ZEW Economic Studies 47

Gunnar Lang

Macro Attractiveness and Micro Decisions in the Mutual Fund Industry

An Empirical Analysis

Dieses Buch ist beim Springer Verlag erschienen und kann auf der folgenden Internetseite erworben werden:
http://link.springer.com/book/10.1007/978-3-642-39724-0
ISBN 978-3-642-39723-3 (Print) 978-3-642-39724-0 (Online)

ZEW
Zentrum für Europäische Wirtschaftsforschung GmbH
Centre for European Economic Research

Springer

Foreword

In reality, the production and sale of goods does not occur in a pure market system in which the state is not involved. This neoclassical notion of ideal economies is limited in real terms by a multitude of regulations. Every country possesses legal and regulatory systems that have a significant influence on the allocation of goods and resources. This holds particularly true for intangible goods, which primarily assume their legal form in the form of contracts. However, there are considerable differences among different service industries. The focus of Gunnar Lang's research, the financial services market, is still characterized by areas that are exceptions to the rules defined by these regulations. These are mostly covered by special legislation (such as the German Banking and Insurance Supervisory Act), the compliance with which is overseen by special supervisory watchdogs (such as Bafin). In addition to these regulatory features, financial services (and services in general) are characterized by peculiarities in the organization of value. The production and sale of services occurs, in particular, under the collapse of production and sales processes, lack of materiality, the frequently applied "Uno Actu Principle," as well as uncertainties based on information economics. On the whole, the established literature confirms that the status of research on intangible goods is at a lower level compared to production and sales theory regarding tangible goods. The former is mostly covered in subject-specific literature, such as banking and insurance, rather than in general theory.

Gunnar Lang's work focuses on this area among others, although it also includes other research areas within financial services, in particular open-end mutual funds. His research is more empirical in nature than theoretical. He particularly focuses on the interactions between economic, political, legal, and cultural locational factors as the central determinants offer justifying production and sales sites for investment funds. Thus, his work also includes an aspect of industrial location theory with respect to international financial centers. The interaction between the economic attractiveness of an international financial center and the resulting impact on the cost and revenue functions of the fund provider is of great importance for understanding the structure, methodology, and results of this research.

The innovative strengths of this research lie first and foremost in the fact that it offers the first econometric justification and basis for deriving recommendations not only for investment fund companies, but also for economic policy concerning the profitability of international financial centers as seen from the perspective of open-end mutual funds. This research can serve, particularly following the recent

financial crisis, as a good basis for financial services as well as for state authorities to aid them in critically evaluating, and perhaps reorienting, relevant company policies and political convictions. This research is therefore highly valuable for practitioners from both "camps." It also provides insights into deficits as seen in particular from the theoretical standpoint of the production and sales functions of investment funds. Gunnar Lang's empirical research has demonstrated a relevant need to expand the research in this field, both here and in the overall financial services sector. His econometric analysis thus also reveals research areas that could be further investigated with theoretical causal models in the future.

Stuttgart, May 2013 Univ.-Prof. Dr. Henry Schäfer

Preface

This dissertation addresses the attractiveness of financial centers with a primary focus on the mutual fund industry and uses different empirical analysis approaches in an attempt to disentangle the reasons for location attractiveness in order to identify its influence on fund pricing. The presented research tackles an issue that is fundamental to the understanding of organizational behavior in finance: the rationale behind the decision-making process of market participants and its consequences for an economy. Literature on the subject presupposes the decreasing general relevance of agglomeration in a globalized financial world. However, the findings of this thesis indicate that spatial proximity still matters in finance. Overall, a financial center can be defined as the nexus of ties between companies and institutions in a geographically defined area which are involved in functions that enable and facilitate financial transactions. Historical developments should be taken into account when talking about the relevance of the financial centers of today (e.g., Euromarkets in London or strategic clustering in Frankfurt am Main). The literature emphasizes that the outcomes of location decisions are long-lasting and often irreversible. The effects of path dependence would have far-reaching consequences not only for the financial company itself, but also for its social relation with other market participants (in the cluster) and for the (fiscal) government.

The first empirical analysis provides a unique insight into market participants' views on factors that affect the locational attractiveness of a financial center over time, taking into account assessments before, during, and after the financial crisis. This analysis of market participants' views is carried out by explaining their assessment of what makes financial centers attractive and of the central influencing factors in this regard. In particular, the results reveal that cluster concentration with a rapid information exchange within dense social networks is a competitive advantage. In comparison, an existing specialized pool of labor without concentration does not seem to be relevant, as the human capital factor is relatively mobile in an increasingly integrated Europe. Furthermore, governmental support and parameters of regulation strongly determine a location's attractiveness for financial institutions, whereas the level of taxation does not seem to be important on the micro level. Despite some progress in establishing a level playing field in the EU, the financial market is not yet fully harmonized and countries can take different paths in regulation as long as there is scope for interpretation. Hence even minor differences in financial regulation within the EU may lead to regulatory arbitrage. Overall, the attractiveness of financial centers varies over time as opposed to the relatively persistent location factors. The findings do not

hinge on differences in market participants' socio-economic background. It is shown that fund companies seem to value the attractiveness of a financial center much more than banks, insurance companies, and corporates.

Based on these findings, the domiciliation decision in the mutual fund market is analyzed in the second empirical analysis. The intensified competition among fund companies in the EU has provided incentives to relocate companies' activities and to domicile their funds in financial centers which offer the most favorable regulatory environment. The second empirical analysis suggests that the decision on where to domicile a UCITS fund is primarily driven by fund-specific legislation, conditions in the approval process, and the cluster of specialized experts. In contrast, traditional cost factors such as registration charges, fund company tax burden and labor costs are generally considered to be less important. A further central implication of this dissertation is that fund companies sort their preferences with regard to the domiciliation decision in a very similar way and that managers' assessments are more consistent the more relevant the determinants are. This finding also reinforces the significance of the results. Further, this thesis stresses that despite virtually uniform regulation conditions for UCITS funds, differences in practice still exist between countries (e.g., relationship between actors in the fund company and authorization body). Luxembourg remains the winner in almost all considered determinants, whereas countries with a large domestic market size, such as France and Germany, lag behind. Therefore, the common divergence between the production and distribution of funds is still motivated by clear reasons; indications of path dependence do not seem to exist.

Competition among fund companies in the EU corresponds to the idea behind many reform approaches taken by the European Commission to create cost benefits for investors through the free flow of services in a harmonized single European market. Current studies imply that economies of scale in fund size can create cost benefits. Building on the previous insights, the thesis will then considers whether investors benefit from a concentrated domiciliation in a financial center, which has been made possible by the EU market integration of the European fund industry. To do this, it will analyze the determinants of recurring fund fees. The results will show that the fees charged by funds differ significantly across countries and across fund types. It will also be shown that economies of scale can be generated by fund size and fund company size and that funds domiciled in Luxembourg have considerably lower cross-border distribution costs. However, these advantages, which are passed on to investors, are countered by several drawbacks. Generally, funds complying with UCITS policy are more expensive for investors. Furthermore, fees rise with an increase in the number of countries in which the fund is distributed, as additional distribution partners and permits are required. The results do not clearly show that investors pay lower fees for funds from the specialized financial centers Luxembourg or Ireland than for funds of other countries. All in all, it is shown that the market integration of the European fund industry has reduced costs significantly, which is due mainly to the concentration of specialists in clusters and economies of scale, leading to greater welfare.

The results of this thesis are particularly interesting when brought into context with the current implementation of the revised UCITS directive (UCITS IV, Directive 2009/65/EC). This next step towards EU market integration allows fund companies to domicile a UCITS fund in any other EU Member state without having to comply with formerly required infrastructural "substance criteria," i.e., they are no longer required to have a subsidiary in the country of domiciliation. Nevertheless, cluster advantages may still give fund companies incentives to stay in a specialized financial center. In any case, this step towards market integration will create more opportunities for fund companies to geographically optimize their business model. This does not only concern new funds, but also domiciliation decisions for two existing funds that are to be merged. This development could have positive implications for investors, i.e., lower fund costs.

Overall, the core findings of this thesis support economists who believe in the virtues of economic integration in finance. The results of this dissertation strongly indicate that market integration works in the globalized mutual fund industry.

This dissertation is based on research conducted at the Centre for European Economic Research (ZEW) in Mannheim and at the Chair of Corporate Finance at the University of Stuttgart. My project would not have been possible without the support and help of many people. First and foremost, I am very grateful to my supervisors, Prof. Dr. Henry Schäfer and Prof. Dr. Michael Schröder, for their helpful suggestions and advice. Their continuing support was an invaluable benefit to me. I am also highly indebted to colleagues and other researchers at Heidelberg University, Harvard Business School, Harvard University, University of Mannheim, National University of Singapore, University of Stuttgart, Trinity College Dublin, ZEW and elsewhere for discussions related to my thesis, and in particular: Dr. Matthias Köhler (Deutsche Bundesbank), Dr. Waldemar Rotfuß (ZEW), Prof. Dr. Sandra Schmidt (University of Heidelberg), Edward Szymanoski (HUD), Prof. Dr. Peter Tufano (Oxford University), Prof. Dr. Tereza Tykvova (University of Hohenheim), and Pavel Zhelyazkov (Harvard Business School).

The earlier drafts of parts of this thesis have benefited from numerous presentations and discussions at national and international conferences, workshops, seminars, and also various talks with practitioners. A further essential factor for my work was the stimulating and encouraging research atmosphere at ZEW. Many thanks go to my current and former colleagues. Special thanks goes to Matthias Köhler and Waldemar Rotfuß for the fruitful collaboration over the last several years and to Peter Tufano for offering me the position of Visiting Researcher at Harvard Business School, where work on this thesis was completed.

I thank also in particular Anna-Lena Huthmacher, Stefanie Otte, and Christian Wuttke for their excellent research assistance over the years at ZEW.

I am deeply grateful to my wonderful wife, Julia Lang, for her understanding and support.

Heidelberg, May 2013
Gunnar Lang

Table of Contents

1 General Introduction

1.1 General Remarks

The global financial crisis of the late 2000s demonstrated the inadequacy of the regulatory framework in safeguarding the financial system's stability, exerting enormously negative effects on the real economy. Financial institutions either collapsed or were bought out; on a national level, governments were forced to respond rapidly with rescue packages in order to bail out their banking sector. Interestingly, a large fraction of the activities involving so-called "toxic assets," which essentially caused the crisis, were created by financial companies in financial centers, where, despite the spatial proximity of financial counterparties, concerns about counterparty credit risks spread quickly. In addition, there were significant amounts of job lay-offs in these centers. Financial centers are considered agglomerated bundles of the institutions responsible for the capital and risk allocation of an economy, such as stock exchanges, banks, insurance and fund companies, or other service companies, such as consulting firms or software companies.

The rise and fall of major financial centers and their attractiveness per se represent a topic of long-standing interest. They do not emerge out of nowhere or overnight. Though the financial industry is and always has been almost exclusively concentrated in a few cities, the individual importance of financial centers has fluctuated over time. Today, the earliest European capitals of finance, such as Augsburg, Bruges, Florence, or Genoa are of no more than local relevance, if any at all. Cities such as Paris or London have continued to be highly significant, while locations such as Luxembourg, Zurich, and Frankfurt have come to acquire importance for the financial industry (e.g., Cassis, 2006).

Interest in financial centers has been spurred on by the rise of new counterparts, such as the former regional centers of Hong Kong, Seoul, Shanghai, and Singapore in Asia, to preeminent European hubs like Frankfurt, London, Luxembourg, Paris and Zurich as well as new financial centers in the Arab world (e.g., Qatar) seeking to establish an international presence.

Governments have reason to attract financial institutions and facilitate cross-border activities, as these typically offer advantages to their host cities and countries, including higher paying jobs and increased personal income, wealth, and tax revenues. Several transmission channels allow further benefits due to the relationship between banking and the economy (e.g., Rajan and Zingales, 1998; Aghion et al., 2005 and 2009). Consequently, financial centers find themselves competing with each other as each country tries to enhance its home market's

attractiveness. For instance, in early 2012, the front-page story of The Economist (2012) revealed the conceivable implications of stronger regulation and a possible new EU legislation for the British financial center.

The influence of cross-country competition has taken on growing importance since advancements in technology and telecommunication have contributed to the dwindling importance of corporate location. Furthermore, the process of financial market integration is considered to be one of the key factors for making Europe more efficient and competitive, contributing to sustainable economic growth (European Commission, 2009). For this very reason, the creation of an integrated market for financial services in Europe has been an important issue ever since the Treaty of Rome declared the aim of a common market in 1957. Today, although several steps to establish a level playing field have been taken, the European financial market is still not fully harmonized. Countries can take different paths when implementing key (regulation) issues, potentially affecting the quality of the business environment in different ways and thereby creating competition especially in cross-border banking activity (up to regulation arbitrage). The situation in the aftermath of the financial crisis represents a dilemma between a (tighter) regulation framework within countries and (thinner) profits for its financial companies.

The mutual fund market provides an excellent arena for a detailed investigation of the quality of the business environment, since it shows a high level of market integration (e.g., Heinemann, 2002). In general, the global fund industry has grown rapidly. Over the past 15 years, private and institutional investors have increasingly opted for mutual funds (open-end pooled investment vehicles that invest in transferable securities traded at the fund's net asset value) as savings vehicles. According to the industry data of the EFAMA (2011b), in mid-2011, more than 70,800 different mutual funds were sold around the globe with the aim of offering investors more liquid and diversified investments at relatively low costs in comparison to direct investments in individual assets.

The extraordinary role played by the mutual fund industry most apparent when comparing its relative size among European countries. According to calculated ratios based on EFAMA data (EFAMA, 2011c), the total net assets of funds in mid-2011 amounted to 572% of the national GDP in Luxembourg and even 680% in Ireland as opposed to the low figures in Germany (50%), Switzerland (74%), France (83%), and the United Kingdom (51%). The high fraction of foreign investment fund companies in Luxembourg and Ireland is also interesting, since the locations of domiciliation and distribution often differ drastically. The domicile is the country in which a fund is legally registered. Around 81% of the fund assets domiciled in Dublin are promoted by US and UK companies, with Germany as the third largest promoter. The leading group for Luxembourg was headed by promoters from the US (22%), Germany (16%), and Switzerland (15%) in 2010 (Lipper, 2010a: 24).

In the EU, competition for the best regulatory framework has been intensified by the directive on Undertakings for Collective Investments in Transferable Securities (UCITS), which has created a standardized pan-European market through the introduction of a "product passport" for mutual funds. This passport

allows any fund registered in one EU country to be sold in any other EU country without further lengthy authorization proceedings. This standardization also applies to fund companies from outside the EU searching for the one domicile in Europe from which to offer funds to the entire continent. Moreover, when existing funds are to be merged, the question of the preferred domicile arises. The implementation of the new UCITS IV Directive (2009/65/EC) in mid-2011 may further increase the freedom to locate operations in the European Union, leading to new opportunities for fund companies to geographically optimize their business models.

In general, private and institutional investors are not interested in where the whole cosmos of funds comes from, let alone that of their own portfolios (i.e., economic perfect substitutes), although the country of domicile is observable, among other means, through the first digits of the fund's International Securities Identification Numbers (ISIN). Instead, investors tend to look for indicators of performance, risk, and their individual investment emphasis. For investors, fund fees comprise the price for services related to setting up and running a mutual fund. On the one hand, it can be argued that higher fees adversely affect investment performance. On the other hand, higher fees can increase the profitability of the issuing fund company.

As competition increases, it is important to identify the reasons which motivate financial intermediaries to settle in one place and avoid another location. For this reason, the question arises whether the strategy of fund companies to domicile their funds in the specialized hubs in order to distribute them across borders reflects specific cost advantages of these hubs, for example due to agglomeration and cluster effects, or whether it is the result of path dependence with inferior lock-in effects, not reflecting any cost advantages.

Consequently, there is a growing need to analyze the decision behind the assessment of a financial center's attractiveness in order to explain the cost as well as production functions and, subsequently, the pricing of mutual funds.

1.2 Research Agenda

This study seeks to examine macro business environment attractiveness and the respective decisions on the micro level in the mutual fund industry. The thesis addresses the influence of location factors on the quality of the business environment for the broad financial sector in general and the fund industry in particular, with a focus on fund domiciliation and consequences for investors.

This study tackles an issue that is fundamental to the understanding of organizational behavior in finance - the rationale in the decision-making of market participants and its consequences for an economy. It aims to help explain the attractiveness of financial centers by addressing market participants' assessments of relevant determinants on the macro and micro level. To the best of knowledge,

this is the first study investigating this subject as such, addressing the limitations of prior research in several ways.

Economists have long been concerned with the way companies are restricted by the external environment (e.g., Coase, 1937 or Williamson, 1985). Simultaneously, a specific strand of research theory addresses the particular analysis of companies' agglomeration (e.g., Kaldor, 1972; Piore and Sabel, 1984; Krugman, 1991a; Venables, 1996; Porter, 1990, 1998, 2000). Ever since the work of Reed (1981), several studies in different strands of research have been devoted to classifying financial centers and organizing them into a hierarchy. These studies often base their analysis on a set of noticeable characteristics, such as the number of foreign banks or market capitalization.

However, there are clear pitfalls and limits to the use of this type of ladder approach in interpreting the outcomes. Although it allows for the comparison of a large number of financial centers, it fails to identify the particularly critical factors, mainly because the number of comparisons is almost unlimited and the individual sub-industries of the financial sector are likely to place different demands on the business environment. Existing studies on the assessment of market participants only explain general location factors of the entire financial industry and are limited to a small sample which is only surveyed once. Existing cross-sectional analyses, therefore, do not investigate whether demands change over time.

This study seeks to close this research gap and further attempts to quantify the magnitude of business demand volatility over time. By covering a time period rather than a point in time, the thesis will provide deeper insights into changing views regarding factors relevant to financial intermediaries, which highly depend on several external conditions. Moreover, the thesis will simultaneously address a current topic, as the effects of the financial crisis remain unknown and have enhanced the interest in financial centers. Moreover, a previously superior location decision may become inferior over time. The chosen location remains despite a lack of valid reasons, since moving is costly and thus discarded as an option (path dependence). Theory fails to provide an explanation for this phenomenon in finance.

A further contribution of this thesis is its econometric approach, which has largely been neglected in the discussion of financial centers, although it can provide further insights into the following issues:

(1) Does agglomeration in financial clusters still pay off?
(2) Are there location factors for the entire financial industry which determine a financial center's attractiveness, or do these factors differ too greatly to be able to make a significant statement?
(3) Are statements about attractiveness over time valid or do they waver as a result of being subject to current issues?
(4) Has the financial crisis led to a fundamental change in expectations?

An important step for an analysis of location choice in the financial industry is to analyze a specific product in order to identify the relevant determinants at the micro level. Thus far, studies have neglected the varying importance of location factors for different financial products. For instance, the factor "proximity to the central bank" is often considered a fundamental factor for the attractiveness of a financial center. However, it is reasonable to assume that this is more important for macro research than for corporate banking units. Conclusions from analyses in monetary policy do benefit corporate consulting, albeit not immediately, but it is doubtful that the two units of a bank or third parties have to be located in the same location or that this business requires close interaction on the part of the parties involved. This example hints at a complex nexus of ties between actors in the financial industry. It can be assumed that the importance of spatial proximity differs across the individual sub-industries. Hence, it would be useful to take a closer look at a specific industry and its agglomeration effects.

In order to fundamentally assess a location factor's relevance for the development and existence of financial centers, this study focuses on the single financial product "investment fund," in spite of the broad literature dealing with financial centers in general. The vast literature on financial centers has identified a large amount of highly varying potential determinants which have been found to increase attractiveness. As a sub-industry of the financial sector, the investment fund market provides an excellent arena in which to investigate location factors, since it exhibits a high level of market integration. However, little attention has been devoted to understanding the decision-making process in the fund industry, although cross-border location decisions are taken for every new or merged fund, making them discernible and allowing for a clear isolation of relevant determinants.

For a precise examination, this thesis concentrates, among other issues, on uniform mutual funds, and specifically on UCITS funds. The production and distribution of these funds often diverge. This study contributes to the research in being the first to analyze the location decision behind setting up an open-end mutual investment fund.

In particular, the determinants fund companies consider in their decision to open a new fund or to merge existing funds have not yet been closely examined. Using a data set from 1979 to 1992, Khorana and Servaes (1999) indicate that fund set-ups are significantly related to the level of total invested assets, capital gains embedded in other funds with the same objectives, fund companies' prior performance, and fund company size. The probability of setting up a new fund increases with the number of existing funds in the same fund family. The authors look into the determinants leading to the initiation of new fund starts, i.e., the opportunity of generating additional income or enhancing reputation, yet do not acknowledge the decision as to where a fund is initiated. Other studies investigate why funds have been widely adopted in investors' portfolios in some countries and less in others, focusing therefore on demand-side factors. Khorana et al. (2005) find that the magnitude of mutual fund demand is larger in countries with stronger rules, laws, and regulations, i.e., where mutual fund investors' rights are better protected. The fund industry is more extensive in countries with a wealthier

and more educated population and where the industry itself is older. In a similar register, Fernando et al. (2003) focus on the growth of mutual funds.

The fundamental goal of this study is to provide a detailed empirical analysis of location factors for the European fund industry. Despite its economic importance, little empirical research exists that examines the behavior of fund companies in this regard. This lack of research is primarily due to the difficulty of obtaining data on individual-level behavior. Identifying the behavior of individuals is, however, of central importance if one is to adequately understand the implications of their decisions:

(5) What is the reason for fund companies to set up funds abroad and not at home, where the company is familiar with its resources and has efficient, well-practiced operating business cycles?
(6) What are the specific location factors behind the domiciliation decision of a fund company?
(7) Why are some countries domiciliation-strong and others weak?

This thesis further complements the literature on mutual fund fees in several aspects. Its key innovation is to scrutinize the impact of domiciliation decision results on investors' fund prices. Some studies suggest that economies of scale and, sometimes, economies of scope exist for larger fund companies, which may be reflected in lower fund fees or enhanced net performance. These studies mainly analyze US equity and fixed income funds (e.g., Collins and Mack, 1997; Latzko, 1999; Ang and Lin, 2001 and Chen et al., 2004). Gil-Bazo and Ruiz-Verdu (2009) show that funds with inferior before-fee performance levy higher fees. The authors exploit the findings of Christoffersen and Musto (2002), explaining the relation between fund fees and performance as the result of different strategic fee-settings by the fund company in the presence of investors with different degrees of sensitivity to fund performance. The study most closely related to this thesis is Khorana et al. (2009). They focus on the determinants of mutual fund fees and show that there is substantial variation in fees worldwide. Fees vary, they claim, by investment objective and fund type.

Economic theory predicts that these cluster effects should lead to lower prices, better product quality, more rapid technological improvements and, therefore, greater consumer welfare. This motivates the following research questions:

(8) Are there cost advantages in domiciling mutual funds in specialized clusters?
(9) How do mutual funds benefit from market integration and are these cost advantages passed on to private and institutional investors?

Addressing this research lacuna, the objective of the study is to outline and empirically assess (1) the determinants of the attractiveness of financial centers and the resultant location choices, and (2) their effects on investors. Generally speaking, this study will analyze aspects of the relationship between cross-border integration, competition, and investors' costs.

Understanding this localization of financial center attractiveness is useful for various parties: It is of interest to academics in economics, since it gives further substance to the debate on the price formation process for financial assets, which is generally one of the central issues in finance. The cost effects for investors from holding mutual funds in their portfolios address the growing research strand of consumer finance. Moreover, research on public finance among other subjects is interested in welfare effects of market integration. Regulators and governments should be interested in a close examination of the factors explaining the determinants of a financial center's attractiveness. On the flip-side of this medal, these determinants could cause relocation. The objective of this thesis is also vitally important for practical reasons, as companies may be interested in gaining more impartial insights into their own business model, which may help them become more competitive.

Overall, this study will provide new evidence about the behavior of market participants, thus delving into the "decision rule" governing the operations of financial companies by addressing the individual research questions mentioned above. The following will provide an outline of the study.

1.3 Outline of the Thesis

This subsection outlines the structure of the study and briefly summarizes the research approaches and main results of the chapters to follow. In order to explain the issues at hand while considering as many relevant access levels as possible, the thesis is divided into six chapters. The study is based on various empirical methods. The respective research question and methods of analysis will be described at the beginning of each chapter. The results shall be summarized at the end of each empirical chapter as well as in the final conclusion.

