of something that happens earlier in the companies' decisions. The fact that taxation plays a role is already supported in the literature part of this research, however, results shows that it is not the corporate tax rate that specifically influences the companies. With respect to hypothesis 2a, formulated as: *A high taxation level decreases the odds of headquarters being present in a particular city*, we find no significant results for this variable.

Model 2 shows a significant result (at the 1% significance level) of the influence of international flights on the odds of headquarters being present in a particular city. Due to the fact that the international flights variable is measured as the natural logarithm of the number of passengers, we first have to transform this number in order to be able to interpret the effect. The coefficient of 1.156 tells us that a 1% unit increase in the number of passengers increases the odds of headquarters being present in a particular city with  $\exp[\log(1.156) * \log(1.01)] = 1.00098$ . This tells us that the odds of headquarters being present are 0,1% higher when the number of passengers increases with one unit. The fact that this influence is low can easily be explained that the influence of an increase in passengers with 1 person does not have that much impact. However, the fact that the result is significant (at the 10% significance level) is in line with Knox and Taylor (1995), which already stated that connectivity in the form of airports fosters a corporate climate in a city. With respect to hypothesis 3a, which is formulated as: *A high number of international flights increases the odds of headquarters being present in a particular city*, we find that the coefficient is positive and significant the 10% significant level.

Furthermore, we see a significant result of institutional quality (at the 5% significance level) which tells us that a 1 unit increase in institutional quality increases the odds of headquarters being present in a particular city with  $(1.043 * 100) = 4,3\%$ , in other words the odds are 1.043 times higher than a city with a 1-unit lower score on institutional quality. With respect to hypothesis 4a, which is formulated as: *A high institutional quality increases the odds of headquarters being present in a particular city*, we find that the coefficient is positive and significant the 5% significant level. This result is in line with existing research on the effect of institutions on the real estate market in general (Nozeman and Van der Vlist, 2014), and is now further specified to the influence on the odds of headquarters being present in a particular city.

Table 6. Logistic regression results

	Model 1	Model 2
Dependent variable: Presence of Headquarters		
Control variables		
GDP per capita	1.401 (0.245)	1.198 (0.225)
Independent variables		
H1a: Employment rate		0.987 (0.060)
H2a: Taxation level		0.974 (0.036)
H3a: International flights (log)		1.156*** (0.035)
H4a: Institutional quality		1.043*** (0.015)
Prob > Chi2	.025	.000
Pseudo R-squared	.029	.252
Number of Observations	140	140

\* p < 0.1 (2-tailed)

\*\* p < 0.05 (2-tailed)

\*\*\* p < 0.01 (2-tailed)

Standard errors in parentheses

### Model 3

First, we see from the Pseudo R-square that the independent variables explain 4% of the variance in the dependent variable. Second, the overall model is significant, as we can see from the Prob > Chi2. Model 3, shown in table 7, is based on a Tobit regression and tests the b-part of the hypotheses. The variables in model 3 will be discussed one by one. Again, no significant result is found for the employment rate and the taxation level. With respect to hypothesis 1b and 2b, no significant results have been found for these variables. The reasoning which is shown in the previous paragraph regarding model 2, can be applied here as well. A highly significant result is shown for the variables ‘international flights’ and ‘institutional quality’. The Tobit model tells us that, given the fact that headquarters are present in a particular city, the displayed variables have an influence corresponding to the B-coefficient on the number of headquarters located in that particular city. We see that the number of observations is 140, however, from these observations, 95 are uncensored. This means that 45 observations are censored out of the regression, as mentioned before in the research methods section, this is exactly the amount of cities that do not have a headquarters present.

The results show the variable of international flights is highly significant at the 1% significance level and tells us that given the fact that headquarters are present in a particular city, based on a 1% unit increase in the international flights variable (measured as number of passengers) we expect an increase of  $(5.928/100) = 0.05928$  in the number of headquarters located in that particular city. With respect to hypothesis 3b, formulated as: *Given the fact that a headquarters is present in a particular city, a high number of international flights increases the amount of headquarters located in that particular city*, the coefficient is positive and significant at the 1% significance level. This result is again in line with

existing research of Knox and Taylor (1995) and further expands this to the specific case of headquarters.

Furthermore, the results show a highly significant result for the influence of the institutional quality. The result is significant at the 1% significance level and shows that an increase in the institutional quality in a particular city leads to an increase in the number of headquarters located in that particular city. More specifically, a 1-unit increase in the institutional quality will lead to an increase of 1.700 in the number of headquarters located in that particular city. This finding is again in line with existing research on the effect of institutions on the real estate market in general (Nozeman and Van der Vlist, 2014), and is now further specified to the influence on the number of headquarters located in a particular city. With respect to hypothesis 4b, formulated as: *Given the fact that a headquarters is present in a particular city, a high presence of related companies increases the amount of headquarters located in that particular city*, the coefficient is positive and significant at the 1% significance level.