Different academic schools of thought examine spatial agglomeration in clusters. Therefore, chapter 2 will discuss the motivations behind the agglomeration theory underlying the research questions addressed in this study in greater detail; these motivations can be classified into Cluster Theory, (New) Economic Geography, Management, Strategy, Organizational Behavior, and Economics of Social Networks. Based on these insights, economic implications to be considered in price formation for mutual funds may be derived from the following three empirical sections.

The empirical analyses begin with a macro-based perspective in chapter 3, which will analyze fundamental location factors for the financial industry. The chapter will investigate the economic significance of market participants' assessments of location factors and country-specific characteristics over time. In brief, this chapter will give evidence to support "Lessons offered by the financial crisis for the attractiveness of European financial centers." It will study the views of market participants on factors that affect the locational attractiveness of a financial center before, during, and after the recent financial crisis. Survey data

will be gathered in order to analyze the assessments of market participants, although this method has obvious pros and cons; however, the data proper to the research objective cannot be otherwise obtained from publicly available statements. In order to compare experts' assessments of the relevance of location factors, about 300 market participants in executive positions in the German financial sector were surveyed over four consecutive years, giving us a total number of 730 observations; therefore, Germany has been considered as the benchmark. The first survey was conducted in late 2007 and early 2008, immediately preceding the collapse of Bears Stearns and Lehman Brothers, and the dramatic quantitative easing measures of the major central banks worldwide. The second and third surveys were conducted in early 2009 and 2010. The latest survey dates back to the beginning of 2011. For the sake of brevity, the analysis will focus on certain European countries with major global financial centers, namely France, Germany, Great Britain, Luxembourg, and Switzerland. Therefore, in a first step, the structure of the survey approach and the characteristics of the participating financial experts will be explained. To become familiar with the principal characteristics of the data, a detailed descriptive impression of the findings will be provided. This will be followed by an in-depth-analysis of the results with a pooled ordered probit model. By calculating the marginal effects, it is possible to further measure the elements that might lead to attractiveness within the different assessment levels.

The results will reveal that cluster concentration, governmental support, and parameters of regulation strongly determine a location's attractiveness for financial institutions, whereas the level of taxation does not seem to be important. Overall, a financial center's attractiveness varies over time, while location factors stay the same. These findings are not affected by differences in market participants' socio-economic background. Investment fund companies seem to value the attractiveness of a financial center much more than banks, insurance companies, and corporates.

Chapter 4 will revisit these principal results, shifting the focus away from the general perspective to specific industry factors determining cross-border business established in the European mutual fund industry. In short, this chapter will give evidence addressing the question "What motivates the decision to go abroad in the European mutual fund industry?" In order to answer this research question, the chapter will identify location factors crucial in fund companies' decision-making processes using structural data and expert surveys which cannot be obtained from publicly available sources. The survey explicitly focuses on the creation of a fund, omitting other activities in the value added chain, such as different distribution channels. The survey was conducted in mid-2009 among 47 senior managers in the German investment fund sector. With a focal market share of 78%, the sample is representative. To gather ambiguous results on the effects of market integration and competition on the favorability of business environments, it is a fortiori essential to concentrate as strongly as possible on product characteristics and to consider the proper source of data. For this reason, this thesis focuses on harmonized UCITS mutual funds and all survey respondents are responsible for the domiciliation decisions of their fund company. The conditions regarding

regulation, costs, market concentration, and soft factors are the focal points of the survey.

The findings indicate that the decision on where to domicile a fund is not primarily driven by traditional cost factors, such as registration charges and labor costs, but rather by the conditions of the approval process embedded in the legal framework and the quality of the workforce. Differences in these factors may allow fund companies to set up more innovative and complex funds in a shorter period of time in one country than in other countries. The findings highlight that the surveyed group of managers agree on an important set of determinants. It is evident that Luxembourg is appraised as best fulfilling the most important location factors.

Chapter 5 will investigate the price formation process for mutual fund fees around the globe and examine whether the decision to domicile mutual funds has an impact on fund fees. In short, this chapter will address the question "How does the domiciliation decision affect mutual fund fees?" This study allows evidence to be provided as to whether financial market integration influences the costs to set up and run a fund and ultimately leads to greater consumer welfare. Furthermore, systematic fund fee differences may help explain differences in fund performance. The information on mutual fund starts is derived from the database of Morningstar Direct from 2010. The sample is based on data on mutual fund fees charged by more than 12,000 mutual funds around the world between 1997 and 2006, covering 80% and 75% of total global fund starts respectively based on fund size and the total number of funds launched. A relatively new sample period is needed to account for the market integrating effects resulting from the recent facilitation of cross-border sales and domiciliation in different jurisdictions. The year 2006 has been chosen as a cut-off point to exclude distortions caused by the financial crisis. To explain the fee price-setting of mutual funds, characteristics specific to funds, fund companies, and countries will be considered. As this information is not always available from public data, it is necessary to collect them through individual sources of country-specific industry associations and private consulting companies. The thesis will examine the total expense ratio, management fee and additionally create a compound ratio of both factors in order to approximate the administrative expenses of a fund company. This analysis is based on Lang and Köhler (2011). The results will show that fund fees vary considerably across fund types and countries. While positive impacts of financial market integration can be confirmed, funds set up under the UCITS directive are more expensive. Selling funds in multiple countries drives up fees; however, these higher costs for the investor are outweighed by economies of scale that can be generated if a fund is domiciled in a specialized financial center, such as Luxembourg. Larger funds and funds set up by specialized or larger fund companies have significantly lower fees.

Finally, chapter 6 will summarize key contributions of this study going beyond the more detailed summaries at the end of each chapter.

2 Theoretical Background

2.1 The Origins of Agglomeration Theory

The theoretical background of this study is based on several different strands of research. Therefore, this chapter will provide a comprehensive overview of the related theories. Researchers from various disciplines, such as economics, management, strategy, and economic geography have been studying one particular interorganizational process, namely the geographical agglomeration of companies in clusters. One could suppose that the research strand devoted to international trade theory (i.e., Heckscher-Ohlin, Ricardo, and their extended approaches) gives appropriate explanations. However, neoclassical trade theory treats countries as dimensionless (Fujita and Thisse, 2002: 5-6).

The relevant theories and concepts of agglomeration are strongly influenced by ideas of von Thünen (1875) and Christaller (1933). Von Thünen (1875) developed a location theory for the agricultural sector which describes the optimal use of land for an isolated city and which was formalized by the studies of Launhardt (1885) and Lösch (1940). Weber (1909) exploited a neoclassical location approach for industrial companies to find the optimal production location based mainly on regional endowments and transportation costs. Christaller's (1933) central place theory describes how the establishment of a central order system is based on the supply functions of the places involved. Lösch (1940) further develops Christaller's approach in his work on the spatial order of economies, in which he analyzes the geographical distribution of industrial locations with regional market networks. From this analysis, he derives a horizontal hierarchical spatial system. Alonso's (1964) monocentric city model is also largely based on the work of von Thünen, with commuters taking the place of farmers, and central business districts replacing the isolated city. Alonso reveals that the usage of land in central business districts is arranged in the form of concentric rings.

Since the 1950s, the new "regional science" approach has been developed based on Isard (1956) in an attempt to combine economics with geography.[1] Isard (1956) expands Weber's model by the principle of substitution of production inputs. All of these approaches assume that the regional industrial structure is predetermined by regional endowments, transportation conditions, etc. Isard mainly criticizes neoclassical theory for considering the world a "wonderland of

[1] See Roos (2002) for an overview of the different approaches in the regional science literature.

no spatial dimensions" with all inputs, outputs, producers, and consumers concentrated at a single point. He recognizes that, under the assumption of perfect competition, economic activity would be geographically evenly distributed. According to Fujita (1999: 374-375), Isard therefore sees the adoption of the monopolistic competition model as a prerequisite for explaining the spatial differences in development. Thus, his aim was to reformulate the neoclassical general equilibrium theory such that all demand, supply, and price variables could be expressed as explicit functions of the location (Scott, 2000). The general equilibrium theory of (spaceless) economics would then be a special case in which transport costs are zero and therefore disregarded and all inputs and outputs are perfectly mobile. At the time, there were no formal models of imperfect competition with increasing returns to scale. This only changed with the work of Dixit and Stiglitz in 1977 (Roos, 2002).

The earliest precise discussion of agglomeration in clusters stems from the localization analyses on industrial districts conducted by Marshall (1890 and 1921). He emphasizes that "great are the advantages which people following the same skilled trade get from near neighborhood to one another. The mysteries of the trade become no mystery: but are as it were, in the air…" (Marshall, 1890: 352). He finds positive externalities of specialized industrial locations from urban specialization.[2] Economies of scale can be achieved by supplier concentration and market size effects, labor market pooling and knowledge spillovers, as identified by Marshall. In contrast, Jacobs (1969) emphasizes the importance of urban diversity, which fosters the cross-fertilization of ideas. This has led to a discussion on localization versus urbanization.

Overall, past studies on agglomeration particularly emphasize cost minimization in clusters due to their proximity to inputs or to markets. Their descriptions, however, have been undercut by recent changes in globalization, technology, and mobility, which have caused a decrease in transportation and communication costs. Today, the approach of agglomeration economies has shifted from urban areas to clusters.

2.2 Insights from the Forming of Agglomeration

Duranton and Puga (2004) summarize the theoretical literature explaining agglomeration economies, i.e., the existence of urban agglomeration economies, on the basis of three general benefits: Firstly, agglomeration enables increased efficiency in the sharing of local infrastructures, more variety in intermediate

[2] Marshall (1921) suggests four externalities relevant for the formation of a cluster: (1) mass production (i.e., economies of scale), (2) availability of specialized input services, (3) close proximity of the labor pooling to enable face-to-face communication, and (4) the availability of modern infrastructure (see Fujita and Thisse, 2002: 8).

ancillary industries, and a larger pool of workers with similar skills. Secondly, it allows superior matching among the market participants (i.e., relationships between employers and employees as well as between buyers and suppliers), and thirdly, it facilitates knowledge spillovers.

Economists such as Kaldor (1972), Piore and Sabel (1984), as well as Krugman (1991a) identified cluster theory in the early years. At the same time, economic geographers in particular examined agglomeration driven by active collective efficiencies, such as improved access to knowledge and other intangible resources (Scott, 1988; Ratti, 1992; Morgan, 1997). Porter (1990) has built on Marshall's early insights by popularizing the cluster concept. He has also continued to develop it further in his subsequent works. His studies may be viewed as a synthesis of ideas derived from a range of social scientists in economics and economic geography. The "new economic geography" is based on Krugman (1991a and 1991b) and Venables (1996), among others. This model mainly explains clusters by using agglomeration effects and increasing economies of scale and includes potentially inefficient path dependences[3] of location choices. The studies of the new economic geography contain different models of general equilibria that explain unequal spatial distribution of economic activity under the assumptions of monopolistic competition, increasing returns to scale, and the existence of transportation costs at different geographical levels: international specialization, national distribution, regional level, and city level (see Krugman, 1991a and 1991b; Krugman and Venables, 1995; Venables, 1996; Fujita et al., 1999). The models of the new economic geography are based on heterogeneous centripetal and centrifugal forces which will be explained later.

To put it simply, a cluster is a non-random geographical agglomeration of companies with similar or closely complementary capabilities (Ellison and Glaeser, 1997). Put even more simply, a cluster is a system of interconnected companies and institutions whose whole is more than the sum of its individual parts. According to the detailed definition of Porter (1998: 197), a cluster is a geographic concentration of competing and cooperating companies, related suppliers, service providers, and institutions with highly specialized skills and knowledge. Therefore, clusters encompass an array of linked industries with suppliers of specialized inputs factors. Thus, clusters include public (e.g., universities, think tanks) and private specialized service providers that provide target-oriented education, research, and technical support. Collective bodies, i.e., trade associations, are also an indication of a cluster. Foreign companies are therefore part of a cluster if they make permanent investments.

It is broadly recognized that the observed spatial configuration of economic activities is generally the outcome of a process involving two opposing types of forces. These centripetal (agglomeration) and centrifugal (dispersion) forces lead to a balance of forces that push and pull consumers and companies (Fujita and Thisse, 2002: 5). Porter (1998, 2000) shows that among individuals, geographical

[3] The effects of path dependence will be specifically addressed in the following chapter 2.3.

and cultural proximity generate advantages in productivity growth and entrepreneurial activity due to, for example, special relationships with better incentives and information which is difficult to tap from a distance. The network of companies and public institutions generates many cluster advantages which have positive externalities or spillover effects across companies and industries. Moreover, the geographic proximity between two different industries leads to co-agglomeration and the growth of both industries (Ellison and Glaeser, 1997). Schmitz and Nadvi (1999: 1504) describe the process of the collaboration between cluster members as "the conscious pursuit of joint action."

Florida and Gates (2001) examine the effects of soft location factors such as cultural diversity. They find that clusters with a culture of openness have a higher tendency towards innovation than less creative cities. Porter (1990, 2000) confirms these results, providing evidence that local agglomeration increases competition and thus encourages innovation by forcing firms to either innovate or fail. In the same vein, Glaeser et al. (1992) show that increasing competition in a cluster is positively correlated with economic growth.

The results of Maskell (2001) further verify this. He shows that, at the horizontal level, companies which are located close to their direct competitors and sell similar products enjoy several advantages. These advantages result from a superior exchange of information and from the fact that competitors' products and strategies can be observed more closely. Proximity provides incentives to continually improve one's products and to adapt to the ever-changing competitive conditions within the cluster. The vertical dimension shows the relationship between the individual levels of the value chain. The more diverse the levels, the greater the need for a division of labor, which in turn provides an incentive for specialized suppliers to settle in the cluster in order to enjoy specialization effects. Agglomeration and specialization processes also lead to the formation of a specific institutional environment. Market participants within a cluster share common norms and rules and establish mutual confidence and trust through intensive contact. Malmberg and Maskell (2002) draw a distinction between knowledge-driven cluster development in early and later stages. In the early stage, there is a more horizontal cluster dimension, with similar competencies, cognitive closeness, and learning mechanisms in terms of variation, observation, comparison, and rivalry. In the later stage, the cluster dimension is more vertical, i.e., the competencies are complementary, trust and social capital are the institutional basis, and the learning mechanisms are specialization, interaction, substitution, coordination, and cooperation.

Since knowledge becomes more specialized over time, a cluster-specific division of labor and institutional organization enables the emergence of distinctive approaches to learning and knowledge creation (see Bell et al., 2009: 624-625; Bathelt and Taylor, 2002: 7). Audretsch (1998) argues that due to globalization and advanced telecommunication technologies, the value of knowledge-based economic activity has encouraged the emergence of a new comparative advantage in geographical locations – an innovative, knowledge-creating culture. Since knowledge spillovers are most facilitated in spatial

proximity, knowledge-intense industries are likely to locate themselves in a cluster.

Apart from this, dense social networks provide strong reasons for agglomeration, for example clustering in Silicon Valley. Saxenian (1994) pointed out that the region was essentially identical to Boston (Route 128) in the 1970s. However, the two locations did not have identical characteristics. Offering an entrepreneurial culture of rapid changes and quick decisions, Silicon Valley subsequently transformed into a relatively more productive environment. The author emphasizes that the success stems in particular from dense social networks and a high level of social capital over a small area (i.e., *"you can change jobs without changing the parking lots"*).

In a similar vein, Sorenson and Audia (2000) show that entrepreneurial ventures are more likely to agglomerate in environments of existing social networks despite intense competition within the cluster. This line of thought corresponds with research in organizational behavior. It views the economy as a set of interactions within interorganizational networks while conceiving all systems of interactions as networks. Therefore, relations rather than market participants constitute the focus of analysis (Baker, 1990; Gulati, 1998). A social network is defined as "a specific set of linkages among a defined set of persons, with the additional property that the characteristics of these linkages as a whole may be used to interpret the social behavior of persons involved" (Mitchell, 1969: 2). Hippel (1994) shows that high-context knowledge is best transferred through frequent face-to-face contacts which are naturally more easily achieved in clusters (i.e., "gluey knowledge"). Spatial proximity allows face-to-face contacts and facilitates a large amount of knowledge exchange at lower cost.

The analysis of Hong et al. (2005) of the impact of spatial proximity between mutual fund managers demonstrates that it influences the similarity in trades and holdings between them. They find that fund managers from the same area have greater opportunities to interact and thereby spread rumors about particular investment opportunities. In the same context, Christoffersen and Sarkissian (2009) indicate that mutual funds in financial centers perform better due to such specific information flows. Corresponding findings show that the strength – and not just the existence – of relationships between market participants in a cluster is crucial for enabling the exchange of private information and the privileged interpretation of market information to result in knowledge spillovers. Formal business collaborations enhance socialization, fostering an informal relationship between market participants (Gulati and Puranam, 2009). This can enhance the transmission of private information and interpretations in the cluster even if the formal connection is broken (e.g., change of job). However, ending the formal relationship will reduce day-to-day interaction, thereby causing a gradual decay of the relationship. At the same time, a longer prior collaboration between market participants means a stronger informal relationship and less potential for the relationship to decay over time (Burt, 2000). It is also generally expected that companies with many ties at one point of time are more likely to receive new ties in the future than those with fewer past ties (Glückler, 2007; Barabasi and Albert, 1999).

According to corroborating results presented by Gulati and Gargiulo (1999), the attractiveness of new relationships is further enhanced by existing close ties and the parties' partners. This leads to an environment of social embedding due to processes of indirect referrals and trust formation. The authors suggest that the chance of forming a tie depends on individual characteristics and the network position of a company. In the course of collaboration within the cluster, the interaction between market participants in the form of jointly attended (in-)formal events and meetings further shape their mental maps and thus their subsequent behavior (i.e., Weick et al., 2005). The authors did not explicitly consider the determinants for the willingness to modify existing mental maps based on new interactions, but there are strong reasons to suspect that senior managers would be more reluctant to change their beliefs, since they become more confident in their own beliefs as their experience increases. Conversely, this means that people earlier in their careers have less established beliefs, making them more likely to be affected by interaction within clusters (e.g., Niessen et al., 2010).

Dense clique-like local networks are strengthened over time by shared beliefs and perceptions (mental models), for example of how markets work, and enable market participants to interpret the behavior of others (Baum et al., 2003: 702). Zaheer and Bell (2005) analyze syndicate networks of Canadian mutual fund companies and find that cognitive embeddedness and the formation of mental models within clique-like, interconnected markets lead to persistent network structures. Granovetter (2005) gives further evidence that social networks affect economic outcome in general because they (1) improve the flow and quality of information, (2) facilitate reward and punishment mechanisms, and (3) foster trust among market participants.

However, there are also indications that path dependence could be involved in the process of network growth (e.g., Walker et al., 1997). This concept will be discussed in more detail in the following chapter.

2.3 Bygones Are Not Always Bygones

Several lines of thought highlight the importance of initial conditions and events for organizational development. One strand of empirical research has considered the role of "history and natural advantages" in cluster formation, explaining why certain rules of behavior come to prevail over others (e.g., Kim, 1995 and 1999; Ellison and Glaeser, 1999; Rosenthal and Strange, 2004). The findings show that agglomeration is sometimes highly dependent on natural advantages. For instance, the North American steel industry was initially concentrated in the Great Lakes region, mainly because of iron ore and coal reserves. Similarly, California's growth can be attributed to its moderate climate, which allowed employers to pay lower wages (Rosenthal and Strange, 2004).

With the "concept of institutionalization," the neoinstitutional theory stresses the relevance of symbolic-normative environments for organizations (e.g.,

Hargadon and Douglas, 2001) and examines how they formally and informally influence the structuring nexus of organizations over time (e.g., Tolbert and Zucker, 1996; Scott, 2001). A further approach within neoinstitutional theory is the "concept of imprinting." This postulates that either initial cognitive schemes (e.g., competences of a team), or specific contextual circumstances (e.g., postwar depression, dot-com boom, financial crisis, or structure of the institution) at the time of founding leave an imprint on organizational processes at later stages (Beckman and Burton, 2008).

The two latter concepts do not address the rationale behind the escalating reinforcement of an action pattern or a course of action, i.e., a path.

However, several studies indicate that the clustering of individual institutions may also be the result of "path dependence," which has cumulative consequences in the long run. There are various definitions of path dependence which exhibit similar characteristics. Vergne and Durand (2011) stress that, in many cases, explanations based on path dependence can be found in the organizational literature.[4] In general, path dependence asserts that the order or sequences of events prior to the observation of the outcome have explanatory power ("history matters") and that the underlying trend is often irreversible, so that "bygones are rarely bygones" (Teece et al. 1997: 522). Therefore, it is assumed that the ahistorical and unbounded view of rational choice theory is limited. Path dependence is an essential feature of evolutionary concepts (e.g., David, 1985 and 2001; Arthur, 1994; Bathelt and Glückler, 2003; Martin and Sunley, 2006). The usage of the term is more metaphorical than theoretical in nature, and the literature does not give a coherent definition. Hence there are no precise indicators for examining whether or not an observable process is path-dependent. In accurate terms, path dependence asserts that the state of a system is always determined by the initial point of development, i.e., that the past always exerts a certain influence on the present and is affected by any disruptions taking place over the past course of events. The order of events may also influence the state of a system. Therefore, a path-dependent process must contain at least two possible equilibria selected contingently along the path (David, 2001).

One may assume that all human activity and all institutional processes are conditioned by their history to a certain extent. However, deriving the conclusion that all institutional decisions are path-dependent would be incorrect. Path dependence means more than the existence of routines, cognitive rigidities, or structural inertia. It relates to more specific conditions that are not characteristics of decision making, such as a lock-in effect, an outcome of path dependence associated with the irreversible (and sometimes suboptimal) persistence of a particular state of affairs (see Sydow et al., 2009).

David (1985) illustrates a prominent example for the development of a path leading to a lock-in: In the US, the configuration of the letters on a keyboard

[4] For a more detailed overview of the different related lines of thought discussed here, see Sydow et al. (2009), who cover the literature in detail and whose work is the fundamental basis for this section.

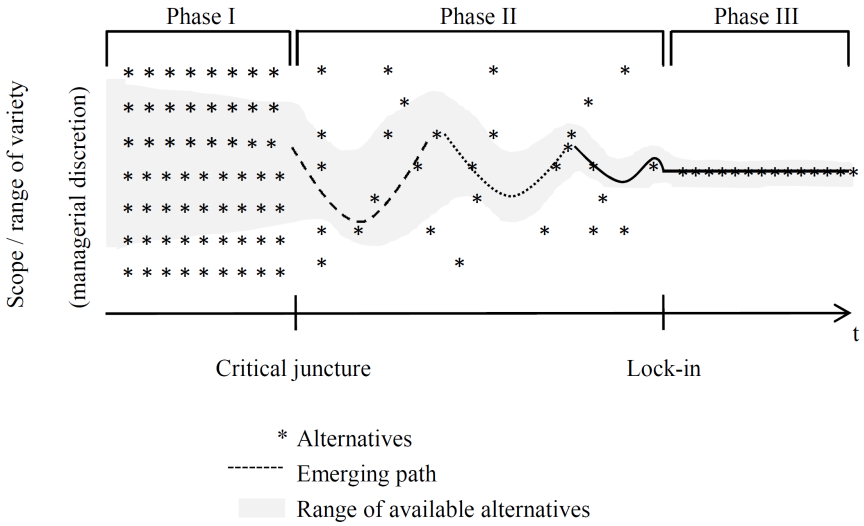
begins with QWERTY. The original reason for this configuration lies in the construction of old typewriters, yet it has remained in place until today. However, it has been shown that a change in the alignment of letters would lead to a higher typing speed. This is a technology-based example; Vergne and Durand (2011) cite studies with focal points on resource accumulation (Karim and Mitchell, 2000), innovativeness (Danneels, 2002), dynamic capabilities (Zott, 2003), cognitive processes (Lamberg and Tikkanen, 2006), institutional trajectories (Djelic and Quack, 2007), and strategic paths (Koch, 2008).

Arthur (1994: 14-15) describes the process of becoming path-dependent using four properties: (1) non-predictability (i.e., multiple equilibria, no guarantee that the decision made is the superior one in the long run); (2) non-ergodicity (i.e., historical events affect the course of the path), (3) inflexibility (i.e., a shift to another alternatives is impossible), and (4) inefficiency (i.e., inferior results due to a lock-in). Sydow et al. (2009) further establish a theory of organizational path dependence by drawing predominantly on different findings from organization studies, especially in institutional economics (i.e., North, 1990) and political science. The authors suggest a three-stage framework to distinguish the development phases of path dependence. It starts as (1) a process triggered by an event resulting in a critical juncture which (2) may transform it under certain conditions into self-reinforcing dynamics, allowing it to gain more and more predominance over alternative choices. The last potential phase (3) is an organizational lock-in, a corridor of limited scope of action which is strategically inefficient. Figure 1 illustrates this process. The implementation of the inferior result is caused by self-reinforcing events which bring about other inappropriate benefits in each step of the adopted direction. As such, path-dependent processes are characterized by the potential inefficiencies of their process results, with a general openness for future development predominating in the initial phase.

They describe the *first stage (preformation phase)* as a phase that is characterized as an open situation with a broad scope of different possible decisions. The initial situation may also be embedded in and connected with other (past) developments so that the imprinting concept described above can explain existing restrictions. The initial choice is the impetus stimulating further actions.[5] The setting of the course of events at the beginning is established by an insignificant decision or a critical event that could occur somewhat randomly (Arthur 1989: 116; David 1985: 332). It is possible that the decision taken at the beginning is in fact inferior to other realizable courses of events.

[5] Sydow et al. (2009: 693) refer to the prominent instance of a butterfly randomly flapping its wings, which leads to a change in the atmosphere, which in turn sets a chain of events in motion eventually causing a large-scale change in weather (e.g., a tornado).

Fig. 1. Funnel-shaped Structure of Path Dependence



Source: author's illustration, based on Sydow et al. (2009: 692).

The moment of entering into the dynamics of self-reinforcing processes marks the decisive transition to *stage two (formation phase)*. When the path is taken, it becomes further reinforced as alternative paths become relatively less attractive. The path taken progressively gains dominance to the extent that it triggers a regime of positive, self-reinforcing feedback. Self-reinforcement can be understood as a set of positive (e.g., increasing returns to scale) and negative mechanisms (e.g., negative externalities) that increases the attractiveness of a path relative to other alternatives (Vergne and Durand, 2011: 371). According to the findings of Pages' (2006: 110-112) theoretical approach, at least one negative mechanism is mandatory for the lock-in effect. For instance, in the case of "keyboard layout QWERTY," negative mechanisms occurred on an intrapersonal level in terms of lower costs and the allure of not requiring to learn to type on another keyboard, as well as on an interpersonal level, since the more users adopt the same keyboard layout, the less attractive it is for a prospective user to learn to type on a different keyboard. The positive mechanism can be found in increasing returns (e.g., economies of scale), since more typists use the same keyboard layout (Vergne and Durand, 2011: 378).

The transition to *stage three (lock-in phase)* is characterized by a further restriction of the scope of choices along the path and inherent inefficiency. A behavior of persistence could be induced either by structural inertia or the circumstance that a shift to an inherently more efficient solution has at this stage become generally more expensive, e.g., since the existing infrastructure would have to be converted at great cost. In this stage, the organization may also be affected by escalating commitments (i.e., Ross and Staw, 1993; Guler, 2007). These restrictions prevent market participants from changing their course of action with a negative feedback on the outcome, so that they replicate an inefficient solution. Sydow et al. (2009: 696) describe such events as pathological decision-making behavior based on the dynamics of self-justification and concerns of losing face. Moreover, institutions are embedded in more or less complex relationship networks. Such collaborations are also likely to become path-dependent with lock-in effects (Gulati et al., 2000). Sydow et al. (2009: 698-701) further synthesize four mechanisms which contribute to the development of self-reinforcing mechanisms in organizational path dependence:

(1) *Coordination effects* are an object of analysis in the field of institutional economics. The latter has provided evidence that interaction between market participants becomes more efficient as the number of market participants who adopt and apply a specific institutional rule increases, as their behavior can be anticipated. As a result, coordination costs decrease (i.e., North, 1990). This coincides with the economies of scale effect. Therefore, it is worthwhile to adopt these rules as long as many others follow them. Illustrative examples include deciding between left-hand and right-hand traffic and working time regimes, which enable cooperation and reduce uncertainties in interaction.

(2) *Complementary settings* allow for synergy effects from the interaction of two or more formerly separate but interrelated resources or rules, i.e., economies of scope (e.g., Stieglitz and Heine, 2007). The thought pattern of Sydow et al. (2009) confirms the results on cluster theory highlighted in the previous chapter. Combining interrelated activities produces a surplus which exceeds their mere sum ($X_{(1+2)} > X_{(1)} + X_{(2)}$).

(3) *Learning effects* potentially increase efficiency (i.e., a faster, more reliable and smooth workflow), which also causes a decrease in average costs per unit. Thus, the more attractive the chosen decision becomes due to accumulated skills and decreasing costs, the less attractive it becomes to switch to a new decision, such as a geographical relocation, where market participants have to start from scratch with a bundle of uncertainties. This behavior will typically lead to path dependence, in which market participants in the organization are more motivated to improve everyday practice (to gather legitimacy and reward in a prevailing corporate culture) than to look for alternatives and question well-established organizational structures.

(4) *Adaptive expectation effects* are derived from the assumption that the individual preferences of market participants are not fixed (as opposed to the neoclassical model) and vary in response to the expectations of other market

participants. According to Leibenstein (1950), the more market participants are expected to (informally) prefer a particular practice or service, the more attractive it becomes. To prevent uncertainty about the correct decision, market participants feel rewarded when others are likely to prefer the same. Adopting the mainstream mindset is related to seeking legitimacy and signaling. Those who defy the mainstream and follow an unsuccessful alternative become stigmatized as an "outsider" (Kulik et al., 2008).

Overall, the effects of path dependence have far-reaching consequences not just for the institution itself, but also for the social environment shared with other institutions (in the cluster) and for the (fiscal) government. The dissolution of a lock-in typically occurs through unforeseen exogenous forces, such as shocks or crises (Arthur, 1994: 118) and changes in the organizational structure introduced, for instance, when new market participants do not adopt the same rules (see Sydow et al., 2009: 701). Nevertheless, opening the window for alternatives is necessary, if insufficient. New alternatives must be superior because implementing an equal (or inferior) alternative would not be attractive in comparison with a practice that is both familiar and functional.

3 Attractiveness of European Financial Centers

3.1 Introduction

The rise and fall of financial centers and the factors determining their attractiveness for financial activity has long been the subject of marked interest. Financial institutions and concomitant cross-border activities are sought after by governments because they create high-paying jobs, increased personal income, wealth, and tax revenues. The impact of the banking sector on the economy creates further benefits via several transmission channels (e.g., Rajan and Zingales, 1998; Aghion et al., 2005 and 2009). As a result, there has been enduring competition among financial centers as countries continually work to enhance the attractiveness of their home markets.

The global financial crisis has laid bare the inadequacy of the regulatory framework as a guarantor of stability in the financial system. The real economy suffered from the extremely negative consequences of the collapse and of buyouts of financial institutions. Governments were forced to rapidly provide rescue packages to bail out the banking sector. The effects of the global financial crisis of the late 2000s on the attractiveness of financial centers are still unknown and have heightened the interest in financial centers in its aftermath as a result of new regulation measures currently being drawn up on the superregional level, especially Basel III in an international context and CRD IV in Europe. However, independent issues on a national level are also under discussion, such as the potential variance of regulation among financial centers, resulting in regulatory arbitrage. For instance, critics outside the eurozone fear that EU regulation is designed to undermine their position and favor financial centers in mainland Europe. This includes efforts by the European Central Bank to force clearing houses that settle trades in Euros to locate themselves in the eurozone (The Economist, 2011b). The front-page story of The Economist (2012) reveals conceivable implications of stronger regulation and a possible new EU legislation for the British financial center. In the course of changes in regulation, taxes increases, and rising public hostility, banking units have moved abroad or are currently on the verge of relocating, such as commodity traders and hedge funds relocating to Switzerland.

A large proportion of the activities involving “toxic assets,” which were at the heart of the crisis, were conducted by banks in financial centers. Interestingly, the spatial proximity of the counterparties has not kept concerns about counterparty credit risks from spreading quickly as quickly as they did. As a consequence, financial centers also suffered from significant downsizing.

Financial centers emerge neither out of nowhere nor overnight. The financial industry has always been concentrated in a few cities whose respective significance has waxed and waned over time. Many of the earliest European capitals of finance, such as Augsburg, Bruges, Florence, and Genoa are now of no more than local relevance. On the other hand, cities such as Luxembourg, Zurich, and Frankfurt have gained in importance for the financial industry, while Paris and London have remained European powerhouses (e.g., Cassis, 2006 or Merki, 2005). The degree of deregulation, e.g., Eurocurrency (offshore) markets, plays a crucial role as a historical determinant and will be treated in chapter 3.2.3.2. The recently increased interest in the subject of financial centers has been spurred by the rise of new competitors in the East. The former regional centers of Hong Kong, Seoul, Shanghai, and Singapore as well as new centers in the Arab world (e.g., Qatar) are seeking to establish an international presence. Local demand is inherently limited by a region's market size; therefore, market liberalization generally leads to an opening of new sales markets.

In Europe there has been widespread agreement on the benefits of financial market integration. These include better and cheaper access to capital, stimulation of economic growth, and reduction of unemployment (e.g., Fonteyne et al., 2007). For this very reason, the integration of a European market for financial services has been anchored in the European constitution since the Treaty of Rome in 1957. Even though many steps towards an integrated market have been taken, the European financial market is not yet fully harmonized. The ability of countries to set their own standards on key regulatory issues opens up the possibility of cross-border banking activity (i.e., regulatory arbitrage).

A broadly recognized notion is that changes in technology and harmonization forces for market integration processes mitigate many of the traditional roles of locational advantage and regional constraints, thus enhancing cross-border transactions. Consequently, the influence of cross-country competition has taken on growing importance. Advancements in technology and telecommunications, in particular, contribute to the dwindling importance of corporate location because they significantly reduce transportation and communication costs as well as the duration of business transactions (e.g., Cairncross, 1997). It is also no longer necessary to locate close to large consumer markets in order to serve them. Moreover, input resources, such as specialized human capital, can be efficiently sourced in enhanced global markets. In this sense, O'Brien (1992) proposes an end-of-geography theory which suggests that the question of location has become irrelevant in finance. This poses the question of whether the choice of an adequate location is still an important decision or rather the result of random effects.

In financial institutions, competition and strategy are dominated by internal processes. However, according to the findings of cluster theory mentioned above, the existence of financial centers suggests that a decisive part of the comparative advantage lies outside the institutions and even outside their industry, residing instead in the cluster in which their business units are based. Thus, cluster effects can mainly be explained by external economies, i.e., a company reduces costs not through its internal organization (economies of scale linked to a growing mass production), but rather through the effects of competition (from other financial

companies within the cluster) and the proximity and size of the financial sector. In particular, agglomeration in clusters is accompanied by spill-over effects and technological externalities which become factors that favor agglomeration based on direct interaction.

This chapter will examine the attractiveness of five major European financial centers, the influence of location factors on the quality of the microeconomic business environment, and the impact of these factors on the attractiveness of financial centers over time. The relevance of changes in location factors has thus far only been the subject of speculation and has never been measured empirically. A related question which has also remained unanswered is whether the recent financial crisis has altered the general perception of the role of these factors. This work provides new evidence about market participants' assessments, thus delving into the "decision rule" governing the operations of financial institutions. The results will provide a unique insight into experts' judgments of European financial centers and decisive location factors before, during, and after the financial crisis. The empirical approach followed here is based on an ordered probit model.

In order to compare expert assessments about the relevance of location factors, approximately 300 market participants in the German financial sector were surveyed over four consecutive years, resulting in a total of 730 observations. Therefore, Germany has been considered as the benchmark. The first survey was conducted at the end of 2007 and the beginning of 2008 immediately preceding the collapse of Bears Stearns and Lehman Brothers, and the dramatic quantitative easing measures of the major central banks worldwide. The second and third surveys were conducted in early 2009 and 2010. The latest survey dates back to the beginning of 2011. For the sake of brevity, the analysis will focus on certain European countries with major global financial centers, namely France, Germany, Great Britain, Luxembourg, and Switzerland.

There have been various studies attempting to investigate corporate location behavior; especially in the research field of industrial economics, there are a number of studies on location and specialization patterns across European countries (e.g., Amiti, 1998; Middelfart-Knarvik et al., 2000). Since the work of Reed (1981), many studies have been devoted to classifying financial centers and organizing them into a hierarchy (e.g., Poon et al., 2004). These studies often base their analyses on a set of quantitative characteristics, such as the number of foreign banks or market capitalization. However, such an approach has its limits. Although it allows for the comparison of a large number of financial centers, it fails to identify the particularly critical factors over time. Therefore, this study seeks to close this research gap.

Due to the time period covered, this thesis will provide deeper insights into changing views regarding factors relevant to financial intermediaries, which themselves depend greatly on several external conditions. As the surveys combine macroeconomic factors, experience, and expectations, they are highly relevant and important for the further analysis of attractiveness at the micro level. This chapter seeks to answer three questions, among others: First: How do the market participants assess the attractiveness of financial centers? The answer to this will also impinge upon a related question: Why do financial industries favor

geographic concentration? The second question is: What requirements do market participants place on a business environment? The third and final question is: Did the passage of time and the financial crisis change their way of thinking about particular location factors?

The structure of this chapter is as follows. Sections 3.2.1 to 3.2.3 will review the related literature and identify the characteristics of the financial centers studied. Section 3.3 will describe the data and methodology used and offer descriptive statistics on location attractiveness. Section 3.3.4 will presents the results and Section 3.4 the conclusions of this chapter.

3.2 Spatial Agglomeration in the Financial Sector

3.2.1 Financial Centers

In order to analyze the potential reasons behind the formation of financial centers in general, one must first understand what a financial center is. The definitions of a financial center used in the existing literature are not consistent and sometimes even ambiguous, making it difficult to make a clear distinction. The term "center" conveys a notion of space. Financial centers are often defined as an agglomeration of financial activity in a specific location that provides a range of functions and combines a number of different markets. They can be classified into regional, national, international, or global financial centers based on their geographical penetration.[6] However, national financial centers are also capable of participating in international financial transactions. From the perspective of supranational markets, ties between different centers must also be considered. Von Peter (2007) emphasizes network effects that arise from linkages between different locations. The geographical scope of a financial cluster ranges from a city to a region to a country, depending on the research objective. Moreover, it is even possible to restrict this notion of space with regard to the level of financial activity on the part of non-residents. According to Rose and Spiegel (2005), so-called "offshore financial centers" are jurisdictions characterized by a disproportionately high level of financial activity by non-residents and are typically dominated by intermediation services for larger neighboring countries (i.e., symbionts). Their principal appeal is usually based on tax and regulatory benefits.

Principally, the definition of a financial center may be based on the same assumptions as that of a general industry cluster, illustrated in more detail in the

[6] For example, Jao (1997) categorizes financial centers into different groups: teleological (functional vs. booking center), geographical (domestic vs. international center), and historical perspective (traditional vs. offshore center).

next section. The ties of business processes and the strong interaction of participants in a closely circumscribed financial center, however, illustrate its great importance as a network organization.

Therefore, a financial center may be defined as a nexus of ties between companies and institutions in a geographically defined area which are involved in functions that enable and facilitate financial transactions.

3.2.2 Related Empirical Work

3.2.2.1 Literature on Financial Centers

Many studies are based on a description of historical developments as well as findings from interviews and surveys. Sometimes they contain detailed comparisons between financial centers in Europe and reveal the optimal design of an international financial center. However, many surveys are conducted among small groups of participants and usually each group only participates once. Hence it is unclear whether their findings are truly robust over time (e.g., Abraham et al., 1994; Dietl et al., 1999, Bindemann, 1999; Harrschar-Ehrnborg, 2002; Financial Center Initiative, 2003; Cassis, 2006; Geiger and Kappel, 2006; Lannoo, 2007). The amount of literature which applies economic geography approaches to finance and banking in terms of their locations has also grown over the last two decades (e.g., Dow, 1990; Corbridge et al. 1994; Porteous, 1995; Thrift and Leyshon, 1997; Cohen, 1998; Laulajainen, 1998; Martin, 1999; Klagge and Martin, 2005; Clark, 2006; Gärtner, 2009; Capelle-Blancard and Tadjeddine, 2010; see Martin, 2011).

Furthermore, more descriptive studies devoted to financial centers often address the classification of financial centers, seeking to establish a hierarchy as measured, for example, using market share. For instance, authors of The Economist (2011b and 2012) study financial centers relatively explicitly and conclude that London is the world's leading financial center for cross-border bank lending, foreign exchange, interest rate derivatives, and marine insurances. The UK has the second largest market for hedge funds and private equity in the world (after the US). Its time zone enables market trading between the opening hours of Tokyo and New York. The widespread use of English and British commercial law for global contracts around the world give it an edge over the other main European financial centers.[7]

[7] Several rankings have been published regularly, e.g., the "Global Financial Centre Index" of City of London or Z/Yen Group, published bi-annually since 2007. It represents the assessments of approximately 2,000 respondents to an online questionnaire. Their ranking of 75 financial centers around the world is based on

Kindleberger (1974) was one of the first to analyze financial centers. He identifies a relationship between economies of scale and the concentration of financial markets which has led to the formation of no more than one dominant financial center in each country. Instead of a weaseling process, he stresses that the development of financial centers is spurred primarily by crucial circumstances from the past, such as periods of depression or war, and by the targeted influences of private individuals.[8] In addition, he emphasizes the large role played by chance in the choice of location and the development of a financial center. According to his findings, positive agglomeration effects leading to economies of agglomeration include the ability of clusters to attract a pool of well-qualified and specialized human capital and the simplified flow of information thanks to spatial proximity. He compares the development of financial centers in seven countries and examines the conditions that influenced their development, arguing that strong centralization emerges because functions of standardized international financial transactions and foreign credit accommodation can typically best be exercised at one central location. Kindleberger cites three main attributes which support the formation of financial centers: (1) banking tradition, (2) central bank in the financial center, and (3) strong currency. He describes the shaping outcome as path-dependent, and sequences of events prior to the observation of the outcome can thus be seen as exogenous.

These findings subsequently motivated Dufey and Giddy (1978) and Reed (1983) to further try to identify factors that influence the development and history of financial centers. The authors distinguish between traditional financial centers (which enable large capital exports), financial entrepots (for capital flows), and offshore financial centers (for non-residents). McGahey et al. (1990) analyze the competitiveness of financial centers. They identify four key framework factors that determine the competitiveness of a country: (1) location costs and other locational advantages, (2) availability of labor and knowledge, (3) technology and telecommunications, and (4) regulations and taxes.

O'Brien (1992) has popularized the end-of-geography theory regarding the location of financial institutions. He suggests that the relevance of location and the need to base decisions on geography will alter over time and often diminish, since increasingly sophisticated information technologies ease communication and the flow of information. As a result of his end-of-geography theory, financial intermediaries are no longer bound to specific locations. However, this approach

indicators for the availability of human resources, business environment, market access, infrastructure, general competitiveness, and assessments by market participants (City of London, 2010: 28). Another approach measures the financial market development of 133 countries, regarding finance via local equity markets, ease of capital access to loans, venture capital availability, restrictions on capital flows, strength of investor protection, environment of banks, regulation, and legal rights (see Kern, 2010).

8 See chapter 3.2.3.2 for crucial historical trends that can be determined for the countries in focus.

in any case describes a long-term effect of de-territoriality ("footloose-industry") and goes far beyond the physical location of organizations (Cohen, 1998: 20-22). In this context, Gehrig (1998) addresses the question of whether technological progress leads to a gradual dissolution of financial centers and finds further remaining agglomeration economies. Porteous (1999) applies the concept of historical path dependence to financial centers, which may imply a lock-in effect. As shown in chapter 2.3, these lock-in effects very often lead to inefficiencies, as they do not induce institutions to relocate even if another location provides more favorable conditions. The consequence of their decision to relocate depends on the mobility level of the individual institution.

In the same vein, Dietl et al. (1999) have demonstrated that the development of human capital in a financial center is strongly path-dependent. According to them, human capital represents a highly relevant resource for a financial center, as financial activities can better be characterized as individual production rather than mass production. The authors identify and compare different strategically important location factors in order to analyze international competition among financial centers. According to them, tangible and intangible resources, such as human capital, banking regulation, and disclosure requirements, play an equally important role. Examining the financial centers Frankfurt, Paris, London, New York, and Tokyo from the viewpoint of relevant location factors, they find that Frankfurt as a financial center is inferior to New York and London in many aspects, e.g., in terms of market size and market liquidity, human capital, banking regulation, and reputation. Nevertheless, Frankfurt's competitive position is superior to that of Paris or Tokyo. Some of the competitive advantages of Frankfurt over Paris are market size, market liquidity, human capital, and its trading system (forward market). Paris has advantages over Frankfurt in terms of the legal structure of listed companies. Frankfurt also has a relative competitive advantage over Tokyo.

In 1999, Harrschar-Ehrnborg (2002) asked 62 bank representatives in Frankfurt, Paris, and London for essential location factors, deducing strengths and weaknesses of the individual financial centers. As the major strengths of Frankfurt, she cites its broad and stable economic structure, a working capital market, and the future-oriented technical infrastructure of its stock exchange. The labor market is identified as having major weakness, i.e., low number of available, qualified employees and an inflexible labor law. Bank representatives furthermore criticize the strict banking regulation and the complex taxation system (see also Roberts, 2008; City of London, 2010). Paris' strength as a financial center lies in its technological infrastructure and innovation friendliness. At the same time, its capital market is one of greatest weaknesses of this financial center, in particular due to the relatively small size of the market, low liquidity, and its small investor base. Bank representatives also criticized its high taxes. London's greatest strengths are the "soft" location factors, i.e., language and tradition. Moreover, the large number of available workers and financial institutions is viewed in a positive light. Bank representatives cited high costs of living and a bad infrastructure as London's weaknesses. Overall, bank representatives from London found it more

difficult to identify the city's weaknesses as a financial center than representatives from Paris or Frankfurt.

Reszat (2004) shows that, in the context of financial centers, two coexisting and opposing forces also develop over time: centripetal and centrifugal forces. Centripetal forces are centralizing in nature, facilitating agglomeration, e.g., in the form of labor pooling, whereas centrifugal forces refer to decentralizing, negative externalities of concentration, such as competitive pressure which firms try to avoid. Schmidt and Grote (2006) further analyze this relationship, showing that the probability of a financial institution to settle in a particular location is higher if this location already has a large proportion of financial institutions. Such behavior confirms the findings of "adaptive expectation effects" in chapter 2.3.

Geiger and Kappel (2006) have conducted an interview-based study aimed at gaining insights into innovation in the Swiss financial sector. Over the course of the study, a total of eleven banks, insurance companies, and financial boutiques were interviewed. One finding is the crucial role of price as a location factor. Price is found to have become increasingly important in product competition, since products of financial services have become easy to substitute. This easy substitution has caused financial institutions to sell not only their own products but also those of their competitors. The authors identify several important location factors for different areas of competition. The completion of risk markets is perceived as particularly important for the product side. On the other hand, a reduction of transaction costs is seen as beneficial for transaction processes, as are lower tax and regulation costs for the location factor taxation. Highly-qualified workers in a financial center are a further important factor in competition. The availability of qualified workers is found to be high in London, but low in Switzerland, although the extended freedom of movement has alleviated this problem. There are great dynamics in the innovation of products and processes in the Swiss financial sector, also due to the easy substitution of products. Highly-qualified workers play a crucial role in increasing these dynamics. The relatively young area of "financial boutiques" is particularly vulnerable to regulatory alterations and changes in taxation.

Von Peter (2007) emphasizes the embedding of social networks. In his approach, a financial center is regarded as the center of a network formed by bank linkages between different cities. The approach primarily identifies cities with extensive banking activities based on their market share. The importance of financial centers is also determined using various network characteristics, such as the degree of interdependence, the proximity to other financial centers, the ability to act as intermediaries between locations, intermediation, and prestige. These factors indicate how a financial center stands in comparison to other countries. The author summarizes his core results in a ranking with the United Kingdom at the top of the list, followed by France, Switzerland, Germany, and the USA.

Lannoo (2007) conducted a strength-weakness analysis for European financial centers, identifying the following strengths: the common European market, common currency, political stability, and human capital base, as well as regional specialization. The main weakness of (Continental) European financial centers, in

his view, is the inflexibility of the labor market in terms of hiring and firing, high add-on costs, and low tax incentives. For this reason, the UK's flexible system makes London a more attractive location for Continental European banks. Lannoo sees further weaknesses in market fragmentation and a low harmonization of European financial centers in taxation and regulation. He furthermore criticizes that Europe is insufficiently service-oriented. While his overall opinion of the common European market is positive, he still identifies some challenges it poses; the common European market increases competition and over-regulation may become dangerous for large financial centers. Smaller financial centers, such as Luxembourg and Dublin, stay competitive by becoming increasingly specialized and by putting more weight on human capital. The individual taxation of income is a further point of differentiation between the individual member states.