Table 7. Tobit regression results

	Model 1	Model 3
<b>Dependent variable: Number of Headquarters</b>		
Control variables		
GDP per capita	1.401 (0.245)	-5.764 (5.558)
Independent variables		
H1b: Employment rate		-0.256 (2.357)
H2b: Taxation level		-0.167 (1.376)
H3b: International flights (log)		5.928*** (1.140)
H4b: Institutional quality		1.700*** (0.473)
Prob > Chi2	.025	.000
Pseudo R-squared	.029	.040
Number of Observations	140	140

\* p < 0.1 (2-tailed)

\*\* p < 0.05 (2-tailed)

\*\*\* p < 0.01 (2-tailed)

Standard errors in parentheses

## CONCLUSION

### *Discussion and conclusion*

On the basis of the dataset used in this study, it can be concluded that some regional factors can influence the odds of headquarters being present in a particular city, and given this presence some factors also influence the amount of headquarters located in that particular city. The results do not show significant results for the economic factors incorporated in this research. For example, it was expected that a high taxation level would decrease the odds of the presence of headquarters and given this presence, the number of headquarters. We do see that the results indeed show a negative influence, which shows that the predicted relation was accurate, however, no significant result is shown. This could be explained that companies focus on other aspects than just the corporate tax rate. If we look for example to the current situation in The Netherlands, where the government recently abolished the dividend tax in order to create a better environment for companies to locate their headquarters in The Netherlands. This is a clear example of the fact that other taxation related factors play a role, which can explain the result from the corporate tax rate variable. If we look at the results of international flights we see that the effect of the number of international flights has a significant and positive effect on both the odds of headquarters being present in a city and the number of headquarters. From this result we can conclude that connectivity is an important topic for the attractiveness of a city for corporates to locate their headquarters, this further expands the existing literature on topics related to this issue (e.g. Derudder et. al., 2010). The fact that no significant result is found for the economic factors, might be explained by the fact that economic factors are a result from corporate activity rather than a predictor. The institutional quality has a positive and significant influence on both the odds of headquarters being present in a particular and on the number of headquarters located in that city. Contrary to the earlier assumption that economic factors might not be predictors of corporate activity, we see that institutional quality is. Which makes sense from the perspective that corporate activity only takes place when the institutional environment in a particular city is country is suitable for that company, which is thus supported by the results of this research. This also strengthens the existing literature on the role of institutions in relation to the attractiveness of a city for large corporates.

### *Implications*

The research has the most important implications in the field of policy making and corporate strategy. It is interesting to see that regional factors have an influence on large corporates. If we assume that economic factors like the ones incorporated in this research are harder to influence, it is valuable to know that regional factors can play a role. The regional factors in the field of infrastructure and institutions are easier to influence than greater economic factors, therefore, if policy makers have to deal with the consequences of economic influences, they have regional opportunities to steer these

influences. Furthermore, the limited available research on this topic is now strengthened with another way to investigate this topic. The relationship among all these variables has not been investigated before, it has either been investigated separately from an economic perspective, or from a country perspective. The combination of both these perspective gives valuable new insights in this topic, which touches upon a wide variety of implication areas.

#### *Limitations and future research*

The first limitation of this research is that it focuses on headquarters registered in the Orbis Database, even though this is a well-known and widely used database in existing research, it allows measurement errors to some (acceptable) extent. However, due to the limited available time, this has been the most effective way to investigate this topic. An alternative would be to manually select all relevant headquarters in particular cities, this is rather time consuming but strengthens the punctuality of the research. Another limitation is that this research does not make a distinction between local and international companies, this issue is to some extent solved by incorporating a minimum turnover, which removes some local companies from the database. However, large local companies are still in this database, while they do not actively choose a particular city as their location, but it is simply the city they were founded in. Again, this can be solved by manually checking every entry. The same argument goes for why this research adopted the method that is used in this study.