In addition, there are empirical studies which analyze the location choice strategy for financial institutions to go abroad. Although these studies only indirectly address the issue of the emergence of financial centers, they allow for conclusions to be made with regard to the factors constituting a financial center. Since the mid-1990s, internationally active banks have pursued the strategy of extending their presence in new markets everywhere in the world. Growing cross-border banking activities have caused a growing literature on financial foreign direct investments (FDI). Traditionally, banks follow their corporate customers abroad ("client-following strategy"), whereas the literature mainly focuses on the advantages and disadvantages of the presence of foreign banks (e.g., Cerutti et al., 2005; Focarelli and Pozollo, 2005; Paladino, 2007; Claessens and van Horen, 2007; van Horen, 2007). Some independent variables are used in virtually all studies, e.g., interpenetration with other economies (bilateral trade, distance between the domestic country and the country entered) and market potential (per capita GDP). Van Horen (2007) as well as Claessens and Van Horen (2007) furthermore use entry barriers, a shared border, and institutional quality of the country as explanatory variables to explain a bank's settlement. According to Focarelli and Pozollo (2006), this "client-following" strategy is the crucial factor for the settlement of a bank. Cerutti et al. (2005), on the other hand, cite joint taxation, political risk, and low legislative barriers as centrally important factors. Claessens and Van Horen (2007) and Van Horen (2007) assess that high institutional quality is not decisive for a location's attractiveness, while similar institutional quality among different countries, a shared language, and economic integration play a more important role.

3.2.2.2 Location Factors

Table 1 summarizes the different location factors with their sub-criteria derived from the literature discussed above. Location factors can be defined and sorted according to groups, which might be of particular relevance for considering the attractiveness of a financial center from theoretical and empirical points of view. The development and interaction of these factors as influenced by changes in

different countries should explain ups and downs in attractiveness. The extent to which these factors have an effect on the attractiveness of a financial center is the subject of further analysis in chapter 3.3.

Table 1. Regime of Location Factors

Core criterion	Sub-criteria
Market size	- Size of the domestic market (e.g., economic power, employment level, purchasing power, capital market)
Cost-related framework conditions	- Costs for permissions and levy to run a business - Taxes (e.g., corporate taxation, taxation of highly qualified employees, taxation of capital income, transaction taxes) - Labor costs (e.g., wages, salaries, social security contributions and other levies) - Infrastructure and accessibility (e.g., airports, train connections, communication, and information technology) - Costs for office real estate
Cluster	- Concentration of market participants (e.g., banks, insurance and fund companies) - Proximity to service providers (e.g., communication and information technology, business consulting, marketing, press) - Proximity to related institutions (e.g., stock exchanges, regulator, government)
Human capital and knowledge	- Specialized labor supply - Education level - Innovation potential - Research institutions quality of surrounding universities in economic and fiscal research
Political and legal framework conditions	- Regulation of the financial industry, supervisory conditions, legal security, bureaucracy, banking secrecy
Positioning of prospect fields / innovation	- E.g., private equity and venture capital, hedge funds
Soft factors	- Quality of living - Attractiveness of regions for high potentials - Multiculturalism - Language

Source: Organized by the author.

3.2.3 Development Stages of European Financial Centers

3.2.3.1 Financial Market Integration in Europe

To benefit from the effects of market growth, the creation of an integrated market for financial services in Europe has been a further important issue. A single European financial market is characterized by a free flow of capital and financial services provided by banks, investment fund companies, and others. It aims to offer the same access to capital and the same range of services in every member state, thus increasing consumer choice (Fonteyne et al., 2007). European financial market integration has proceeded in several stages of development. It originated in the Treaty of Rome (1957), which created the European Economic Community (EEC). Its task was the creation of a common market between the member states in order to increase economic activity and the standard of living and, as a result, foster *"an ever-closer union among the people of Europe"* (Treaty of Rome, 1957). This was to be achieved through the free movement of people, goods, services, and capital.

Substantial steps on the way to a level playing field in the financial market have been made in the 1970s by allowing freedom of establishment (1973) and passing the First Banking Directive (1977). However, the European financial market remained very fragmented until the 1980s in comparison to the progress achieved in the common market for goods. This was due to the initial focus on physical barriers such as customs and tariffs as opposed to technical barriers such as regulation, which prevented the cross-border provision of services. In particular, this was thought to have prevented the growth of the services industry, similarly to the USA and Japan (European Commission, 1985: 26-27, paragraph 95-99).

The ensuing attempts to establish a single financial market in the EU were characterized by the conflict between the concepts of regulatory harmonization and the mutual recognition of different supervisory authorities and standards (Fonteyne et al., 2007).[9] Thee major step towards closing the remaining integration gaps was made with the Second Banking Directive that was adopted in 1989 and became effective in 1993. The Directive implies, among other things, the acceptance of the principles of mutual recognition of banking licenses, minimum harmonization, and home country control. It therefore eliminated the need for local approval and endowment capital requirements to run a banking branch in foreign countries, whereas the foreign branches became subjected to home country supervision (Buch, 2000: 50). In the 1990s, a Single Market was created, and banks in all countries were given the right to operate as universal banks, as a result of which cross-border activities and thus competition rose. In

[9] See Hertig (2000) for a discussion on regulatory competition with respect to financial institutions in the EU.

recent years, legislation has shifted away from mutual recognition with minimal harmonization (Single European Act in 1986) towards a more harmonized regulatory framework for financial institutions, as outlined in the Financial Services Action Plan (European Commission, 1999). This was confirmed in the Lisbon Agenda in 2000, leading to, for example, the Market in Financial Instruments Directive (MiFID). The reasons for this change were twofold. On the one hand, the ideological aim of creating a close political union implies closer economic integration. On the other hand, the problems arising from different and sometimes competing regulation rendered the shortcomings of national regulation more obvious than before.[10]

The introduction of the single currency euro in 1999 marked a key milestone in European financial market integration, as at the time, financial markets in Europe were undergoing a similar process of deregulation (Buch, 2005; Fonteyne et al., 2007). Providing fundamental reviews of regulatory frameworks in Europe is particularly difficult because rather diverse realities and needs exist for different business units of the financial sector. However, some general statements can be made by practitioners.

In principle, a consistent regulatory environment limits regulatory arbitrage by creating a level playing field with little or no difference between regulators in different member states, thus increasing efficiency and preventing a "race to the bottom" in regulatory standards (Davies and Green, 2008).[11] However, despite the objective of establishing a homogenous level playing field for the financial industry in Europe, in reality, countries can take different paths in key issues, generating additional competition, especially in cross-border banking activities (i.e., regulatory arbitrage). Moreover, it must be borne in mind that the timing with which legislative changes has been implemented has also varied substantially at the national level. Differences in regulatory standards may play a decisive role in the choice of a business location. For instance, hedge funds are usually registered in offshore financial centers. Also, a large fraction of the domiciled mutual funds in Luxembourg were set up by foreign fund companies.

Regulatory arbitrage between financial centers can take place on various levels. Moreover, many practical and often neglected factors have to be considered, e.g., the impact of well-organized, efficient regulatory authorities that respond quickly to companies' needs. This encompasses both the approval of new products and the timely adaptation of regulation to changing market conditions. All of these factors directly influence the competitiveness of one financial center over another. Furthermore, differences in taxation, the supply of skilled labor and protectionist regulatory and fiscal policies may also contribute to competition among financial centers. This will be a subject for further analysis in the following.

Every country has its own specific supervisory authority for banks and financial services. For example, the supervisory body in Luxembourg is said to be highly investor-friendly and thus flexible in terms of legal interpretations. Switzerland is

10 See author's contribution in Schröder et al. (2011), 54-55.

11 Ibid.

renowned for the great discretion and confidentiality of its banking activities. However, international pressure has softened banking secrecy over the last few years. The supervisory system of Great Britain enjoys a reputation of being open for innovation, user-friendly, and of treating suppliers and investors equally. Yet these differences between member states are diminishing due to the EU's harmonization efforts, which have the declared aim of creating a level playing field.

There are several studies which attempt to predict and quantify the precise effect of market integration on the European economy. However, gains are difficult to predict and measure due to external effects. Additionally, larger and more efficient markets are expected to lead to an improved allocation of financial resources due to economies of scale, which tend, for example, to lower costs for loans, mutual funds, and other financial products for consumers and companies. As a result, they increase consumer welfare. Therefore, the integration of financial markets is predicted to increase productivity and the GDP growth rate and thus the wealth of the member states. In terms of GDP growth, the early Cecchini Report (Commission of the European Communities, 1988) predicted the European market integration to generate benefits of 4.5% resulting from the general free flow of consumer products, capital, and labor. Of these benefits, one third (1.5%) was attributed to financial market integration. The authors focus on the static effects yielded by market integration as opposed to the dynamic effects arising from structural changes due to competition, which are more important in the long run, yet difficult to quantify (see Baldwin, 1989). A more recent report by London Economics (2002) researched the same topic, estimating an increase of 1.1% in the GDP and 0.5% in employment. Their estimate is based on the capital cost reduction for firms and households resulting from cheaper equity, bond, and bank financing due to increased market liquidity, among other factors. The benefits for investors are more obvious, as a larger market offers better investment opportunities with lower risks and higher returns on savings thanks to more diversified portfolios (Fonteyne, 2007; Heinemann et al., 2003). Heinemann et al. (2003) support the expectation of higher growth resulting from the integration of the retail financial market owing to an improved allocation of capital. However, the report also points out obstacles to integration, for instance the consumers' preference for national suppliers, tax discrimination against foreign firms, and differences in regulation with respect to registration, consumer protection, and marketing. The authors observe different levels of integration in different market segments. In particular, the wholesale and securities markets as well as the stock markets are much more integrated than the market for retail financial services, which remains fragmented.

3.2.3.2 History of European Financial Centers

To fully understand how and why the financial centers in focus here have become what they are today, a brief overview of their financial development is necessary. These centers initially developed where there was a need for financial services and where the demand for investment and credit possibilities was high. Trade routes by sea or land, wealthy citizens, and the seat of government constituted the main factors that have led to the formation of such financial centers. In particular, the demand for credit on the part of the emerging territorial states gave rise to the establishment of companies devoted to satisfying this demand (Merki, 2005). Private banks dominated international finance until the 1880s in the endeavor to satisfy credit demand. These owners of these banks were also their managers and, more often than not, they were family firms.

Historical development has thus caused virtually each financial center in this analysis to have its own specific focus. To make a rough distinction, it can be stated that London is attractive for its business activities in the capital market, Luxembourg is well-known as a center for the mutual fund industry (with a small domestic market size), and Switzerland is famous for its private banking activities and banking secrecy. Germany's financial industry is highly intertwined with the industry sector and, similar to France, is also known for its large domestic market size.

Two of the countries in the focus of this analysis are also occasionally labeled as tax havens: Luxembourg and Switzerland. Luxembourg is known for its dogged resistance to European efforts to promote transparency, its large mutual fund market, and financial secrecy. Switzerland is known for defending tax evasion as a legitimate response to tax burdens in other countries. One third of the world's wealth invested across borders is managed in Switzerland. Critics claim that the concessions offered under international pressure to end banking secrecy are mostly window-dressing (e.g., The Economist, 2011a).

The close link between trade and the financial industry has a particularly long tradition in Great Britain, as financial innovations were developed in London, the most important British trading post, early on. Its stable and liberal political environment had a further positive effect on this development, unlike the political environment in Prussia or France. It has been demonstrated that London maintained a unique relationship between financial institutions and the government. Merchants were given monopolistic trading rights and raised funds for the government in return. Until 1870, Amsterdam had been the dominant European trade and financial center due to the Netherlands' economic prominence and maritime trade.[12] Another important factor influencing London's predominance as a financial center was the introduction of the gold standard in industrialized countries in 1867. The discovery of gold in the British colonies and

[12] In about 1700, the per capita income in the Netherlands exceeded that of Great Britain by 50%. For a detailed historical overview, see Cassis (2006).

Britain's close ties to the United States of America, Australia, and South Africa made London the center of gold trading. In the mid-1820s, Great Britain became the major capital exporter in Europe, mainly due to large domestic savings. At the end of the 19th century, London was able to assert itself as the center of the European financial sector (Kindleberger, 1974; Merki, 2005, Roberts, 2008).

Deregulation intensity is an important historical determinant, particularly for London. The admission of the Euromarkets gave London further growth impulses between 1950 and 1970. The Eurodollar and subsequently Eurocurrency (offshore) markets were now able to allow business in foreign currencies which was free of domestic regulation (similar to the conditions of a free trade zone). A Eurodollar is a US dollar deposit (typically a 30-, 90- or 180-day time deposit) which is deposited in a bank located outside the United States (often called a "eurobank"). The assignment depends on the nationality neither of the bank nor of the investor, but rather on the location of the bank accepting the deposits (McGuire, 2004).

There are two main reasons for the growing demand for such Euromarkets, incited by proactive policies in the UK. Interest in these markets has grown due to changes in the US domestic regulation on reserve requirements and restrictions on commercial dollar lending and borrowing in the 1960s and 1970s. US branches in London encompassed capital controls, "Regulation Q," which set limits for deposit rates banks were allowed to offer, as well as an "Interest Equation Tax," which made borrowing US dollars in the US unattractive for foreigners. Furthermore, investors were motivated to search for a location outside the US for their US dollar deposits as a result of the changing geopolitical environment during the Cold War (McGuire, 2004). These mainly included investors from Soviet countries or oil exporting countries after the Suez crisis of 1956 (Battilossi, 2000). One example for the UK's proactive policy is the change in regulation initiated by the British monetary authority in 1957, effectively banning the use of the sterling to finance third-party trade. This motivated London banks to use the US dollar for international trade (Schäfer, 1983: 19-20). The growing interbank market (up to 50% of total Eurocurrency transactions; see Battilossi, 2000: 161) led to an increase in the number of foreign banks from 45 in 1959 to 351 in 1983 (Clarke et al., 2006). In the 1970s, there were more US banks in London than in New York (Bindemann, 1999: 14-15; Roberts, 2008). Later, a number of new financial products, such as syndicated loans and capital market products (i.e., investment banking), were put into operation and came to assume a dominant role in Europe. In addition to the financial district of the City of London, a second cluster was established at Canary Wharf in the early 1990s, a few miles to the east of London.

Several financial centers in Germany have also been of supra-regional importance, such as Berlin, Cologne, Darmstadt, Frankfurt, Hamburg, and Leipzig. Merchant banking with ties to London was concentrated in Hamburg, whereas the securities activity which financed the railroad system in the 1850s was concentrated in Berlin, which became the country's major financial center after Germany's unification in 1871. Berlin was the capital of the newly established Prussian Empire. At the end of the eighteenth century, a financial

market began to evolve due to the financial needs arising from warfare (Cassis, 2006: 108-114). Frankfurt, on the other hand, had already enjoyed a long tradition as a trading post and exhibition center. Therefore, like other European trade centers, an institutionalized stock exchange developed in Frankfurt in the 16th century. Not only did foreign merchants and bankers contribute to the success of the Frankfurt exchange, but also private banks, as well. These banks had close ties to banks in other financial centers (Harrschar-Ehrenborg, 2002: 63). Frankfurt's success was due in great part to government bonds, although trading in stocks and shares was of greater significance at the Berlin exchange (Holtfrerich, 2005: 62). Frankfurt did not assume its leading role until after World War II. Berlin became isolated, as the Allied forces decided for a decentralization of power. Initially, it seemed that Hamburg (as requested by the British) would take over the leading role due to its high density of commercial and private banks. Other alternatives considered were Cologne and Düsseldorf, which served the Ruhr Area (Cassis, 2006: 215-216; Kotz and Schmidt, 2007: 3).

However, the US then put forth an initiative which established the central bank ("Deutsche Bundesbank", formerly "Bank Deutscher Länder") in Frankfurt in order to separate the main financial center (i.e., functions of the money market) from the political capital. Another reason given for this favoritism on the part of US companies is Frankfurt's international airport (Bindemann, 1999: 16). As the Deutschemark became an important and stable currency, Germany's (and thus Frankfurt's) international reputation as a financial center rose. The financial center Frankfurt became even stronger when fund companies located there. The domiciliation of fund companies in Frankfurt was promoted by a new legislation in the mid-1950s (*Gesetz über Kapitalanlagegesellschaften or Investment Company Act*) (Holtfrerich, 2005: 76). Nevertheless, Frankfurt remained a financial center of more national than international dimensions between 1960 and 1980. Even after 1980, banks relocated several units for international finance and capital markets to London and Luxembourg (Holtfrerich, 2005: 77). However, being the seat of the European Central Bank endowed Frankfurt with special importance in the euro area, first and foremost because Great Britain does not share the common currency.

France has a long-standing tradition of centralization that goes back to the times of Louis XIV. In the 18th century, Paris regained importance under Napoleon due to the restructuring of the country and its finances in the aftermath of the French Revolution and the French crown's fatal monetary policy, due to which many foreign banks had left France. The financial center Paris benefited from a strong presence of Swiss and German banks. The predominant position of Banque de France, which disposed of great money reserves, made Paris a serious competitor to London in the late 19th century. After World War I, however, Paris suffered from a shortage of international investors, losing prominence as a financial center. In order to strengthen Paris's position as a European financial center, reform packages were passed in late 1966 and in the early 1990s which were geared towards the capital market and the stock exchange (Cassis, 2006). The abolition of capital control in 1990 caused a wave of privatizations, which also attracted foreign investors (Harrschar-Ehrenborg, 2002).

Zurich's rise to the European premier league only began after 1945. Reasons for its growing importance as a financial center included its abstention from the two world wars and its neutrality during the Cold War, its tighter banking secrecy introduced in 1935[13], and the Swiss authorities' reluctance to render international legal assistance in cases of tax evasion. Furthermore, Switzerland not only had very close economic ties to other countries, but also, due to its central location[14], multilingualism, and tourism, cultural ties. Its strong currency and free capital flow were other important factors in the rise of Zurich as a financial center after 1945. Moreover, in 1968, large Zurich banks created an enormous gold pool, while Swiss bankers had already had years of experience in asset management (Merki, 2005; Cassis, 2006).

The centrally located, international financial center of Luxembourg should not be neglected in this discussion, despite its relatively small size. Since the 1970s, Luxembourg's monolithic economic structure has shifted from the iron and steel industry to being a services sector. [15] The amplification of the country's financial structures was boosted further by the founding of a stock exchange and the legislation of holding companies in 1929. Foreign capital was exempt from any tax on profits and capital. Short distances, quick decision-making in politics and industry, and a close proximity to work forces in other countries proved to be very beneficial early on. Regulatory requirements were the main reason for the founding of many foreign banks in Luxembourg. After 1949, more and more US banks decided to locate here, and since the early 1960s, numerous European and especially German banks have set up branches in the country. One reason was the required minimum ratio between capital and issued loans, as well as the reserve requirements with Deutsche Bundesbank. Since 1963, Luxembourg has been one of the main beneficiaries of the Eurobond market for debt issuance and the secondary market. Around ten years later, in the early 1970s, Swiss banks

---

13 Lang (2009) examines the relevance and future of Swiss banking secrecy on the basis of a survey among 45 financial experts of Swiss banks. According to these findings, only 11% of Swiss financial experts expect its abolition, whereas 73% believe that the banking secrecy is in need of reform. In a second step, the experts were asked to estimate the consequences of these hypothetical changes. The lion's share of 65% believe that a reform could result in a small decline of potential economic growth, 22% believe in a huge decline and only 11% think that nothing will change.

14 Liechtenstein took its first steps as a financial center in the 1920s, when war, privatizations, and currency losses created the great need for a safe (tax) haven. Liechtenstein then turned away from Austria and grew (contractually) closer to the Swiss financial system. At the same time, a special tax and social law was introduced, which enhanced Liechtenstein's attractiveness for foreign capital. The number of tax-privileged holdings rose from about 1,000 in the 1930s to about 80,000 in the early 2000s. The specialized labor market, however, only began to catch up in the 1960s (see Merki, 2005).

15 Close ties to the German economy already existed in the late 19th century because the steel industry was largely financed by German banks and products were sold predominantly to the German market (Merki, 2005).

relocated to Luxembourg to take advantage of the high concentration of bank branches and the Euromarket. In the late 1970s, US banks benefited from the absence of withholding tax, while Scandinavian banks benefited from a restraint on lending in foreign currencies in their respective home countries (Cassis, 2006; Merki, 2005).

Luxembourg gained an additional competitive advantage over other European countries with the introduction of banking secrecy after the Swiss model. The re-introduction of withholding tax in Germany in 1992 caused a greater number of German banks to relocate to Luxembourg. The government's flexibility and openness towards the financial sector and the quick application of EU directives, generating first-mover advantages, are considered the principal strengths of the country (e.g., UCITS in 1988). In most European countries at the time, the domiciliation of a mutual fund took several weeks or months, whereas a minimum two weeks sufficed to set up a mutual fund in Luxembourg. Today, the country is the seat of many EU institutions, boasting internationality as one of its trademarks. More than 60% of Luxembourg's citizens are originally from another country, predominantly from other EU member states. Every day, more than 120,000 economic migrants commute from Belgium, Germany, and France (Picard, 2009). The government's support of the financial sector is also motivated by fiscal policy, as the financial sector plays a crucial role for the national budget. The following chapter will take a closer look at the magnitude of the financial centers in focus here. Overall, the success of Luxembourg as a financial center can be explained by the absence of duty on transactions, low market commissions, and greatly simplified formalities.

3.2.3.3 Structure of European Financial Centers

There are many ways to compare, depict, and assess market structure and the interaction and ties between financial institutions and their surrounding companies in order to assess the importance of the financial sector for a country in general and in comparison to other major European financial centers. For the sake of brevity, this chapter will discuss general structural differences instead of particular location factors for a vast amount of individual sub-industries in the financial industry, before shifting the focus to the funds industry in the next chapter. Furthermore, remarks from the interviews conducted in the pre-test (see chapter 3.3.1) will be included.

Financial centers will first be compared on a regional and municipal level with respect to their share in the national GDP and number of jobs. The results shown in table 2 illustrate that, in 2008, the share of the financial sector in the national GDP (total employment) was particularly high in the UK, totaling 7.8% (4.4%), while Switzerland lying at 12.0% (5.1%) and Luxembourg at 28.1% (11.6%).[16] These figures indicate a certain dependence of the country on its financial industry. This dependence explains the central role of respective policy implications. The financial sectors in France and Germany are similar in size when measured by these ratios. However, with 3.1%, both lie below the average of Western European countries, which is 5.8%. Moreover, the comparison in absolute terms in table 2 shows that Germany has the largest financial sector in Europe, which corresponds to country size, which is therefore not a surprising result.

A chronological comparison of the share of the different sectors in total added value yields the following results (illustrated in figure 19 and figure 21 in the Appendix): Germany's added value grows from about 4% in 1980 to nearly 4.9% in 2008, with the financial sector outside of banks and insurance companies exhibiting the greatest growth. This cross-section's trend was decoupled from that of employment in 1999. Luxembourg exhibits a similarly strong increase in this sector, although the financial sector's share in total value creation in 1980 was almost the same as its share in 2008 (almost 27% and 28.1%, respectively). This increase is paralleled by an increase in the number of employees in this sector (illustrated in figure 20 and figure 22 in the Appendix).

However, there are considerable differences in the concentration of major financial cities. When assessing the share of a financial center's economic added value in a country's total financial sector, it can be seen that some clusters represent almost half the added value of the entire national financial sector. For instance, Zurich generates 46% of the total added value created in the Swiss financial sector. France is also highly concentrated, as Paris produces nearly 53% of the added value of the national financial sector. A comparison of value added and the number of agents in a financial sector also leads to interesting results. The ratio of people employed in the financial sector to the national employment total is lower than the share of added value generated in all cities. This points to the benefits of agglomeration within a cluster, which could suggest advantages of specialization or productivity. Rosenthal and Strange (2004) suggest that a doubling of city size increases productivity by between 3% and 8% for a wide range of city sizes. However, differences in returns of various branches may also cause this imbalance (e.g., investment banking versus traditional banking). In London, for instance, the figures indicate that one fourth of all employees in the

[16] The "banking" sector comprises banks and fund companies. The "insurance companies" sector comprises life insurance, health insurance, indemnity insurance and reinsurance. The sector labeled "others" comprises stock and commodity exchanges, stock brokers, independent asset managers, insurance brokers, etc.

financial sector, i.e., 340,000 people, generate half of the value added produced by the national financial sector.[17]

Table 2. Relevance of the Financial Sector in a European Comparison

	Value creation in the Fin. Sector in million euros	Share of GDP	Employees in the Fin. Sector, in 1,000 persons	Share of total employ-ment
Western Europe	**635,402**	**5.8%**	**5,746**	**3.1%**
United Kingdom	**127,023**	**7.8%**	**1,296**	**4.4%**
London	61,471	48.4%*	304	23.5%*
Germany	**109,242**	**4.9%**	**1,192**	**3.0%**
Frankfurt	9,467	8.7%*	93	7.8%*
Munich	6,208	5.7%*	72	6.0%*
Hamburg	6,037	5.5%*	53	4.4%*
Stuttgart	5,867	5.4%*	68	5.7%*
Cologne	4,936	4.5%*	55	4.6%*
Berlin	3,837	3.5%*	38	3.2%*
Düsseldorf	3,308	3.0%*	33	2.8%*
France	**83,217**	**4.8%**	**765**	**3.0%**
Paris	43,181	51.9%*	295	38.6%*
Switzerland	**37,886**	**12.0%**	**231**	**5.1%**
Zurich	17,317	45.7%*	90	38.8%*
Luxembourg	**9,895**	**28.1%**	**40**	**11.6%**
Luxembourg City	9,895	100%*	40	100%*

Source: author's illustration, data based on BAK Basel Economics (2010) for the year 2008, *Share of the entire national financial sector.

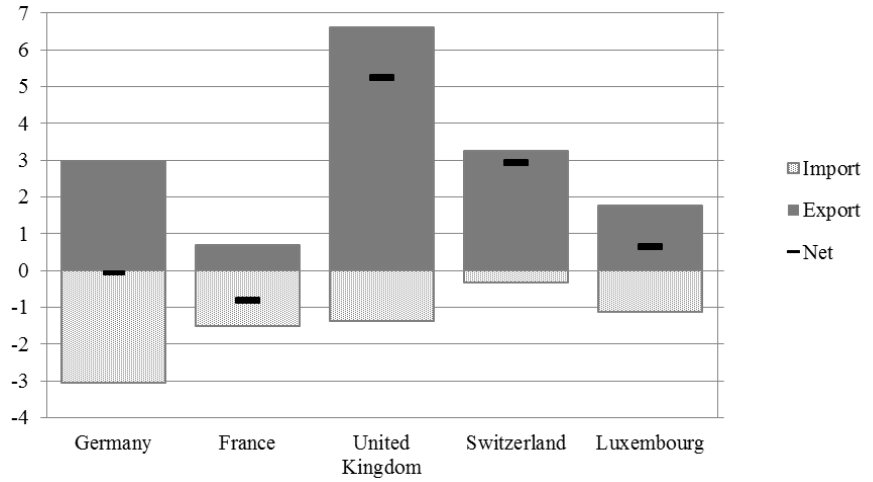
According to The Economist (2011b), the share of Britain's GDP accounted for by the whole financial services industry has shrunk steadily since 2007. A similar proportion between employees and their share in value creation is also observed for Frankfurt and Germany. However, Frankfurt accounts for only 8.7% of value creation in the German financial sector. In this regard, Frankfurt is followed closely by Munich, Hamburg, and Stuttgart. In a European comparison, Germany thus assumes a special role in terms of concentration of financial services. While the financial sector's activity is usually bundled in one national location, this is not the case in Germany. One reason may be the aforementioned considerations of the

[17] The pre-test shows that London is viewed in a positive light, not only for its soft location factors, such as language and cultural life, but also because of the great number of highly-skilled employees, financial institutions, and specialized services providers. High costs of living and a bad infrastructure, on the other hand, are London's greatest weaknesses.

Allied forces after World War II (see chapter 3.2.3.2) or Germany's federal structure, which has resulted in a certain rivalry in location policy in Germany. This very uncommon, relatively equal distribution and the relatively little importance of added value generated in the finance industry as compared to the total added value in Germany indicates that financial services in Germany are geared towards the end consumer.

The second indicator for comparing European banking structures is the financial sector's export and import activity. Net exports indicate the international competitiveness and cross-border activities of a financial center. According to Porter (1998), clusters that export products or make investments to compete outside their local region are the key source of a region's economic prosperity and growth in the long term, as local demand is inherently limited by a region's market size. Figure 2 shows that the financial sectors in the UK, Switzerland, and Luxembourg have particularly large export flows. Furthermore, the UK and Switzerland have an especially high net surplus. The figures in figure 2 reveal that the supply for the wholesale financial services of the respective countries depends strongly on the demand of clients in foreign countries. Import and export flows are relatively balanced in Germany and France, although, interestingly, the absolute size of the two countries is comparatively small.[18]

Fig. 2. Export and Import in the Financial Sector, 2004–2008

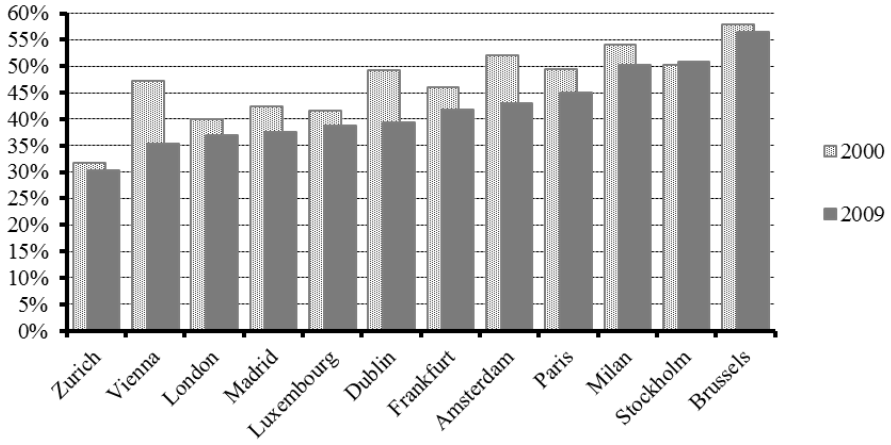


Source: OECD, Statistics on International Trade in Services (2010), numbers in billion euros, average amount of 2004-2008 of the sectors banking and others, excl. insurance companies.

18 The results of the analysis of export and import activities of insurance services paint a similar picture, see figure 18 in the Appendix.

The taxation system might be an important quantifiable input factor for the financial sector. First, the tax burden is considered for a single household with an available salary of EUR 100,000 after tax. The idea behind these comparisons is that employers in the compared countries compete for highly qualified employees (Elschner et al., 2009).[19] Figure 3 shows that the tax burden decreased in almost all cities between 2000 und 2009. In 2009, highly qualified employees in Germany with an effective average tax rate of 42% fared better than employees in France (45%). In Luxembourg, the tax burden is lower, with a level of 39%; in London, it is 37%. The best conditions prevail in Zurich, where tax rates only reach 30%.

Fig. 3. Tax Burden of Highly Qualified Individuals



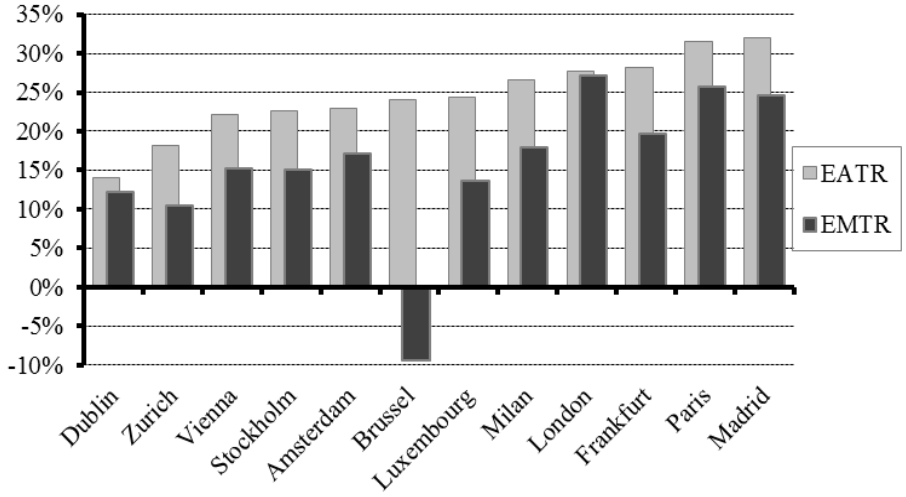
Source: author's illustration, data based on BAK Basel Economics (2010), Elschner et al. (2009), effective average tax rate (at an available income of EUR 100,000/year after tax, single households).

To compare the tax burden for (financial) corporations, figure 4 illustrates the "effective average tax rate" (EATR) and the "effective marginal tax rate" (EMTR) in Europe. The EATR is considered an appropriate measure for the attractiveness of a region as a location because this indicator combines different tax types. The EATR bases its calculations on an investment with 20% return before tax. While the EATR is crucial for the choice of location, the EMTR considers the theoretically optimal investment size after a location has been chosen. The EMTR is the relative tax wedge between the capital costs of an investment and the required after-tax yield. EMTRs react less strongly to differences in profit tax. Instead, they tend to be driven by tax base effects and capital tax (see Elschner et al., 2009). In 2009, Zurich exhibited an EATR of only 18.2% and the lowest EMTR of all reference countries, while at 10.4% Luxembourg (EATR: 24.3%,

[19] See Elschner et al. (2009).

EMTR: 13.7%) and Frankfurt (EATR: 28.1%, EMTR: 19.7%) rank in the middle range, whereas France and the United Kingdom offer EMTR's of almost 30% each. For a very long time, Germany ranked far behind all other countries. However, due to a reform in 2008 (corporate tax reform), the burden of German corporations has become lighter.

Fig. 4. Indices of Company Taxation Burden



Source: author's illustration, data based on BAK Basel Economics (2010), Elschner et al. (2009); effective average tax rate (EATR) and effective marginal tax rate (EMTR) of 2009.

These differences raise the question of which factors define a financial location's attractiveness. The following chapter will attempt to answer this question.

3.3 Econometric Analysis

This section will analyze the dataset. A first step will explain the structure of the survey approach and the characteristics of the participating financial experts. A detailed descriptive impression on the findings will then be provided in order to become familiar with the principal characteristics of the data. Afterwards, an in-depth analysis of the results will be provided using a pooled ordered probit model. It will be seen that calculating the marginal effects allows elements to be measured that might enhance attractiveness within the different assessment levels.

3.3.1 Empirical Setting and Data

The dataset consists of four surveys that were jointly conducted with the "ZEW Financial Market Survey," which includes the internationally recognized German "ZEW indicator of economic sentiment." This has been issued on a monthly basis since December 1991. Approximately 350 financial analysts from banks, insurance and fund companies, as well as large industrial companies regularly participate in the survey on which the index is based. The respondents include financial experts from research, economic and finance departments, fund managers, and investment consultants (e.g., Schmidt and Nautz, 2012: 4-5).

For this thesis, an additional questionnaire was developed and appended to the ZEW index four times (see table 26 in the Appendix). The first special survey for the purpose of this research was conducted at the turn of the year 2007/08, i.e., between December 8 and January 9, immediately before the collapse of Bear Stearns, Lehman Brothers, and the dramatic quantitative easing measures of major central banks. Since then, the survey has been conducted on an annual basis every January until 2011. The survey provides an unbalanced panel dataset with 730 observations. To take the individual years into account, 126 respondents have answered at the turn of the year 2007/08, 228 in 2009, 135 in 2010, and 241 in 2011.

Figure 5 provides an overview of the chronological order of the surveys. The vertical solid lines display the points in time at which a survey was conducted. The historical repercussions of a number of crucial events occurring during the financial crisis are displayed as vertical dashed lines. Moreover, different performance stock indices (Dax30 and MSCI Europe) and central bank interest rates (ECB and FED) are considered as simple indicators for market sentiment. It is assumed that the participants in the sample were aware of these previous events and the levels of financial indicators at the time of each survey. The first survey at the turn of the year 2007/08 is defined as "before", the second survey in 2009 as "during", and the third and fourth survey in 2010 and 2011 as "after" the financial crisis.

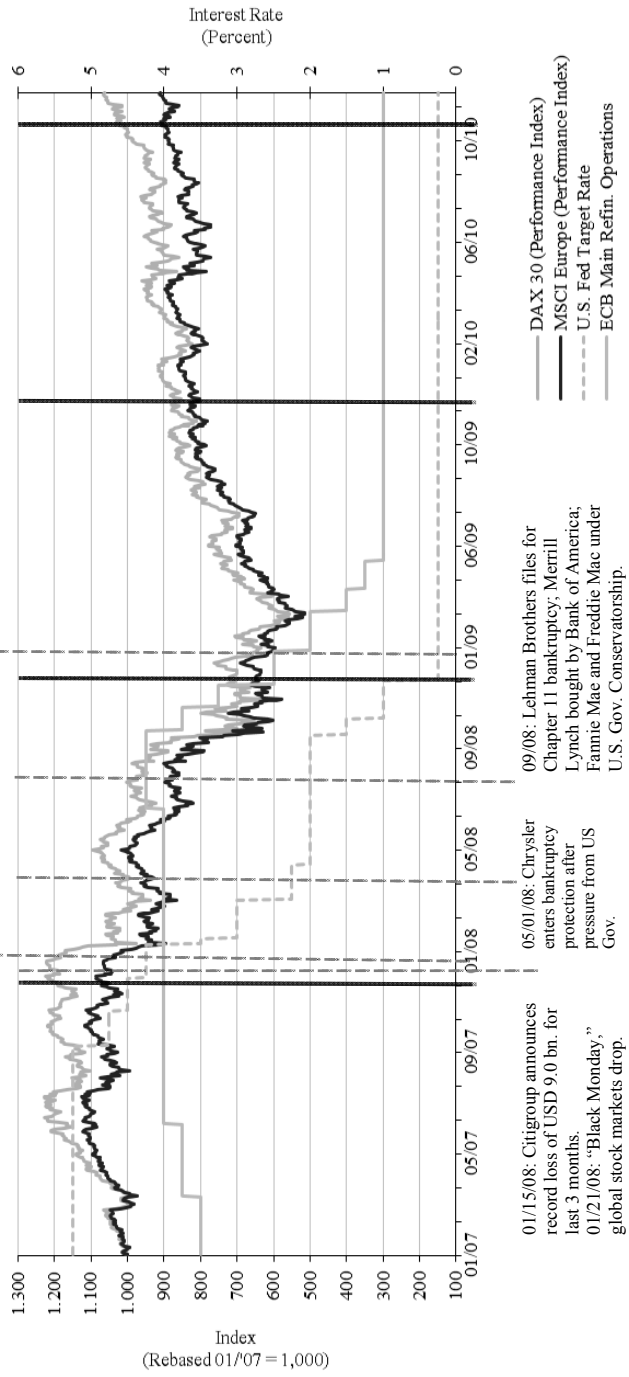


Fig. 5. Survey Timeframe, Main Economic Events, and Financial Indicators

Source: author's illustration; the vertical solid lines illustrate the points in time of the four surveys; the vertical dashed lines illustrate major economic events during the financial crisis; all stock market indices are based on 1,000 in January 2007.

As it is important to formulate appropriate questions in a survey, the questionnaire was designed in accordance with the guidelines of Groves et al. (2009), Schaeffer et al. (2003), and Bradburn et al. (2004).

Prior to the survey, several intensive interviews were conducted with executive managers of the financial sector. In addition, the relevant literature described in chapter 3.2, for use with the survey was reviewed. The questionnaire was then applied in a pre-test with market experts as a final check of its acceptance and appropriateness. The questionnaire, which was used for each survey from 2008 to 2011, consists of eight questions that aim at evaluating the attractiveness of financial centers and relevant location factors in theory and practice. The participants first gave a detailed, exemplary assessment of Germany, their domestic market, before they evaluated the collective fulfillment of location factors in the most important competing countries having hubs in Europe, i.e., France, Germany, Great Britain, Luxembourg, and Switzerland. The selected group of countries was chosen on the basis of its varied characteristics. Roughly, one can say that Great Britain is attractive for financial activities related to the capital market, Luxembourg is famous for the concentration of its asset management industry (with a small domestic market size), and Switzerland is well-known for its private banking, asset management activities, as well as banking secrecy. Germany's financial industry is highly intertwined with the industry sector, and like France, is also known for its large domestic market size in Europe.

All questions were to be answered on an ordinal scale with three to five ordered grades and the additional option of adding further aspects not included in the questionnaire. The ordinal scale provides sufficient details, while not overstraining the respondents (Groves, 2009). The scale format used follows the Likert bipolar scaling method, which measures either positive or negative assessments of a statement. The survey comprises eight questions and is structured as follows (see table 28 in the Appendix):

First, in order to capture the respondents' general assessment of Germany as a financial center in an international scope, the survey questionnaire starts with an opening question concerning the country's attractiveness in general. In a second step, the experts are asked to rank Germany relative to its European neighbors and therefore its main competitors as financial centers. Thirdly, survey participants evaluate the relevance of the given location factors to a theoretical, ideal financial center.

Based on the literature described in chapter 3.2 and the interviews, there are nine substantially different location factors which should be assessed:

(1) Market potential (size of the economy and growth outlook),
(2) Concentration of important market participants (strong presence of other financial institutions; close proximity to central bank, supervisory authority and stock exchange),
(3) Tax burden (e.g., company taxation, taxation of capital yields and capital transfers, taxation of highly qualified workers),

(4) Human capital and knowledge (availability of qualified employees, colleges, universities, and research institutions),
(5) Regulatory and supervisory framework (regulation of financial institutions and supervisory conditions),
(6) Stability of the political system (e.g., legal security, stable political guidelines),
(7) Stability of the economic system (e.g., prices, interest rate, exchange rates, business cycle development),
(8) Innovation potential (e.g., positioning in future-oriented fields such as private equity and venture capital, hedge funds)
(9) Soft factors (e.g., quality of living, attractiveness of regions for high potentials, multiculturalism, language).

In the fourth question, the respondents were asked to rank Germany in terms of its performance concerning these location factors. Fifth, participants were asked to judge the current effort of the German government to improve conditions for the financial industry and, in the sixth question, to evaluate government development over the previous two years. In question seven, the respondents assessed the most relevant factors for improving attractiveness. Finally, they were also given the chance to add further comments in an open question.

The company name, associated industry, and address are known for every participant. In addition to this first questionnaire, a second separate questionnaire was sent out once in which survey participants were asked to give information on personal characteristics: gender, age, years of professional experience in general and in the finance sector in particular, and whether they hold a university degree. At least 612 of 730 observations in total provided their personal data. Consequently, data on socio-economic characteristics is available for 84% of the sample. Hence it is possible to draw conclusions about how different personal characteristics influence market participants' assessments and whether the financial crisis affected individuals differently. Table 3 provides an overview of this socio-economic information.

Table 3. Sample Description

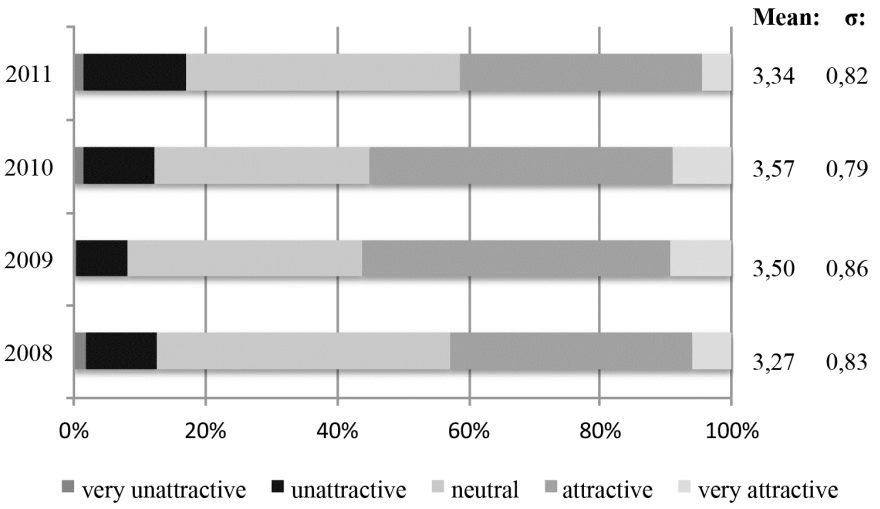
Item asked	Responses (in %)				Number of Responses*
Gender					
male: 94.7%	female: 5.3%				620
Age (in years)					
<40: 20.9%	40-50: 43.8%	>50: 35.3%		mean: 47.4	612
University Degree					
yes: 70.7%	no: 29.3%				618
Professional Experience in General (in years)					
<15: 15.7%	15-25: 45.8%	>25: 38.5%		mean: 24.3	618
Professional Experience in Financial Markets (in years)					
<15: 31.0%	15-25: 48.4%	>25: 20.6%		mean: 20.2	620
Industry					
Banks:	62.5%	Fund companies:	12.3%		730
Insurance companies:	7.5%	Corporates:	17.7%		
Located in major financial center**					
yes: 16.0%	no: 84.0%				

Source: author's calculations; *the number of responses is broken down as follows: 126 in 2008, 228 in 2009, 135 in 2010 and 241 in 2011; **zip codes beginning with 60 are assigned to Frankfurt/Main.

3.3.2 Descriptive Statistics

Figure 6 gives a basic overview of the respondents' assessments of Germany as a financial center. Before the financial crisis, only 43% of the participants considered Germany attractive or very attractive; the lion's share, with 45%, was merely neutral. Interestingly, in the year of the crisis in 2009, the image transformed, with 57% of the experts assessing the financial center as attractive or even very attractive. At the same time, the proportion of negative assessments dropped, so that about 36% gave a neutral opinion. The results of the 2010 survey do not differ significantly. However, the proportion of negative assessments did increase to some extent. This trend continued in 2011, with results that are rather similar to the time before the financial crisis. Yet 41.2% continues to rate Germany as attractive or very attractive, a figure accompanied by a peak on the negative side, as 17% of the participants consider Germany (very) unattractive.

Fig. 6. Attractiveness of Germany as a Financial Center

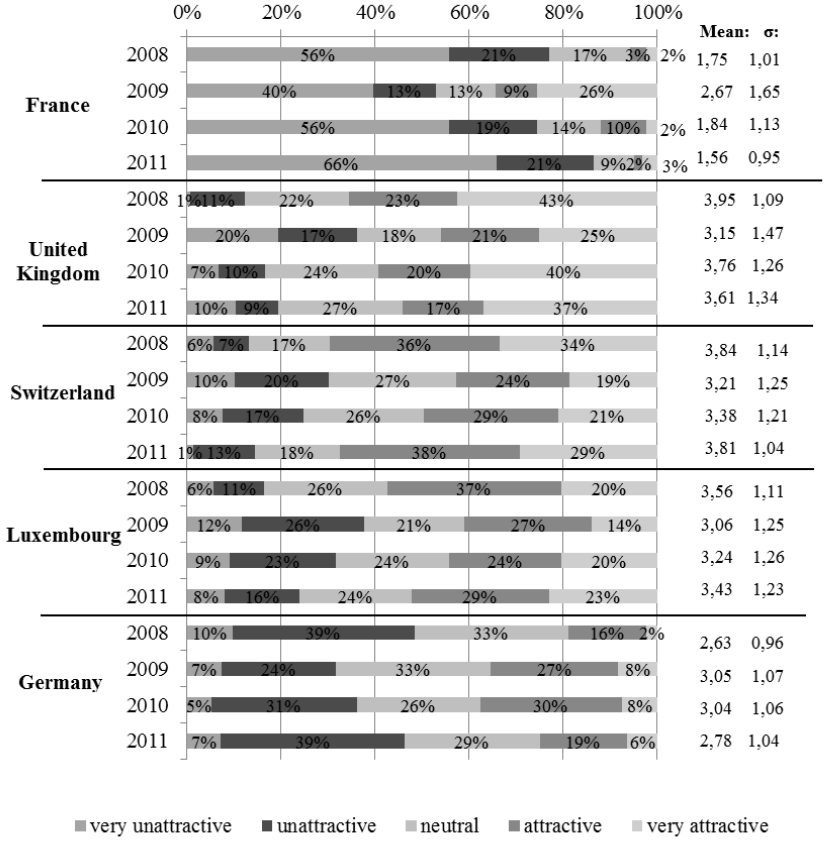


Source: author's calculations.

The second survey question gives an impression of how the other European financial centers under discussion are ranked. The results indicate a trend similar to the previous assessments of Germany. As can be seen in figure 7, the percentage of negative estimates is the lowest in the crisis year of 2009. The same pattern is seen in France, which is also characterized by a large domestic market size as described in chapter 3.2.3.3. However, in general, the participants give France a more pessimistic outlook than the other countries. More than half of all respondents assess the environment in France as (very) unattractive, even after the crisis in 2011, with a proportion of 86%. As such, both countries were deemed by the surveyed experts to have benefited from the crisis. In case of an incipient improvement in market conditions, they would, however, suffer from a loss in popularity which would return them to pre-crisis circumstances.