Future research could, besides the alternatives mentioned above, focus on incorporating more regional factors in the study. It is again very time consuming to gather local data, but this strengthens the research significantly. Furthermore, future research could focus on the actual choice of a company to locate in a country, for example using a nested logit model, the actual choice of a company to locate in a particular city and not in another is a valuable addition to the existing research on this topic. In practice this would mean that longitudinal data would be used instead of cross-section data. Lastly, due to multicollinearity issues a number of variables have been dropped from the final research and are therefore not displayed in this document. However, support has been found in the literature to include these variables (given the fact that no multicollinearity issues arise). For example, wage level, which results from the assumption that a corporate HQ needs skilled and high-educated workers, from which we can reason that a high wage level indicates the presence of this staff and therefore has a positive relation to the number of HQs, in other words, it has a positive influence on the number of headquarters located in that area. In recent work on the new economic geography, wage levels are also discussed (e.g. Brakman et. al., 2009). Furthermore, the effect of wage levels is well established in the existing literature, however, this is purely focused on the (re)location of factories. Beside the research of Strauss-Kahn and Vives (2009) and Laamanen et. al. (2012), the current literature focusing on the effect of wage level on corporate headquarters (re)location is scarce. The availability of the required educated and skilled people is

limited, therefore it could be assumed that headquarters locate in areas where this availability is higher. A high wage level could be an indication of the presence of these qualified employees (Laamanen et. al., 2012). Following from this line of reasoning, a positive relationship can be expected. Existing research of Strauss-Kahn and Vives (2009) confirms this way of thinking. Recent examples provide us with further confirmation of this way of thinking. General Electric moved its HQ from Fairfield to Boston, which was driven by the fact that they wanted to be near a well-educated workforce (Wagner, 2016).

The same goes for the presence of related companies; as mentioned by Lovely et. al. (2005), clustering is an important topic to consider when researching HQ locations or relocations. However, limited empirical evidence exists of the fact that agglomeration is mainly due to the need to acquire information, even though this is generally assumed.

## Appendix

Table 1. Test of Normality

Variables	Obs	Shapiro-Wilk			
		W	V	z	Prob > z
HQ binary	140	0.99123	0.962	-0.087	0.53468
Number of HQs	140	0.38986	66.926	9.495	0.00000
Taxation level	140	0.97620	2.611	2.168	0.01508
Employment rate	140	0.80121	21.805	6.962	0.00000
Institutional quality (regional)	140	0.95728	4.686	3.489	0.00024
Number of passengers (log)	140	0.80237	21.678	6.949	0.00000
GDP per capita	140	0.69697	33.239	7.914	0.00000

Table 2. Correlation Matrix

Variables	1	2	3	4	5	6
1 Number of HQs	-					
2 Taxation level	.158*	-				
3 Employment rate	.028	-.175**	-			
4 Institutional quality (regional)	.232***	.327***	.329***	-		
5 Number of passengers (log)	.355***	.164	-.086	.041	-	
6 GDP per capita	-.111	.129	.125	.435***	-.176	-

N = 140

\* p < 0.1 (2-tailed)

\*\* p < 0.05 (2-tailed)

\*\*\* p < 0.01 (2-tailed)

## REFERENCES

- Aharoni, Y. (1986). *The evolution and management of state-owned enterprises*. New York: Harper Business.
- Alderson, A.S., and Beckfield, J. (2004). "Power and Position in the World City System". *American Journal of Sociology*, 109(4), pp. 811-851.
- Asheim, B., and Coenen, L. (2006). "Knowledge bases and regional innovation systems: Comparing Nordic Clusters". *Research Policy*, 34(8), pp. 1173-1190.
- Baaij, M.G., Mom, T.J.M., Van den Bosch, F.A.J., Volberda, H.W. (2015). "Why Do Multinational Corporations Relocate Core Parts of Their Corporate Headquarters Abroad?". *Long Range Planning*, 48, pp. 46-58.
- Bancel, F., and Mittoo, C. (2001). "European Managerial Perceptions of the Net Benefits of Foreign Stock Listings". *European Financial Management*, 7(2), pp. 213-236.
- Barney, J. (1991). "Firm Resources and Sustained Competitive Advantage". *Journal of Management*, 17(1), pp. 99-120.
- Bathelt, H., Malmberg, A., & Maskell, P. (2004). "Clusters and Knowledge: Local Buzz, Global Pipelines, and the Process of Knowledge Creation". *Progress in Human Geography*, 28(1), pp. 31-56.
- Birkinshaw, J., Braunerhjelm, P., Holm, U., Terjesen, S., (2006). "Why do some multinational corporations relocate their headquarters overseas?". *Strategic Management Journal*, 27, pp. 681-700.
- Bloom, M. & Grant, M. (2011). "Valuing Headquarters: Analysis of the Role, Value and Benefit of HQs in Global Value Chains". *The Conference Board of Canada*.
- Brouwer, A., Mariotti, I., & van Ommeren, J.N. (2004). "The Firm Relocation Decision: An Empirical Investigation". *The Annals of Regional Science*, 38(2), pp. 335-347.
- Boise, C.M., and Koenig, J.C. (2002). "Practical and Policy Considerations in Corporate Inversion Transactions". *Corporate Business Taxation Monthly*, 3(12), pp. 3-20.
- Borchert, J.R. (1978). "Major control points in American economic geography". *Annals of the Association of American Geographers*, 68(2), pp. 214-232.
- Bosman, J., & de Smidt, M. (1993). "The Geographical Formation of International Management Centres in Europe". *Journal of Urban Studies*, 30(6).
- Chan, S.H., Gau, G.W., & Wang, K. (1995). "Stock Market Reaction to Capital Investment Decisions: Evidence from Business Relocations". *Journal of Financial and Quantitative Analysis*, 30(1), pp. 81-100.
- Chandler, A.D. (1991). "The functions of the HQ unit in the multibusiness firm". *Strategic Management Journal*, 12(2), pp. 31-50.

- Clausing, K.A. (2010). "Should tax policy target multinational firm headquarters?". *National Tax Journal*, 63(4), pp. 741-763.
- Davis, J.C., and Henderson, J.V. (2008). "The agglomeration of Headquarters". *Regional Science & Urban Economics*, 38(5), pp. 445-460.
- Derudder, B, Taylor, P.J, Witlox, F. and Catalano, G. (2003). "Hierarchical Tendencies and Regional Patterns in the World City Network". *Regional Studies*, 37(9), pp. 875-886.
- Desai, M.A., & Hines, J.R. (2002). "Expectations and Expatriations: Tracing the Causes and Consequences of Corporate Inversions". *National Tax Journal*, 55(3), pp. 409-440.
- Doel, M., and Hubbard, P. (2002). "Taking World Cities Literally: Marketing the City in a Global Space of Flows". *City*, 6(3), pp. 351-368.
- Forsgren, M., Holm, U., & Johanson, J. (1995). "Division headquarters go abroad: A step in the internationalization of the multinational corporation". *Journal of Management Studies*, 32(4), pp. 475-491.
- Friedmann, R. (1986). "Psychological meaning of products". *Columbia Journal of World Business*, 21(2), pp. 97-104.
- Ghosh, C., Rodriguez, M., and Sirmans, C.F. (1995). "Gains from Corporate Headquarters Relocations: Evidence from the Stock Market". *Journal of Urban Economics*, 28(3), pp. 291-311.
- Hair, J., Anderson, R., Tatham, R., & Black, W. (2005). *Multivariate data analysis*. New York: Prentice Hall International.
- Henderson, J.V., & Ono, Y. (2008). "Where do manufacturing firms locate their headquarters?". *Journal of Urban Economics*, 63(2), pp. 431-450.
- Hofer, C.W. (1975). "Toward a contingency theory of business strategy". *Academy of Management Journal*, 18(4), pp. 784- 810.
- Holloway, S.R., & Wheeler, J.O. (1991). "Corporate headquarters relocation and changes in metropolitan corporate dominance". *Journal of Economic Geography*, 67(1), pp. 54-74.
- Huizinga, H. P., & Voget, J. (2009). "International taxation and the direction and volume of cross-border M&As". *Journal of Finance*, 64(3), pp. 1217-1249.
- Jaffe, A., Henderson, R., and Trajtenberg, M. (1993). "Geographic Localization of Knowledge Spillovers As Evidenced by Patent Citations". *Quarterly Journal of Economics*, 108(3), pp. 577-598.
- Klier, T.H. (2006). "Where the headquarters are: Location Patterns of Large Public Companies". *Economic Development Quarterly*, 20(2), pp. 117-128.
- Klier, T., & Testa, W.A. (2002). "Location trends of large company headquarters during the 1990s". *Economic Perspective*, 26(2), pp. 12-26.

Knox, P.L., & Taylor, P.J. (1995). *World cities in a world-system*. Cambridge: Cambridge University Press.

Laamaanen, T., Simula, T., Torstila, S. (2011). ‘‘Cross-border relocations of headquarters in Europe’’. *Journal of International Business Studies*, 43(2), pp. 187-210.

La Porta, R., Lopez-de-Silanes, F., and Shleifer, A. (2008). ‘‘The Economic Consequences of Legal Origins’’. *Journal of Economic Literature*, 46(2), pp. 285-332.

Laud, R., Grein, A., and Nachum, L. (2009). ‘‘Gaining advantage through global learning hubs’’. *Journal of Practice Global Business*, 8, pp. 19-41.