A contrasting development is given for Luxembourg, Switzerland, and the United Kingdom. These countries were rated at their best levels before (2008) and after the crisis (2011). Thus, the worst-ranking countries, France and Germany, seem to be the winners of the crisis at the expense of the other three. Both countries' means went up in 2009 only to subsequently fall again when the financial market began to recover from the crisis. It is evident that standard deviations increased for all countries during the crisis, especially for France and the UK.

Fig. 7. General Rating of European Financial Centers



Source: author's calculations.

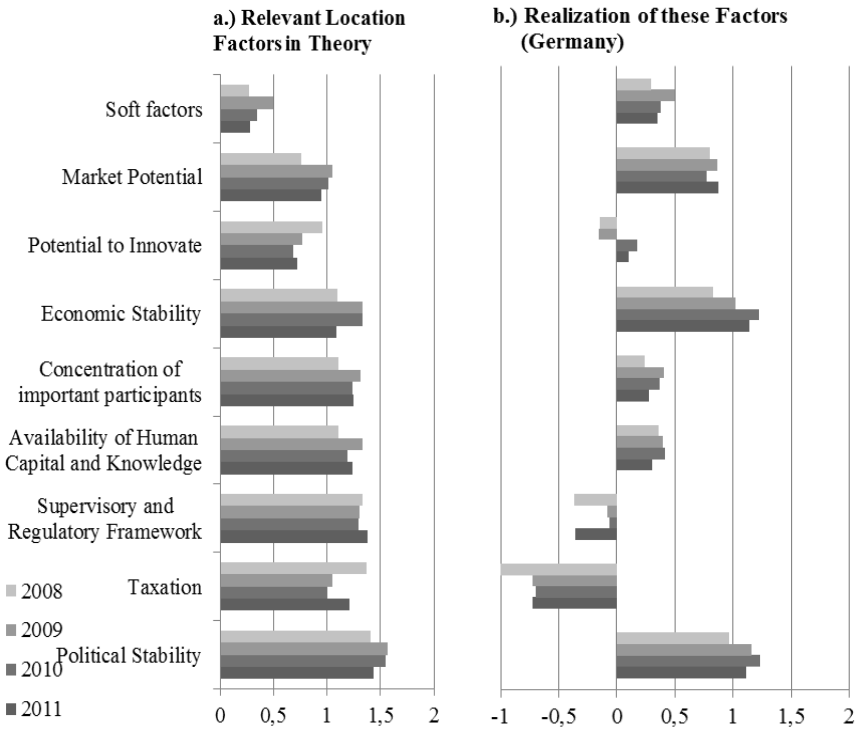
Moreover, the participants were asked, on the one hand, about the relevance of specific location factors for an ideal financial center from a theoretical point of view (figure 8, left) and, on the other hand, about the real levels for the benchmark financial center (figure 8, right). This comparison shows the difference between need and reality over time.

At first glance, it is apparent that all factors have been assessed as being important from a theoretical point of view. In particular, political and legal stability seem to play the most important roles, while economic stability as well as supervisory and regulatory framework conditions are also rated high. These three factors also exhibit relatively low standard deviations, indicating a large consensus

among the respondents. In contrast, most disagreement is observed with respect to the relevance of soft factors and market potential, which are regarded as sufficient for the growth of a financial center. For the complete observed period, the cluster concentration of important market participants as well as the availability of human capital were also both rated as important (greater than 1). Both factors have exhibited a similar order of magnitude. The average results pertaining to location factor development indicate that location factors are relatively persistent over time. These results can be affiliated with a steady mindset during times of crisis. Yet interesting differences can nonetheless be identified. Average values for cost-related factors (taxation) and innovation potential dropped during the crisis and increased again afterwards. A different course can be observed for other factors, however. For instance, the need for legal and financial stability became more important during the crisis, as did the need for the concentration of other important market participants and soft factors within a cluster.

The levels of realization show a different picture for the benchmark financial center. Comparisons of the means indicate that all factors are seen in a worse light, whereas the results for soft factors can at least be distinguished between theory and practice. In particular, it appears that the fiscal and regulatory frameworks in place in Germany differ the most from the theoretical need during the entire time period. In comparison, the assessments regarding the supervisory and regulatory framework have been interpreted as slightly lacking. However, the experts' assessments improve for both the crisis year and the subsequent year. This opinion also holds true for both human capital cluster factors. The realizations are relatively close to and consistent with theory on stability indicators with respect to the political, economic, and market environment. These results may reflect the broadly established financial industry in Germany and its relatively small share of the German value added (see chapter 3.2.3.3).

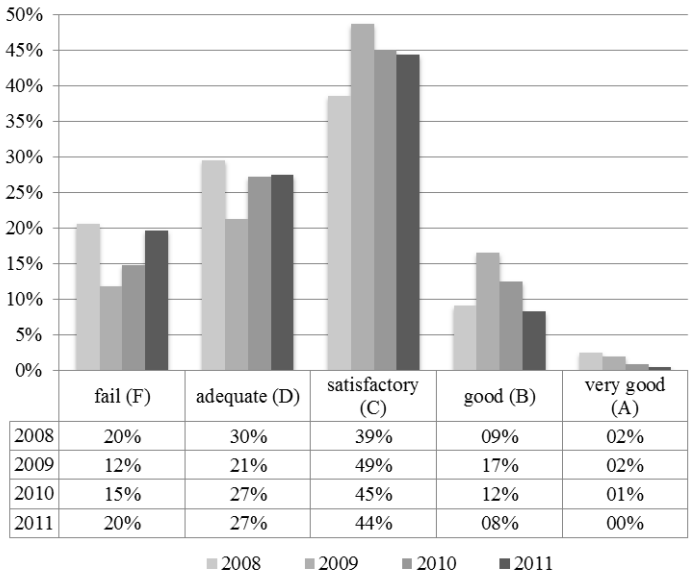
Fig. 8. Relevant Location Factors in Theory and Realization



Source: author's calculations; the scales of assessment on (a) the left-hand side and (b) the right-hand side range from minus 2 (a= unimportant, b= much worse) to plus 2 (a= very important, b= much better). The factors are sorted by importance in 2008 and thus before the financial crisis.

The surveyed experts basically assess government efforts in Germany on a five-step scale of school grades between "one" (i.e., A=excellent) and "five" (i.e., F=fail) with poor grades (see figure 9). Exactly 50% of the respondents assessed government efforts with the grades "four" or "five" (D or F) before the crisis. The reviews do not differ considerably over time, although the efforts are judged more positively in the year of the crisis, whereas they again worsen afterwards. Just about 20% of the experts assess government efforts with the grades "one" (A) or "two" (B) in 2009; in the remaining years, the ratings are lower. The majority awarded a "three" (C) across all years.

Fig. 9. Assessment of Government Efforts to create Framework Conditions

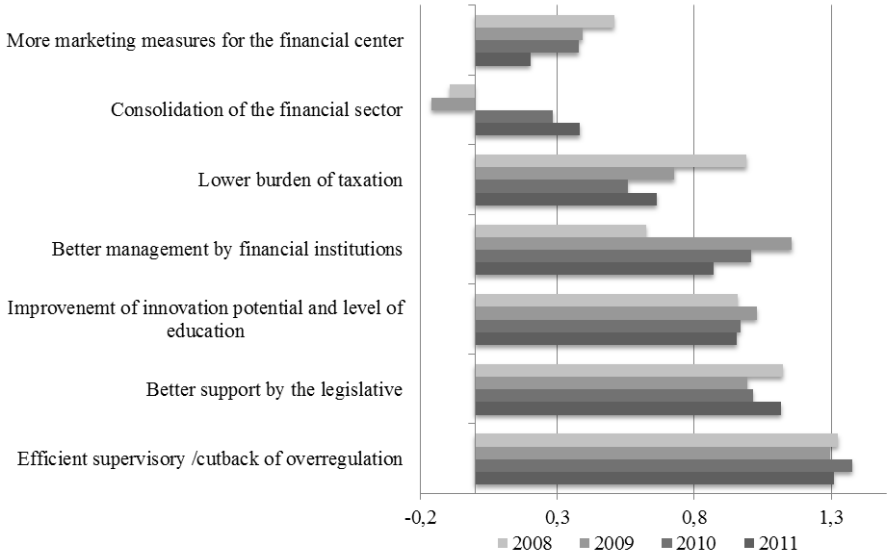


	fail (F)	adequate (D)	satisfactory (C)	good (B)	very good (A)	σ:
2008	20%	30%	39%	09%	02%	0.99
2009	12%	21%	49%	17%	02%	0.93
2010	15%	27%	45%	12%	01%	0.91
2011	20%	27%	44%	08%	00%	0.91

Source: author's calculations; rating scale corresponds to school grades from 1=A (very good) to 5=F (fail).

The financial experts were additionally asked about crucial issues related to the further development of the benchmark financial center. The results are illustrated in figure 10. It seems that the most important factors for the experts over all years are a more suitable regulation framework and legislative support. This corresponds to the results of the previous question. The relevance of marketing and tax was considered less important after the crisis than before the crisis, while greater importance was ascribed to the consolidation of the banking sector. In the year of the crisis, the demand for better management rose sharply. Only a few experts made comments in the additional box but those that did cited the issues of excessive regulation and financial illiteracy several times.

Fig. 10. Relevant Location Factors for the Development of a Financial Center



Source: author's calculations; rating scale from -2 (unimportant) to 2 (very important).

3.3.3 Econometric Model and Testing

In the next step, an econometric model will be used for the purpose of an in-depth-analysis of the results. As seen above, financial experts were asked to give their views on the attractiveness of financial centers and the possible driving location factors for business activity. The objective now is to model the assessment of the attractiveness of financial centers as a function of the assessment of central influencing factors such as regulatory and tax attractiveness, market concentration, and governmental efforts.

Please refer to table 4 for the full list of the independent variables included in the model. The empirical analysis is based on a pooled ordered probit model used to account for the ordered outcomes of the dependent variables (categorical variables with five possible outcomes). Multinomial logit or probit analyses would fail to account for the ordinal nature of the dependent variables. Ordinary regression techniques would err in the opposite direction because they do not recognize the information content of one grade difference, i.e., estimation may vary along the used Likert scale. For example, the linear regression model would treat the difference between 1 and 2 in the same way as the difference between 2 and 3, whereas in fact the ordinal difference might be greater or smaller. Therefore, an ordered probit model is estimated as initially proposed by McKelvey

and Zavoina (1975), one which is able to account for the ordered differences among the response categories (see Greene, 2012).

Formally, the latent regression of the ordered probit model is specified as follows:

$$Y_{it}^{*} = \alpha_i + \beta' X_{it} + \varepsilon_{it}$$

The following categories are then assigned to the unknown Y^{*}:

$$\begin{aligned}
&Y_{it} = 1, \text{ if } Y_{it}^{*} \leq z_1, \\
&Y_{it} = 2, \text{ if } z_1 < Y_{it}^{*} \leq z_2, \\
&Y_{it} = 3, \text{ if } z_2 < Y_{it}^{*} \leq z_3, \\
&Y_{it} = 4, \text{ if } z_3 < Y_{it}^{*} \leq z_4, \\
&Y_{it} = 5, \text{ if } z_4 \leq Y_{it}^{*}.
\end{aligned}$$

where z is an unknown threshold that defines which values of Y^{*} correspond to the observable outcome Y. The thresholds z_1 to z_4 themselves are unknown and will be estimated along with the parameters β and α. X is a matrix of the independent variables for each individual *i*, α_i is the constant term, and ε a normally distributed error term. The underlying assumption is that the five respondent categories are ordered from the lowest to the highest level and that the threshold levels are positively increasing as

$$0 < z_1 < z_2 < \cdots < z_5.$$

Taking this into account, the probability function of Y_{it} has the following form:

$$\begin{aligned}
&\text{Prob}(Y_{it} = 1) = \text{Prob}(Y_{it}^{*} \leq z_1) = \Phi(-\beta' x_{it}), \\
&\text{Prob}(Y_{it} = 2) = \text{Prob}(z_1 < Y_{it}^{*} \leq z_2) = \Phi(z_2 - \beta' x_{it}) - \Phi(-\beta' x_{it}), \\
&\text{Prob}(Y_{it} = 3) = \text{Prob}(z_2 < Y_{it}^{*} \leq z_3) = \Phi(z_3 - \beta' x_{it}) - \Phi(z_2 - \beta' x_{it}), \\
&\text{Prob}(Y_{it} = 4) = \text{Prob}(z_3 < Y_{it}^{*} \leq z_4) = \Phi(z_4 - \beta' x_{it}) - \Phi(z_3 - \beta' x_{it}), \\
&\text{Prob}(Y_{it} = 5) = \text{Prob}(z_4 \leq Y_{it}^{*}) = 1 - \Phi(z_5 - \beta' x_{it}).
\end{aligned}$$

where Φ represents the standard normal cumulative distribution. Furthermore, the marginal effects are estimated to assess the effects of changes in the covariates on

the response probabilities. The marginal effects from every independent variable, evaluated at their means, are calculated as follows:

$$\frac{\partial Prob(Y_{it}=1)}{\partial x_{it}} = -\,\phi(-\beta' \cdot x_{it}) \cdot \beta$$

$$\frac{\partial Prob(Y_{it}=2)}{\partial x_{it}} = [\phi(-\beta' \cdot x_{it}) - \phi(z_2 - \beta' \cdot x_{it})] \cdot \beta$$

$$\frac{\partial Prob(Y_{it}=3)}{\partial x_{it}} = [\phi(z_2 - \beta' \cdot x_{it}) - \phi(z_3 - \beta' \cdot x_{it})] \cdot \beta$$

$$\frac{\partial Prob(Y_{it}=4)}{\partial x_{it}} = [\phi(z_3 - \beta' \cdot x_{it}) - \phi(z_4 - \beta' \cdot x_{it})] \cdot \beta$$

$$\frac{\partial Prob(Y_{it}=5)}{\partial x_{it}} = \phi(z_5 - \beta' \cdot x_{it}) \cdot \beta$$

with ϕ being the standard normal density. Based on the theoretical specifications described above, the following model is estimated by the ordered probit:

$Y_{it} = b_0 + b_1 MARKET_{it} + b_2 CONCENTRATION_{it} + b_3 TAX_{it} + b_4 HUMANCAPITAL_{it} + b_5 REGULATION_{it} + b_6 STABPOL_{it} + b_7 STABECON_{it} + b_8 INNOVATION_{it} + b_9 SOFTFACTS_{it} + b_{10} GOVC_{it} + b_{11} GOVY_{it} + b_{12} AGE_{it} + b_{13} JOBEX_{it} + b_{14} FINEX_{it} + b_{15} UNI_{it} + b_{16} FINCENTER_{it} + b_{17} FUNDCOMPANY + b_{18} INSURANCE_{it} + b_{19} CORPORATE_{it} + b_{20} YEAR2009_{it} + b_{21} YEAR2010_{it} + b_{22} YEAR2011_{it} + \varepsilon_{it}$

where

$i = 1,\ldots, N_t$, represents each individual respondent,
$t = 1,\ldots, T$, represents the time period,
ε_{it} = represents the normally distributed individual-specific and time-specific error term.

Y is the ordered, observed dependent variable that represents the overall attractiveness of a country as a financial center as reported by the financial experts. To determine the relevance of the location factors, the German respondents are expected to be highly familiar with the domestic characteristics. Y is the result of the experts' answers to the first question. The answer categories range from 1 to 5, where 1 means very unattractive and 5 means very attractive. The greater the value for Y, the higher the rating assessment of Germany as a financial center. The independent variables are composed of three parts and are summarized in table 4.

Table 4. List of Independent Variables and Definitions

Variable	Description
Assessments regarding the existing location factors (Likert scale 1-5):	
MARKET	Market size
CONCENTRATION	Close proximity between financial market participants in a cluster
TAX	Tax attractiveness (company taxation, taxation of capital, taxation of highly qualified workers)
HUMANCAPITAL	Human capital and knowledge (qualified employees, proximity to universities)
REGULATION	Attractiveness of the regulatory and supervisory framework
STABPOL	Stability of the political system (legal security, stable political guidelines)
STABECON	Stability of the economy (prices, interest rate, exchange rates, economic development)
INNOVATION	Innovation potential (positioning in future-oriented fields)
SOFTFACTS	Soft factors (living quality, language, culture, spare time activities)
GOVC	Efforts of the government to establish favorable framework conditions
GOVY	Improvements by the government in the last two years
Socio-economic background of the financial expert:	
AGE	Age, in years
JOBEX	Duration of time working in business, in years
FINEX	Duration of time working in the field of finance, in years
UNI	Dummy variable for graduation from a university
FINCENTER	Dummy variable for locations of zip codes beginning with 60 (assigned to Frankfurt)
BANK	Dummy variable for working in a bank (benchmark)
FUNDCOMPANY	Dummy variable for working in a fund company
INSURANCE	Dummy variable for working in an insurance company
CORPORATE	Dummy variable for working in a corporation (excl. banks, fund companies, and insurances)
Time Dummies:	
Year 2009	Dummy variable for 2009
Year 2010	Dummy variable for 2010
Year 2011	Dummy variable for 2011

Source: Organized by the author. For further explanations on the variables, see the questionnaire in table 26 in the Appendix.

Dummy variables are used to determine the progress of assessments and the impact of the financial crisis. Note that the benchmark is the level before the crisis (YEAR 2008). The thesis tests whether the assessments after the crisis match the pre-crisis level, or if a fundamentally different view has been formed (YEAR 2010 and 2011). The findings in chapter 2.2.3 suggest an increase in attractiveness during the financial crisis and thus a positive sign regarding the coefficients of the dummy variables due to diversification advantages in the economy.

Question two of the survey deals with the influence of specific location factors on overall financial center attractiveness. To estimate this influence, the experts were asked about the benchmark's performance in terms of the location factors in comparison to international competition (question four). Answer categories range from levels 1 to 5, where 1 means "much worse" and 5 means "much better". The majority of the independent variables are expected to have a positive impact on Y because, from a theoretical point of view, their increase is always accompanied with an increase in attractiveness (see chapter 2). Therefore, the hypothesis is that the sign of the influence of these factors always remains positive.

Finally, the thesis exploits the influence of socio-economic factors on the assessments of attractiveness. For this purpose, the required data about the experts was subsequently collected. In particular, age (AGE), level of education (UNI), and the associated professional and specific experience in the business world (JOBEX and FINEX) are measured using control variables. The literature seems to indicate that experienced and older individuals are more reluctant to change their beliefs over time (chapter 2.3). For this reason, a significantly different response behavior is expected between experienced and inexperienced individuals. The influence of geographical location is of particular interest to this study. Therefore, this analysis tests whether office location in or outside the major financial center (FINCENTER) alters the results. Those inside the financial center may have greater knowledge about the comparative advantages of financial centers because they have closer connections in foreign countries. Thus, it is possible that these experts experienced the crisis in different ways. If there are differences in the assessment of attractiveness due to the industry an expert belongs to, the sector dummy variables should be significant. Working for a bank (BANKS) is the benchmark here. However, the German fund industry is often characterized as a large domestic market, whereas the distribution of funds often deviates from the domiciliation due to disparities in environment conditions (e.g., Luxembourg). Therefore, a negative sign is expected for FUNDCOMPANY.

3.3.4 Empirical Results

The empirical analysis proceeds in several steps. In the first step of the examination, the thesis uses time dummy variables to check whether the assessments of financial experts have changed over time. The estimated results are given in Model 1 in table 5. To enhance understanding, other factors are considered in the next step, namely the individual assessments of location factors and the socio-economic background information provided by the experts. The results of this estimation are presented in models 2 to 4 in table 5. The problem of multicollinearity appears not to exist, which is because the correlation among explanatory variable is not high. The estimation of the same models with robust standard errors leads to very similar results and are therefore not reported here. The results seem to be robust, since the estimates do not vary greatly from model to model.

Table 5. Empirical Results with an Ordered Probit Model

	(1)		*(2)*		*(3)*		*(4)*	
	coef	*se*	coef	*se*	coef	*se*	coef	*se*
MARKET			0.104†	(0.066)			0.137**	(0.067)
CONCENTRATION			0.211***	(0.069)			0.224***	(0.070)
TAX			0.049	(0.073)			0.047	(0.074)
HUMANCAPITAL			-0.051	(0.068)			-0.055	(0.069)
REGULATION			0.101**	(0.056)			0.116**	(0.058)
STABPOL			0.089	(0.076)			0.109	(0.078)
STABECON			0.011	(0.084)			-0.035	(0.086)
INNOVATION			0.069	(0.066)			0.084	(0.067)
SOFTFACTS			0.091	(0.070)			0.111†	(0.072)
GOVC			0.052*	(0.066)			0.061*	(0.067)
GOVY			0.325***	(0.083)			0.348***	(0.085)
AGE					-0.007	(0.006)	-0.002	(0.006)
FINEX					0.000	(0.000)	0.000	(0.000)
JOBEX					0.000	(0.000)	0.000	(0.000)
UNI					0.118	(0.118)	0.121	(0.121)
FINCENTER					0.155	(0.156)	0.161	(0.161)
FUNDCOMPANY					-0.675***	(0.194)	-0.877***	(0.201)
INSURANCE					0.036	(0.191)	-0.168	(0.201)
CORPORATE					-0.097	(0.203)	-0.240	(0.212)
Year 2009	0.239†	(0.152)	0.139	(0.156)	0.267*	(0.153)	0.190†	(0.157)
Year 2010	0.1	(0.164)	-0.035	(0.170)	0.094	(0.165)	-0.020	(0.172)
Year 2011	-0.331**	(0.154)	-0.405**	(0.161)	-0.323**	(0.155)	-0.38**	(0.163)
Number of observations	629		573		538		472	
Log-likelihood	-748.23		-631.86		-626.51		-523.85	
Pseudo R2	0.010		0.087		0.023		0.118	
LR Test	LR(19)=111.60 [0.000]		LR(8)=26.61 [0.008]		LR(11)=95.02 [0.000]			

Source: author's calculation; P values in brackets; standard errors (se) in parentheses; † significance at the 15% level; * Significant at the 10% level; ** significant at the 5% level; *** significant at the 1% level. The LR test refers to the comparison with the most general model (4).

3.3.4.1 Time Effects

A simple model which only takes the time dummies into account is estimated to determine the temporal variability of Y (Model 1). This analysis indicates that the attractiveness of a financial center is time-variant. The results in Model 1 indicate that attractiveness during the financial crisis (YEAR 2009) was greater than before and after the crisis. This effect turns around, so that after the crisis (YEAR 2011) the coefficient is significant and negative at the 5% level in all models. This means that Germany's attractiveness was greatest at the peak of the financial crisis in 2009, which corresponds to the expectations laid out in chapter 3.2.3.3 that Germany represents a safe haven in the European financial market.

3.3.4.2 Comparison of Location Factors

The results of further analysis suggest that several location factors have a direct impact on the overall assessment of a financial center. The descriptive analysis in chapter 3.3.2 indicates that decisive location factors are relatively stable over time. However, can this statement be confirmed by econometric analysis? The results confirm the expectations and indicate that the strength and size of an economy, denoted in the variable MARKET, influence attractiveness. The coefficient is positive and significant in both models. Therefore, the domestic sales market is at least a sufficient condition for the size of a financial center.

There are numerous benefits of clusters associated with proximity to other market participants, greater access to information flows, and lower coordination costs (see chapter 2.3). The variable CONCENTRATION stands for the impact of close spatial proximity to important market participants, such as the strong presence of banks, insurance companies, and other financial suppliers, a central bank, a supervisory authority, and the stock exchange. The results confirm the expectations and show that a concentration of important market participants in a financial center promotes its overall attractiveness. CONCENTRATION is positive and significant on the 1% significance level in all models.

In addition, this thesis tested whether tax issues (TAX) are relevant to attractiveness. However, the results show no direct relationship between the structure of the tax system and attractiveness. This corresponds to the assessments of interviewees in the pre-test, since they pointed out in particular that continuity in taxation is often much more important for their businesses than the level of taxation. Changes in the level of taxation increase planning uncertainty and necessitate cost-intensive process adjustments to be made by each financial institution. However, the existing double tax treaty may significantly reduce the influence of different system structures. Brulhart and Jametti (2006) emphasize that either harmonization reduces the tax base, which compels a benevolent government to restrict public goods, or competition improves welfare because it constrains big governments. Regarding the issue of the corporate tax level, Becker

and Fuest (2011) show that the optimal tax policy for a government to prevent companies from leaving the country depends on how profitable mobile companies are relatively to the country's immobile companies.[20]

The result for the availability of qualified employees and knowledge transfers (HUMANCAPITAL) may also be non-significant for similar reasons. The result implies that the attractiveness of a financial center does not rely directly on the local supply of labor. In the financial sector, companies can recruit the required labor across national borders. The result could therefore be motivated by an increasing potential for labor movement with fewer regulations on labor issues, particularly in the EU.