Lewis, L., & Harding, R. (2018). ‘‘Panasonic blames Brexit for moving European headquarters’’. Available at: <https://www.ft.com/content/b4e11b6e-ac53-11e8-94bd-cba20d67390c> [accessed 26 September 2018].

Lindblom, C.E. (1977). *Politics and Markets: The world’s political economic systems*. New York: Basic Books.

Locksley, G., & Ward, T. (1979). ‘‘Concentration in manufacturing in the EEC’’. *Cambridge Journal of Economics*, 3(1), pp. 91-97.

Lorenzen, M., & Mudambi, R. (2013). ‘‘Clusters, Connectivity and Catch-up: Bollywood and Bangalore in the Global Economy’’. *Journal of Economic Geography*, 13(3), pp. 501-534.

Lovely, M.A., Rosenthal, S.S., & Sharma, S. (2005). ‘‘Information, agglomeration and the headquarters of US exporters’’. *Regional Science and Urban Economics*, 35(2), pp. 167- 191.

Makadok, R. (2001). ‘‘Toward a Synthesis of the Resource-Based and Dynamic-Capability views of Rent Creation’’. *Strategic Management Journal*, 22(5), pp. 387-401.

Malik, O.R., and Kotabe, M. (2009). ‘‘Dynamic Capabilities, Government Policies, and Performance in Firms from Emerging Economies: Evidence from India and Pakistan’’. *Journal of Management Studies*, 46(3), pp. 421-450.

Murtha, T.P., & Lenway, S.A. (1994). ‘‘Country capabilities and the strategic state: How national political institutions affect multinational corporations’’. *Strategic Management Journal*, 15, pp. 113-129.

Nozeman, E., and Van der Vlist, A. (2014). *European Commercial Real Estate Markets*. Dordrecht: Springer Publishers.

Pagano, M., Roell, A.A., and Zechner, J. (2002). ‘‘The Geography of Equity Listing: Why Do Companies List Abroad?’’. *The Journal of Finance*, 57(6), pp. 2651-2694.

Rustambekov, E., and Mohan, R. (2016). ‘‘Why Do Firms Relocate Headquarters?: An Examination of Stable and Dynamic Industries’’. *The IUP Journal of Business Strategy*, 13(3), pp. 30-47.

- Sassen, S. (2006). "Searching for the global in the urban: Relocating Global Cities: From the Center to the Margins". *Lanham: Rowman & Little old Publishers*.
- Saxenian, A., & Hsu, J.Y. (2001). "The Silicon valley-hsinchu connection". *Industrial and Corporate Change*, 10, pp. 893-920.
- Seida, J.A., & Wempe, W.F. (2004). "Effective Tax Rate Changes and Earning Stripping Following Corporate Inversion". *National Tax Journal*, 57(4), pp. 805-828.
- Semple, R.K., and Phipps, A.G., (1982). "The Spatial evolution of Corporate Headquarters within an Urban System". *Urban Geography*, 3, pp. 258-279
- Sheppard, E., & Thompson, E. (2002). "The Spaces and Times of Globalization: Place, Scale, Networks, and Positionality". *Economic Geography*, 78, pp. 307-330.
- Smith, D.A., & Timberlake, M.F. (2001). "World City Networks and Hierarchy". *American Behavioral Scientist*, 44(10), pp. 1656-1678.
- Strauss-Kahn, V., & Vives, X. (2009). "Why and where do headquarters move?". *Regional Science and Urban Economics*, 39(2), pp. 168-186.
- Taylor, M., & Thrift, N. (1980). "Large Corporations and Concentration of Capital in Australia: A geographical analysis". *Economic Geography*, 56(4).
- Taylor, P.J. & Derudder, M. (2004). "Porous Europe: European Cities in Global Urban Arenas". *Journal of Economic and Social Geography*, 95, pp. 527-538.
- Teece, D.J., Pisano, G., and Shuen, A. (1997). "Dynamic Capabilities and Strategic Management". *Strategic Management Journal*, 18(7), pp. 509-533.
- Testa, W. A. (2006). "Headquarters research and implications for local development". *Economic Development Quarterly*, 20, pp. 111-116.
- Tonts, M., & Taylor, M. (2010). "Corporate Location, Concentration and Performance: Large Company Headquarters in the Australian Urban System". *Urban Studies*, 47(12), pp. 2641-2664.
- Wall, R.S., and Van der Knaap, G.A. (2011). "Sectoral Differentiation and Network Structure Within Contemporary Worldwide Corporate Networks". *Economic Geography*, 87(3), pp. 267-308.
- Wheeler, J.O. (1988). "The corporate role of large metropolitan areas in the United States". *Growth & Change*, 19(2), pp. 75-86.