The results give strong evidence that supervisory and regulatory conditions are relevant for the attractiveness of a financial center, which was expected. The variable REGULATION is positive and significant at the 5% level in the models. This result suggests that small regulatory differences, in contrast to tax differences, may lead to more geographical consequences in terms of regulation arbitrage.

Furthermore, the experts were also asked to comment on the stability level of the political and legal system (STABPOL) and on the stability of the overall economic system (STABECON). The latter stands e.g., for price stability and economic development; however, these variables are insignificant. This may be because these indicators are very similar across all countries in focus. The potential for innovation and innovative ability (INNOVATION) in terms of new markets (private equity and venture capital, hedge funds) have no direct impact on attractiveness. The respective variable is positive but insignificant. This might be because, compared to technical progress, innovations in the area of finance certainly have significantly less "depth," and thus cannot be patented. The development of the so-called soft factors (SOFTFACTS), however, has a positive and slightly significant effect on the 15% level in Model 4. This corresponds to the expectations with regards to its impact (see chapter 2.2), such that an attractive living environment (living quality, language, culture, leisure activities) positively influences the attractiveness of a financial center.

Aspects of the business environment are not always sector-specific, but rather cut across all industries. Hence the effects of government initiatives are not necessarily only relevant for the financial sector. Varying specific efforts regarding the financial industry, which can be distinguished in hard (i.e., regulation) and soft (i.e., marketing) measures, has various effects. Porter (2000),

---

[20] Moreover, Becker and Fuest (2011) show that a tax rate cut cum base broadening policy in a country increases welfare by redistributing the tax burden from mobile to immobile companies if the marginal mobile company is more profitable than the average company, and vice versa. But in reality, governments may not be able to observe a company's mobility level. Osmundsen et al. (1998) obtain information by providing two different tax contracts. They indicate that mobile companies choose the contract type that distorts marginal investments and may prevent them from leaving the country.

however, indicates that governments are widely perceived to lose their direct influence over competition to global forces, making it even more crucial to take advantage of their remaining scope of action. However, this cannot be confirmed by the results.

The descriptive results shown in figure 9 illustrate that the respondents are very dissatisfied with government efforts to create a favorable environment. The variables in the econometric analysis regarding the assessments of government efforts are divided into two questions, one on the very short-term implementations (GOVC) and one on efforts made in the last two years (GOVY). The results of the analysis show that government efforts are considered very important for the growth of a cluster. The corresponding coefficients in the models have positive signs and are weakly significant (on the 10% level) for short-term efforts and strongly significant (on the 1-% level) for the longer term. These empirical results match the findings of Aglietta and Breton (2001), who find that governments play a decisive role in influencing the design of the financial market structure. Nevertheless, the overall findings contradict the assumptions made in the literature about globalized financial markets with either no or increasingly less room for governmental maneuvers (e.g., Sassen, 1999; Porter, 2000).

3.3.4.3 Socio-Economic Background

The next step of the analysis, addresses whether socio-economic characteristics have an impact on the assessment of the attractiveness of financial centers. The results show that, unlike location factors, the socio-economic background of the respondents is negligible. The horizon of experience does not determine the empirical results, so that differences in the characteristics of age (AGE), level of education (UNI), and the associated professional and specific experience in the business world (JOBEX and FINEX) are irrelevant. As opposed to the general literature (i.e., senior managers would be more reluctant to change their beliefs and managers earlier in their careers have less established beliefs; see chapter 2.2), the empirical findings presented here do not confirm differences in behavior. Moreover, experts geographically located in and outside financial centers (FINCENTER) do not seem to have different mindsets either. Whether one works for a BANK, INSURANCE or a CORPORATE does not matter at all.

Interestingly, however, a clear difference can be found with employees of a fund company. Fund companies generally judge the attractiveness of the financial center negatively. This specific view corresponds as expected to this specific industry. In all models, the coefficient for FUNDCOMPANY is negative and strongly significant at the 1-% level.

3.3.4.4 Overall Fit of the Models

To test the relative strength of the models, this analysis uses a Likelihood Ratio test (LR test) to examine the group-specific heterogeneity in table 5 (see Greene, 2012). The LR test compares the log likelihoods of two models and tests whether this difference is statistically significant. If the difference is statistically significant, then the less restrictive model is said to fit the data significantly better than the more restrictive model (the one with fewer variables). The LR test was conducted in a restricted model with the same number of observations (472). The LR test shows that the differences between models (4) and (3), (2) or (1) are significant at the 1-percent level. According to the values of the log likelihood function and the results of the LR tests, the most general model (4) is the preferred one.

3.3.4.5 Marginal Effects

In the next step, the influence of the variance of the independent variables on the dependent variable is analyzed per unit. By calculating the marginal effect, it is possible to further determine the elements that might lead to attractiveness within the different assessment levels. Table 6 presents the results for the marginal effects. These findings support the previous results; the signs of the marginal effects are mostly consistent with the signs of the coefficients presented in table 5. The results for the marginal effects (table 6) are demonstrated in terms of the individual questionnaire categories from (1) to (5). Overall, the probability of reporting an increase in the attractiveness of a financial center (corresponding to questionnaire category 4 or 5: attractive or very attractive) rises with market size, concentration of important market participants, better regulatory framework, and greater efforts on the part of the government. On the other hand, the probability decreases for respondents from fund companies, who tend to be more pessimistic about the attractiveness of a financial center than respondents from other sectors. Interestingly, their impact is the strongest among all considered variables. Thus, fund companies seem to value the attractiveness of a financial center much higher than banks, insurance companies, and corporates.

Table 6. Marginal Effects

	(1)	*(2)*	*(3)*	*(4)*	*(5)*
	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
MARKET	-.0013914†	-.0204265**	-.0399842**	.0479244**	.0138777**
	(.00094)	*(.00875)*	*(.01701)*	*(.02023)*	*(.00606)*
CONCENT-	-.0018912†	-.0277638***	-.0543466***	.0651389***	.0188626***
RATION	*(.00115)*	*(.00935)*	*(.01807)*	*(.0213)*	*(.00662)*
TAX	-.0000282	-.000414	-.0008103	.0009712	.0002812
	(.00063)	*(.0092)*	*(.01801)*	*(.02159)*	*(.00625)*
HUMAN-	.0002837	.0041648	.0081524	-.0097713	-.0028295
CAPITAL	*(.00062)*	*(.0089)*	*(.01743)*	*(.02088)*	*(.00606)*
REGULATION	-.0010679	-.0156774**	-.0306879**	.036782***	. 0106512**
	(.00075)	*(.00757)*	*(.01464)*	*(.01748)*	*(.0052)*
STABPOL	-.0010579	-.0155308†	-.0304011†	.0364382†	.0105516†
	(.00085)	*(.01003)*	*(.01951)*	*(.02326)*	*(.0069)*
STABECON	.0001941	.0028498	.0055785	-.0066862	-.0019362
	(.00076)	*(.01106)*	*(.02164)*	*(.02594)*	*(.00752)*
INNO-	-.0006989	-.0102611	-.0200858	.0240745	.0069714
VATION	*(.00068)*	*(.00857)*	*(.0167)*	*(.01997)*	*(.00586)*
SOFTFACTS	-.0008236	-.0120914	-.0236684	.0283686	.0082148
	(.00078)	*(.00916)*	*(.01799)*	*(.02152)*	*(.00626)*
GOVC	-.0008764	-.0128659†	-.0251845†	.0301857†	.008741†
	(.00073)	*(.00867)*	*(.0169)*	*(.02015)*	*(.00597)*
GOVY	-.0029196*	-.0428624***	-.0839017***	.1005631***	.0291206***
	(.00169)	*(.01178)*	*(.02252)*	*(.02639)*	*(.00842)*
AGE	.0000273	.0004004	.0007838	-.0009395	-.000272
	(.00006)	*(.00082)*	*(.00161)*	*(.00192)*	*(.00056)*
FINEX	-8.79e-08	-1.29e-06	-2.53e-06	3.03e-06	8.77e-07
	(.00000)	*(.00000)*	*(.00000)*	*(.00000)*	*(.00000)*
JOBEX	1.35e-07	1.99e-06	3.89e-06	-4.66e-06	-1.35e-06
	(.00000)	*(.00000)*	*(.00001)*	*(.00001)*	*(.00000)*
UNI	.0007771	.0116667	.0237341	-.0278088	-.0083691
	(.00104)	*(.01481)*	*(.03123)*	*(.03575)*	*(.01123)*
FINCENTER	.0002287	.0033166	.0063629	-.0077149	-.0021932
	(.00148)	*(.02113)*	*(.03974)*	*(.04875)*	*(.01361)*
FUND-	.0217293*	.1666213***	.1134404***	-.259035***	-.042756***
COMPANY	*(.0131)*	*(.05024)*	*(.01952)*	*(.05162)*	*(.00895)*
INSURANCE	.0014271	.0192803	.0330454	-.0427184	-.0110344
	(.00246)	*(.02918)*	*(.04356)*	*(.06098)*	*(.01408)*
CORPORATE	.0028864	.0361347	.0548865	-.0759839	-.0179237
	(.00356)	*(.03508)*	*(.04069)*	*(.06605)*	*(.01288)*

Table 6 (continued).

	(1)	*(2)*	*(3)*	*(4)*	*(5)*
	dy/dx	dy/dx	dy/dx	dy/dx	dy/dx
Year 2009	-.0018507	-.0284073†	-.0605892†	.068884†	.0219632
	(.0015)	*(.01841)*	*(.04212)*	*(.04544)*	*(.01618)*
Year 2010	.0000363	.0005327	.00104	-.0012484	-.0003606
	(.00151)	*(.02215)*	*(.04312)*	*(.05184)*	*(.01494)*
Year 2011	.0030533	.0406784*	.0693592*	-.0896474*	-.0234435*
	(.00254)	*(.02424)*	*(.03595)*	*(.04975)*	*(.01232)*

Source: author's calculation; standard errors in parentheses (se); † significance at the 15% level,* significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level.

3.4 Conclusion

This chapter aims to help explain the puzzle of financial center attractiveness. In order to achieve this, the discussion will shed light on the quality of microeconomic business environments and their relationship with influencing location factors over time. The results will provide a unique insight into experts' judgments on location factors and European financial centers before, during, and after the financial crisis. Due to the time period covered, it will provide a deeper understanding of changing views regarding the general determinants relevant to financial intermediaries, which to a great extent depend on several external conditions. Thus, the findings will fill the gap left by variations in the relevance of location factors which have previously not been empirically analyzed and have therefore remained the subject of speculation. The econometric analysis applied in this chapter is an ordered probit model with marginal effects for delving into the "decision rule" governing the operations of a financial institution. The sample consists of 730 observations of the survey responses of financial experts who answered questions about the attractiveness of financial centers and related parameters contributing to a comprehensive analysis. As the surveys combine macroeconomic factors, experience, and expectations, the methodology is highly relevant and important for the analysis of financial center attractiveness at the micro level.

First, the results show that the assessments of market participants of a financial center's attractiveness vary significantly over time. Second, the relevant location factors prove to be persistent. Furthermore, this analysis does not find that governments have lost their influence on competition to global forces. On the contrary, support by the government strongly increases the attractiveness of a location; however, the advantage is due more to the regulation framework than the level of the tax burden. Market size can positively affect attractiveness, but is not a prerequisite. Third, the variation in the socio-economic background of market

participants is negligible and cannot indicate different individual behavior. Intriguingly, fund companies tend to be more pessimistic about financial center attractiveness than respondents from other sectors, and their impact is the strongest among all considered sectors. A further important implication of this study is that it appears that countries considered least attractive before the recent financial crisis (i.e., Germany and France) caught up during the crisis but afterward plummeted even below pre-crisis levels. Conversely, it also appears that countries considered most attractive before the crisis regained or even exceeded their advantage after the crisis. This applies to countries with very specialized financial centers that are heavily reliant on financial exports (i.e., London, Luxembourg), which as such offer competitive advantages even in normal times.

Based on the theoretical background of this study, a financial center can be defined as a nexus of ties between companies and institutions in a geographically defined area which are involved in functions that enable and facilitate financial transactions. In financial institutions, competition and strategy are dominated by internal processes. However, the existence of financial centers suggests that a decisive part of the comparative advantage lies outside the institutions and even outside their industries, residing instead in the cluster in which their business units are based. Therefore, cluster effects can mainly be explained by external economies, i.e., a company reduces costs not through its internal organization (economies of scale linked to a growing mass production), but rather through the effects of competition (from other financial companies within the cluster), and the proximity and size of the financial sector. In particular, agglomeration in clusters is accompanied by spill-over effects and technological externalities, which become factors that favor agglomeration based on direct interaction. With regard to the question of whether geography still matters in finance, the findings indicate that concentration in a cluster does still matter.

Overall, direct policy recommendations can be drawn from the findings, as financial centers emerge neither out of nowhere nor overnight. The results emphasize that, in order to explain the emergence of financial centers in specific regions, it is nevertheless necessary to focus on the early decisions of former companies and on how other companies later make subsequent location decisions because of the advantages of spatial proximity to the early arrivals. Historical developments should be taken into account when considering the relevance of the financial centers of today. Apart from strategic decisions by the government (e.g., clustering in Frankfurt, Euromarkets in London), financial centers in general have developed where there was a need for financial services and the demand for investment and credit possibilities was high. In particular, the demand for credit on the part of the emerging territorial states gave rise to the establishment of companies which satisfy this demand.

The findings of this chapter establish a foundation for further analysis of location choice in identifying the relevant determinants at the micro level. The mutual fund industry provides an ideal candidate for investigating the role of financial companies' location choices, since it shows a high level of market integration. Similarly, the results show that, in comparison to employees of banks, insurance companies, and corporates, market participants from fund companies

assess financial center attractiveness in a significantly different and generally negative way.

A new specific survey among investment fund companies could fill this explanation gap. As the producers of mutual funds, fund companies should have the best available information to answer the remaining question when it comes to the corporate behavior of "voting with their feet" for an environment that provides the optimal bundle of location determinants. This is the objective of the following chapter.

4 Evidence from Domiciliation Decisions in the Mutual Fund Industry

4.1 Introduction

The previous chapter emphasized that fund companies seem to value the attractiveness of the agglomeration in the financial sector differently and considerably more than banks, insurance companies, and corporates. As the assessments of the latter regarding the settlement decision are driven less by general location factors, time effects, and other considered socio-economic variables, this chapter will focus more closely on the fund industry. The effects of the agglomeration of companies have been analyzed by economists over the last several decades (e.g., Kaldor, 1972; Piore and Sabel, 1984; Krugman, 1991a and 1991b). As seen in chapter 2.2, Porter (1990) popularized the concept of clusters. Porter (2008: 245) relates that the cluster of the US mutual fund industry is located in Boston, Massachusetts, the same place in which the first open-end mutual fund was launched in 1924 (Rouwenhorst, 2004). Clusters for mutual funds do exist in Europe, as well: Luxembourg, for example, is famous for fund domiciliation. According to the data from EFAMA (2011c), one out of four European funds was domiciled in this small country by mid-2011. As described in chapter 3.2.3.2, favorable financial regulation (i.e., regulatory arbitrage) and tax laws have led to the transformation of Luxembourg into a major center for offshore mutual funds. Parallel facts apply for Dublin (Khorana et al., 2005). When one compares the total net assets of funds to a country's GDP in Europe, the importance of both countries becomes even clearer: In Luxembourg, the total net assets of funds amounted in mid-2011 to 572% of its national GDP, in Ireland even to 680%, a very high figure compared to Germany (50%), Switzerland (74%), France (83%), and the United Kingdom (51%). The high fraction of foreign investment fund companies in both countries is also interesting, since the locations of domiciliation and distribution often differ drastically. A total of 81% of the fund assets domiciled in Dublin are promoted by US and UK companies, with Germany as the third largest promoter. The leading group for Luxembourg was headed by promoters from the US (22%), Germany (16%) and Switzerland (15%) in 2010 (Lipper (2010a: 24).

These results may be surprising, as the ongoing process of the EU's financial market integration has made substantial progress in the fund sector. In particular, the introduction of a harmonized fund type in 1985, the "UCITS" (Undertakings for Collective Investment in Tradable Securities) fund, has proved to be largely

successful for cross-border activities and is considered a "gold standard" both inside and outside of the EU. It also attracts investments from foreign investors – especially from Asia, Latin America, and the Middle East, who accounted for almost 68% of all investment funds domiciled in Europe at the end of June 2011 (EFAMA, 2011b). The main aims of UCITS are to reduce information asymmetry and thereby increase investor protection as well as competition between fund companies by creating a large common market. It enables funds to be marketed to the public across Europe without time-consuming local authorization procedures. Before the introduction of UCITS, country-specific regulations and restrictive legal terms hampered cross-border sales. The implementation of the UCITS IV Directive (2009/65/EC) in mid-2011 will further increase the freedom to locate operations in the European Union, affording new decision opportunities for fund companies to geographically optimize their business models.

In general, investors are not interested in where the whole cosmos of funds come from, let alone that of their own portfolios (i.e., economic perfect substitutes) although the country of domicile is observable among other things through the first digits of a fund's International Securities Identification Numbers (ISIN). Instead, investors tend rather to look for indicators of performance, risk, and an individual investment emphasis.

Nevertheless, the following analysis is useful for several reasons. The decision of a fund company as to where to domicile a fund has decisive implications at both the level of competing governments and the level of the individual company. Financial centers and their governments compete for added value with companies' revenues and jobs (see chapter 3.1).[21] For instance, since there is a barrier separating the US and the European market which forbids simple distribution between the two, companies both from the US and from other countries around the globe have always been faced with the question of which European country they should register a new fund for distribution on the continent. Moreover, question of the preferred domicile also arises when existing funds are to be merged. As competition increases, it is important to identify the reasons motivating fund companies to set up in one place and to avoid another location. For this reason, it is of interest to know whether companies' strategy of fund domiciliation in specialized hubs reflects cost-advantages, for instance due to maintaining advantageous location factors, cluster effects, or whether it is the result of path dependence with even inefficient lock-in effects (see chapter 2.3).

This chapter examines the relevant determinants for the decision to domicile funds and analyzes how competing European countries differ in terms of these relevant factors. This thesis seeks to investigate the rationale behind the domiciliation decision. Therefore, it only focuses on UCITS funds, because country-specific advantages and disadvantages can be explained more precisely when considering exactly the same product in all countries. For this reason, this

21 The level of direct and indirect employment linked to fund companies is larger if one takes into consideration specialized suppliers, such as administrators, custodians, transfer agents, lawyers, consulting, IT experts, and others.

thesis focuses on the fund industry in six European countries: France, Germany, Ireland, Luxembourg, Switzerland, and the United Kingdom. This group comprises more than 83% of the entire European market and of the European UCITS market at the end of 2010 and in mid-2011. When using only public data, it is difficult to determine whether a location decision will be repeated. For this reason, the survey method has been applied. The results are based on a survey conducted in mid-2009 among 47 senior managers in the German fund sector who are responsible for the domiciliation decisions of their company. The sample is representative, with a focal market share of 78%. The conditions regarding regulation, costs, market concentration, and soft factors were the focal points of the survey.

An important implication of this chapter for policy makers is that, for UCITS funds, the day-to-day interaction between the involved parties may cause the behavior of fund companies to deviate from their formal equal legal configuration. To further investigate this issue, this thesis gathers extensive questionnaire information on a wide range of individual-specific characteristics, beliefs, and attitudes. The survey method is employed because it allows us to accurately address the research questions. The uniqueness of the data stems from its disaggregated, individual-level observations and the specific assessments of the decision makers. To my knowledge, this is the first empirical study in the academic literature on domiciliation decisions to analyze manager-level data on location factors and the country-specific characteristics included in the sample.

In order to fundamentally assess the location factor's relevance, this study focuses on a single financial product, in spite of the broad literature on financial centers in general described above. Little attention has been devoted to the decision-making process within funds and fund companies. In particular, the factors fund companies consider in their decision to open a new fund have not been closely examined. Using a data set from 1979 to 1992, Khoara and Servaes (1999) indicate that funds setups are significantly related to the level of the total invested assets, capital gains embedded in other funds with the same objectives, the prior performance of a fund company, and the fund company size. The probability to set up a new fund increases with the number of existing funds in the same fund family. The authors look into the determinants that lead to new fund starts, i.e., the opportunity to generate additional income or increase reputation, and do not acknowledge the decision on where a fund is started. Other studies investigate in particular why funds have been widely adopted in investors' portfolios in some countries and less in others and therefore focus on demand-side factors. In a similar register, Fernando et al. (2003) focus on the market growth of mutual funds. Khorana et al. (2005) find that the extent of demand for a mutual fund is larger in countries with stricter rules, laws, and regulations, specifically where mutual fund investors' rights are better protected. The fund industry is larger in countries with a wealthier and more educated population, and where the industry itself is older.

The fundamental goal of this approach is to provide a detailed empirical analysis of location factors in the European fund industry. Despite its economic importance, little empirical research exists that examines the behavior of fund

companies. This lack of research is primarily due to the difficulty of obtaining data on individual-level behavior. Identifying the behavior of individuals is, however, of central importance if one is to adequately understand the implications of their decisions.

This chapter is organized as follows. Section 4.2 will discuss the background of the study and illustrates the specific regulation and market development, and section 4.3 presents the data and methods. Section 4.4 will examine why individuals choose to assign different countries to set-up and sales. Section 4.5 will conclude the analysis.

4.2 Background Information

4.2.1 Specific Industry Regulation in Europe

In order to explain the emergence of financial centers, findings from the literature (see chapter 2.2) emphasize that it is necessary to focus on the early location decisions of fund companies, and on how companies make subsequent location decisions to the early arrivals of companies. It is broadly recognized that the framework conditions of regulation have had a strong influence on the early decision to go abroad. Therefore, industry-specific regulation is the subject of this section. Subsequent location decisions based on the regulatory environment will be examined in the following chapter. Moreover, it is of advantage to be familiar with the background of fund market integration in Europe in order to better understand the important role played by financial regulation in the behavior of fund companies and how recent regulatory changes have affected this behavior.

The European Union's financial integration has been an ongoing process over the last few decades and has made substantial progress (see chapter 3.2.3.1). The creation of a single market for mutual funds is an important aspect of EU efforts to create a single financial market. The development of the European investment fund market is mainly determined by the Undertakings for Collective Investments in Transferable Securities (UCITS) Directive to create a single market for open-ended funds[22] in Europe. Specific requirements are imposed on the fund (e.g., regarding eligible asset categories) and on the fund company (e.g., techniques and instruments for portfolio management) in order to set up and manage UCITS. It is worth noting that the UCITS directives have been adopted by the EU and the

[22] Mutual funds are open-end pooled investment vehicles that allow new investors to buy and old investors to sell shares of the fund at the fund's Net Asset Value (NAV). The number of shares and thus the size of the fund vary depending on demand. Mutual funds invest in transferable securities (e.g., Khorana et al., 2008: 1281).

European Economic Area (EEA) countries, covering 30 European countries and thus the vast majority of the European market.

Switzerland is not a member of the EEA and hence does not take part in the UCITS framework. Nevertheless, Switzerland has adopted a largely compatible regulatory framework for funds to go in line with EU law (Schweizerischer Bundesrat, 2005; EFAMA, 2010: 231-232). This regulatory framework facilitates the distribution of funds that cannot be sold to retail investors in Europe as easily as UCITS, since they lack the fund passport. UCITS, however, can simply be marketed in Switzerland (EFAMA, 2010).

The first UCITS directive (85/611/EEC) was passed in 1985 and marked the beginning of the single market for mutual funds. The main aims of this directive were to increase investor protection and competition between funds by creating a large common market, which would enable funds to be marketed to the public across Europe using a "European passport" for funds. However, funds were still required to register in every country in which they were to be sold, which hindered the development of a more integrated market because the individual member states were responsible for the registration procedure. According to respondent managers, this resulted in considerably varying procedures and requirements among member states which were costly and time-consuming. It thus impeded the cross-border sale of funds.

The directive also regulates the management of funds. Most importantly, UCITS regulation only allows investment in liquid transferable securities traded on stock exchanges or other regulated markets. The range of eligible assets is clarified in directive 2007/16/EC. To ensure adequate risk spreading, UCITS may not invest more than 5% of their assets in securities of the same issuer (Article 22), more than 5% in other UCITS or anything in non-UCITS (Article 24). Moreover, the use of leverage, short sales, and derivatives is also prohibited (Articles 36, 42 and 21, respectively).

The first attempt at changing the UCITS framework, referred to as UCITS II, was made in 1993. It proposed that money market instruments, bank deposits, and funds of funds be included in the directive (European Commission, 1993). However, it was eventually abandoned, as no agreement could be reached (European Commission, 1999a). The UCITS framework was first amended in 2001 with two directives (2001/107/EC and 2001/108/EC), jointly referred to as UCITS III, addressing the management and the product aspects of funds, respectively.

Luxembourg and Ireland have benefited from first mover advantages. They were the first to transpose the UCITS I directive into national law and also enjoy more liberal supervisory and taxation framework conditions for mutual funds in general. Moreover, while the UCITS III directives were adopted in Luxembourg in December 2002, not even one year after they had been approved by the European Parliament, its adoption in Germany with clearly more restrictive requirements for mutual funds took place with the "Investmentmodernisierungsgesetz" in 2004. It took even three more years for Germany to adopt characteristics of Luxembourgish legislation (Act amending the German Investment Act).

The most important changes in UCITS III were the increased range of financial products allowed in UCITS as well as a simplified prospectus and a management company passport, which was supposed to enable companies to provide services across Europe. However, this did not allow management companies to manage funds in another member state (CESR, 2004). Moreover, the host regulator had to be informed and often demanded additional, country-specific documentation as well as translations of all documents, significantly slowing down the authorization process, which could take weeks in addition to the authorization process by the home regulator. Overall, the registration process for cross-border funds still varies greatly between member states and can take from two weeks to six months (see CRA, 2006; KPMG, 2010). The "Product Directive" enabled fund managers to take advantage of financial innovations and developments made since the original UCITS directive by investing in derivatives, money market instruments, bank deposits, and other funds in addition to the previously permitted publicly traded bonds and shares, provided that they are sufficiently liquid. For this reason, UCITS have become more diverse and offer investments in index tracker funds, funds of funds, and strategies previously available exclusively to unregulated hedge funds, for instance the limited use of short sales, leverage through derivatives,[23] and absolute return strategies. The simplified prospectus intends to increase investor protection by offering a set of important information required for all UCITS.

The day-to-day functioning of the notification procedure in target countries has in some instances been characterized as complicated and insecure according to the interviewed managers. The documents required differ from market to market. For this reason, there is a joint wish of fund companies to accelerate the processing of notifications, since the notification procedure in Europe has developed into a de facto registration procedure which can be very time-consuming and may significantly increase fund companies' costs. The UCITS may begin to market its classes two months after such filing unless the host authority issues a reasoned opinion regarding the inconsistency of the UCITS with those remaining provisions of host country laws, regulations, and administrative provisions which may apply. If the notification is incomplete, the two-month period does not start.

The UCITS IV Directive (2009/65/EC), which came into force in July 2011, advanced the existing regulation in multiple ways. As with the preceding directives, Luxembourg was the first country to pass a national law, however not all member states have transposed the directive into national law yet.[24] The UCITS IV Directive introduced a full management company passport, which allowed fund companies to provide all its services in all member states. This includes the possibility of setting up and managing funds in a different member state instead of merely selling them, as was effectively the case under UCITS III.

---

23 The maximum exposure is limited to the total net value of the portfolio (2001/108/EC, article 21.3: 38).

24 For an overview of the fund regulation, see Arendt & Medernach (2012); RBC Dexia (2011); EFAMA (2011d).

Thus, the new directive allowed fund companies to establish and manage UCITS funds in another member state without having to fulfill the previous local "substance" criteria of minimum capital requirements and human and technical infrastructure. This facilitated a greater centralization of fund management by eliminating the need of fund companies for a local management company.

Moreover, the notification procedure for the host regulator has been streamlined, prohibiting compulsory country-specific documentation.[25] The notification procedure has furthermore become much faster because the management company is only required to notify the home regulator, prompting the submission of the required documents from the home regulator to the host regulator. This regulator-to-regulator procedure is theoretically much quicker than the UCITS III process, with time frames in the magnitude of days rather than weeks. Moreover, the host regulator may not impose additional regulation on the sale of UCITS other than on their marketing.

Furthermore, the directive allows fund managers to create master-feeder structures in order to pool investments from several countries in a large fund. Additionally, the legislation simplifies cross-border fund mergers. These changes are intended to increase the average fund size in Europe, which is considered to be a major competitive disadvantage compared to mutual funds in the US, where there are both fewer funds and more money invested. As a result, the average US mutual fund is greater than a UCITS fund in Europe.

As a consequence, US funds are cheaper for the investor. However, it is it possible to demonstrate that market size influences fund fees? A comprehensive econometric analysis with market data is necessary to answer this question. Chapter 5 will provide such an analysis. The further results indicate that funds in the US especially benefit from economies of scale, passing these savings on to investors, as is evidenced by lower total expense ratios and management fees compared to funds domiciled in Europe.

4.2.2 Market Development

According to Rouwenhorst (2004), after the years of crisis in 1772/73, the Dutch merchant and broker Adriaan van Ketwich formed a trust (Eendragt Maakt Magt) to offer public investors diversified investment opportunities comparable to a closed-end fund. Risk-spreading was achieved by investing in foreign government bonds from Austria, Denmark, Germany, Spain, Sweden, and Russia,

[25] The administrative requirements are further reduced by the introduction of the key investor information document, which is the only document the management company is required to translate into the local language. It replaces the simplified prospectus and offers standardized and more accessible information to investors.

and a variety of loans to colonial plantations in Central and South America.[26] Afterwards, in 1868, the Foreign and Colonial Government Trust, the predecessor to the typical mutual fund, was created in London. In 1924, the first open-end mutual fund was created in Boston (Massachusetts Investment Trust) during the fund industry's first vast growth phase, which ended abruptly with the Great Crash of 1929. Between the 1930s and 1970s, the industry achieved only a very small growth. The introduction of a money market fund in 1971 resulted in a revival of the US fund market. The market for pension and equity funds developed strongly in the beginning of the 1980s, but it was not until the 1990s that the US fund industry really began to flourish (Rouwenhorst, 2004; Haslem, 2003:13-16; ICI, 2011a: 190-213).

US funds' assets accounted for an average annual growth of about 23% between 1992 and 1998, i.e., an increase of $1,600 billion to $5,500 billion; the 15 EU member states exhibited a growth rate of 18% from $1,000 billion to $2,600 billion, respectively. Besides the market growth of the financial industry in general, the capital demand of expanding multinational companies was one main reason for the rapid growth of the fund industry in the 1990s. Moreover, as the gap between profits from standard bank deposits and funds continued to widen, investors became more interested in equity funds especially, whereas it is not clear why investors began to change their asset allocation so drastically after 1990 (Fernando et al., 2003). In Europe, this development progressed at a different speed because stock markets outside Anglo-American countries were hardly established. Nevertheless, the expansion of pension funds was strongly supported by the European governments, which resulted in a higher pace of development. Furthermore, demographic changes are considered to be another reason for the development of pension funds, especially in high-income countries (Fernando et al., 2003). Moreover, regulatory support, such as financial market integration or the UCITS directives in Europe, sustains the fund industry.

Table 7 reveals the global distribution of assets under management in mutual funds. Non-UCITS were excluded for the international comparison. Nearly 25,927 billion US dollars were invested around the world in mutual funds at the end of June 2011. More than half of the entire global total comes from US fund companies and about one third from Europe. Besides the United States, Luxembourg has a prominent share of 10.5% in the global market and approximately 32% in the European market. This picture was not yet so clear in the year 1998, when France led the European list and the Irish fund market was minuscule. The importance of the French market can be explained by the fact that French private investors invest a major part of their savings in UCITS directly or via tax-advantaged life insurance contracts which account for one third of the financial assets of households (OEE and ZEW, 2006; Grillet-Aubert and Rifaldi, 2009: 5). The total invested assets in mutual funds increases with the factor 2.7

[26] The financial center of Amsterdam took on a pioneering role with its stock exchange. See Chapter 3.2.3.2 for an overview of the early stages of the European financial centers.

from the year 1998 to mid-2011. However, this amount of assets under management fluctuates according to the price of the funds' enclosed assets at the time of reporting. It is thus a sound idea to take a look at the numbers of funds.

Table 7. Worldwide Total Net Assets of Mutual Funds

	1998	2000	2002	2004	2006	2008	2010	mid-2011
World	**9,595**	**11,871**	**11,324**	**16,165**	**21,809**	**18,920**	**24,699**	**25,928**
Americas	**5,867**	**7,424**	**6,776**	**8,792**	**11,470**	**10,582**	**13,587**	**14,178**
Mexico	n/a	18	31	35	63	60	98	106
United States	5,525	6,965	6,390	8,107	10,398	9,604	11,821	12,238
Europe	**2,743**	**3,296**	**3,463**	**5,640**	**7,804**	**6,231**	**7,903**	**8,425**
Austria	57	57	67	104	128	93	95	97
Belgium	56	70	75	118	137	105	96	101
Finland	6	13	17	38	68	49	71	76
France	626	722	845	1,371	1,769	1,591	1,617	1,695
Germany	191	238	209	296	340	238	334	357
Ireland	50	137	250	468	855	720	1,014	1,113
Italy	440	424	378	512	453	264	234	234
Luxembourg	508	747	804	1,396	2,188	1,861	2,513	2,685
Netherlands	80	94	84	102	109	77	86	92
Norway	11	16	15	30	54	41	85	98
Portugal	23	17	20	31	31	14	11	11
Spain	239	172	179	318	368	271	217	234
Sweden	55	78	58	107	177	113	205	215
Switzerland	69	83	83	94	160	135	262	300
United Kingdom	278	361	289	493	755	505	854	896
Asia and Pacific	**972**	**1,134**	**1,064**	**1,678**	**2,456**	**2,038**	**3,067**	**3,181**
India	9	14	20	33	58	63	111	119
Taiwan	20	32	62	77	56	46	59	61
Africa	**12**	**17**	**21**	**54**	**78**	**69**	**142**	**143**

Source: author's calculations, data based on ICI (2011a, 2011b) and EFAMA (2011b); non-UCITS are not reported; in billions of US dollars, end of period.

Table 8 displays the development of the number of mutual funds in the same period of time. It is evident that the average fund's assets increase more than the pure number of funds. By the end of June 2011, 70,819 mutual funds were listed for sale around the world. At the same point in time, there were 41% more mutual funds on the global market than in 1998. About 50% stem from Europe, whereas it is conspicuous that the number of funds in Europe (35,406) is about five times larger than the number of funds in the United States (7,518). However, when combining the two tables, one can observe that the average US fund is nearly

seven times larger than its European counterpart. This is accounted for by the formerly highly segmented European fund market. Nowadays, in times of European market integration and a single market approach, one might believe that the number of funds will decrease in the long run. Consistent with the invested assets, Luxembourg, France, and Ireland stand out among European countries.

Table 8. Worldwide Number of Mutual Funds

	1998	2000	2002	2004	2006	2008	2010	mid-2011
World	**50,266**	**51,692**	**54,110**	**55,524**	**61,855**	**69,032**	**69,519**	**70,819**
Americas	**10,376**	**12,676**	**13,884**	**14,064**	**14,475**	**16,459**	**18,019**	**18,496**
Mexico	n/a	305	364	411	437	431	434	461
United States	7,314	8,155	8,244	8,041	8,118	8,022	7,581	7,518
Europe	**20,107**	**25,524**	**28,972**	**29,306**	**33,151**	**36,780**	**35,292**	**35,406**
Austria	704	760	808	840	948	1,065	1,016	1,012
Belgium	631	918	1,141	1,281	1,549	1,828	1,797	1,787
Finland	114	241	312	280	376	389	366	371
France	6,274	7,144	7,773	7,908	8,092	8,301	7,791	7,855
Germany	793	987	1,092	1,041	1,199	1,675	2,106	2,049
Ireland	851	1,344	1,905	2,088	2,531	3,097	2,899	3,017
Italy	703	967	1,073	1,142	989	742	650	654
Luxembourg	4,524	6,084	6,874	6,855	7,919	9,351	9,353	9,455
Netherlands	334	494	680	542	473	458	n/a	n/a
Norway	264	380	419	406	524	530	507	507
Portugal	189	195	170	163	175	184	171	175
Spain	1,866	2,422	2,466	2,559	3,235	2,944	2,486	2,522
Sweden	366	509	512	461	474	508	504	506
Switzerland	325	368	512	385	609	572	653	670
United Kingdom	1,576	1,766	1,787	1,710	1,903	2,371	2,204	1,997
Asia and Pacific	**19,592**	**13,158**	**10,794**	**11,617**	**13,479**	**14,909**	**15,265**	**15.974**
India	97	234	312	394	468	551	658	683
Taiwan	174	288	351	445	447	443	487	517
Africa	**191**	**334**	**460**	**537**	**750**	**884**	**943**	**943**

Source: author's calculations, data based on ICI (2011a) and EFAMA (2011b); non-UCITS are not reported; end of period.

However, it is worthwhile to take a closer look at the nature of the European market and to include UCITS in the perspective. With Eur 5,921 billion invested in UCITS, this fund type accounted for over 73% of European domiciliation at the end of June 2011, with the remaining 27% composed of non-UCITS (EFAMA, 2011b). UCITS have also attracted investment from foreign investors, in particular

from Asia, Latin America, and the Middle East.[27] Table 9 shows the distribution of UCITS and non-UCITS in the countries in focus. In total, the two groups constituted more than 84% of the whole European market and even over 87% of the non-UCITS submarket at the end of September 2011. In this way, the magnitude of Germany increases immensely due to its large fraction of non-UCITS funds, which is exceptionally high in comparison with the other countries, with an average share of more than 60% in UCITS. Contrary to UCITS funds, a large fraction of non-UCITS funds are traditionally set up in Germany, where the share of all European non-UCITS was 41% at end of September 2011. Three fourths of the non-UCITS can be explained by just two types of funds (see table 10). Germany's "Spezialfonds" represent 27% of invested assets in non-UCITS, whereas the largest number of assets under management are institutional funds; approximately every second euro in a non-UCITS is invested by institutional investors. More than 50% of UCITS were domiciled in Luxembourg and France, with market characteristics and the reasons for their leadership strongly differing between both. The importance of the French UCITS can be explained by the fact mentioned above that French private investors invest a major part of their savings in UCITS directly or through life insurance contracts which are tax-advantaged and account for one third of households' financial assets (OEE and ZEW, 2006; Grillet-Aubert and Rifaldi, 2009: 5).

Equity funds always remain the largest share of all funds worldwide. At the end of June 2011, 42% of global total net assets were held in equity funds, 23% in bond funds, almost the same share in money market funds (19%), and the remaining in balanced-mixed (12%) and other types (see ICI, 2011b).[28] The same descending order applies to Europe. Figure 11 shows the composition of invested assets in European countries regarding fund types. A total of 32% of investments in mutual funds are held in equity funds. Most investments in the United Kingdom are made in equity funds, with a share of 59%. In Germany, large amounts are invested in equity funds, as well, whereas Ireland and France have a large fraction in money market funds, an amount above the European average. In Switzerland, investments in balanced and mixed funds exceed the share in equity funds.

Figure 12 gives a further impression of cross-border activity between the countries. A fund's domiciliation can only be implemented one time, but the number of countries in which the fund is notified for sale varies (this will be

---

27 These three regions represent 23.6% of assets under management of UCITS at the end of 2008, of which 16.9%, 3.5% and 3.2% were held by Asian, Middle Eastern, and Latin American investors, respectively (EFAMA, 2009).

28 As their name already reveals, these funds primarily invest in equity, bond funds invest mainly in bonds or other types of securities. Money market funds invest in short-term instruments (e.g., certificates of deposit, commercial papers, treasury bills, etc.) and liquid assets (cash and savings accounts, term deposits, etc.), whereas the average maturity in particular usually does not exceed one year. Balanced-mixed funds invest in all types of funds. Furthermore, other types of funds also exist (ICI, 2010).

analyzed in the next chapter and is illustrated in table 19). As can be seen, domiciliation in Luxembourg constitutes a large fraction for all countries. The proportions in Ireland and the United Kingdom point in the same direction. However, most of the funds distributed to French investors were also set up in France, which can be explained by the described country-specific life insurance business.

Table 9. Proportions of Net Assets and Number of Funds in Europe

	Number of funds	*Share*	Net assets in mio. euros	*Share*
UCITS and non-UCITS funds				
France	11,925	*22.09%*	1,476,467	*18.22%*
Germany	5,884	*10.90%*	1,140,540	*14.07%*
Ireland	4,893	*9.06%*	974,335	*12.02%*
Luxembourg	13,164	*24.38%*	2,184,999	*26.96%*
Switzerland	893	*1.65%*	268,010	*3.31%*
United Kingdom	3,024	*5.60%*	791,677	*9.77%*
	39,783	*73.68%*	*6,836,028*	*84.35%*
Europe	53,993	*100.00%*	8,104,111	*100.00%*

UCITS funds	Domestic market share, by net assets	Domestic market share, by numbers	Overall share in Europe
France	79.44%	65.87%	19.81%
Germany	21.69%	34.82%	4.18%
Ireland	79.02%	61.66%	13.00%
Luxembourg	85.02%	71.82%	31.37%
Switzerland	77.37%	75.03%	3.50%
United Kingdom	85.02%	82.24%	11.37%
			83.23%

Non-UCITS funds	Domestic market share, by net assets	Domestic market share, by numbers	Overall share in Europe
France	20.56%	34.13%	13.90%
Germany	78.31%	65.18%	40.92%
Ireland	20.98%	38.34%	9.36%
Luxembourg	14.98%	28.18%	14.99%
Switzerland	22.63%	24.97%	2.78%
United Kingdom	14.98%	17.76%	5.43%
			87.39%

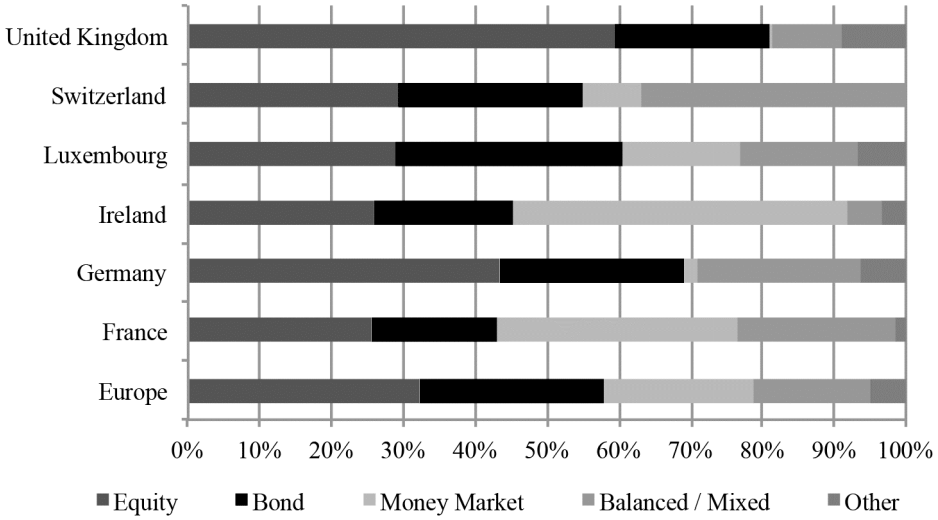
Source: author's calculations, data based on ICI (2011), EFAMA (2011b).

Table 10. Breakdown of Non-UCITS Assets in Europe

Fund types	Bn. euros	Share	Number of funds	Share
Special / Institutional	1,428	65%	8,439	48%
of which German "Spezialfonds"	*798*	*36%*	*3,781*	*21%*
British investment trusts	55	3%	312	2%
French employees savings	89	4%	2,392	14%
Luxembourg "other" funds	84	4%	967	5%
Real estate funds	241	11%	892	5%
Other	298	14%	4,705	27%
Total	2,195	100%	17,707	100%

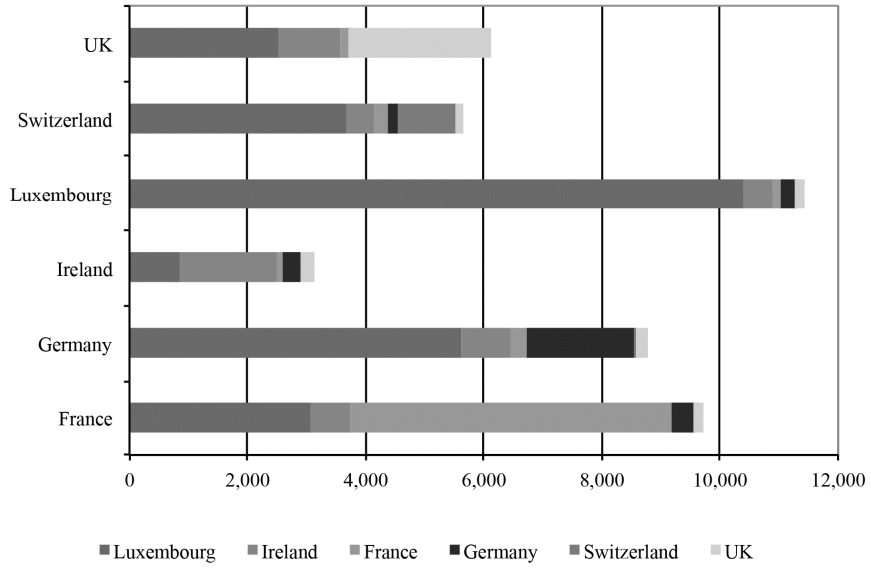
Source: EFAMA (2011a).

Fig. 11. Breakdown of Fund Types in Europe



Source: author's calculations, data based on EFAMA (2011c); fund type "other" was not available for Switzerland.

Fig. 12. Number of Funds by Domicile and Country of Notification



Source: author's calculations, data based on Lipper (2010a).

In order to understand the procedures of setting up and running a fund, one has to split the organizational activities of a fund company and direct functions conducted by auxiliary industries into the components of a funds' value chain. It is very difficult to get a feeling for the composition of the functions involved in the value chain of a mutual fund. Since the literature does not provide a detailed description, it was necessary to consult business experts from Germany, the UK, Luxembourg, Switzerland, and the US about general market conventions.

Porter's value chain framework is a common means to display and analyze the logic behind firm-level value creation (and relative cost position) by decomposing the company into strategically important activities (Porter, 1985). According to Porter, the overall value-creating logic of the value chain is valid in all industries (Porter, 1985 and 1990), though comprehensive overviews of the services sector, in particular the banking and securities sectors, are viewed with reservation (Stabell and Fjeldstad, 1998).

These reservations can be traced back to current product associations, such as tangibility or storage life, which do not exist for financial products. Ergo, they do not exist for mutual funds. Therefore, the services sector is thought to comprise not products but services, which are characterized by intangibility of the results, the uno actu principle, and the absence of storage and transportation (Schäfer, 2000: 95-96). In a strict sense of the word, while the custodian does store securities, this tangible-representative characteristic makes the mutual fund, as typical for financial products, what is referred to as a "contractual good." Financial services contracts usually do not address all aspects inherent in the provision of services. These aspects comprise, e.g., promises to customers (for

instance, the efforts of fund managers regarding performance, or risk and liquidity), which are implicitly contractual and could lead to insecurities in investor behavior (see Schäfer, 1999 and 1995).

In order to illustrate the required activities, figure 13 briefly depicts the value chain of a mutual fund before listing these activities in greater detail. Table 11 gives the relatively detailed listed overview of the activities involved.

The value chain (figure 13) differentiates between (1) primary activities, which are directly involved in creating value for the investor, and (2) support activities that enable and improve the performance of the primary activities. The value creation process of the primary activities is sequential and begins with the idea for a product, which is almost always initiated by sales and marketing units. Domiciliation decisions are typically made by the administration as well as internal jurists and external lawyers. Once having made a domiciliation decision, a number of administrative tasks have to be completed before the fund can be marketed and sold to the investor. Within the value chain, different further workforces are necessary to set up and run a fund (support activities). These not only include employees who run the infrastructure, but also and especially administrators, fund managers, custodians, and transfer agents. All activities can be outsourced in line with the business strategy pursued. Fund administration is carried out relatively often in Dublin. Fund managers in asset management are located independently of legal domiciliation and frequently work in teams, which may have offices in different locations. According to the findings of Bär et al. (2011), fund companies prefer a team of managers to manage a portfolio when the included funds are larger and specialized knowledge is essential. In some cases, fund companies employ another company, called the sub-advisor, to handle the fund's day-to-day management, e.g., due to industry-specific knowledge. In these instances, the portfolio manager is generally located in the same place as the fund's sub-advisor. According to Kuhnen (2009), the majority of funds use in-house asset management.

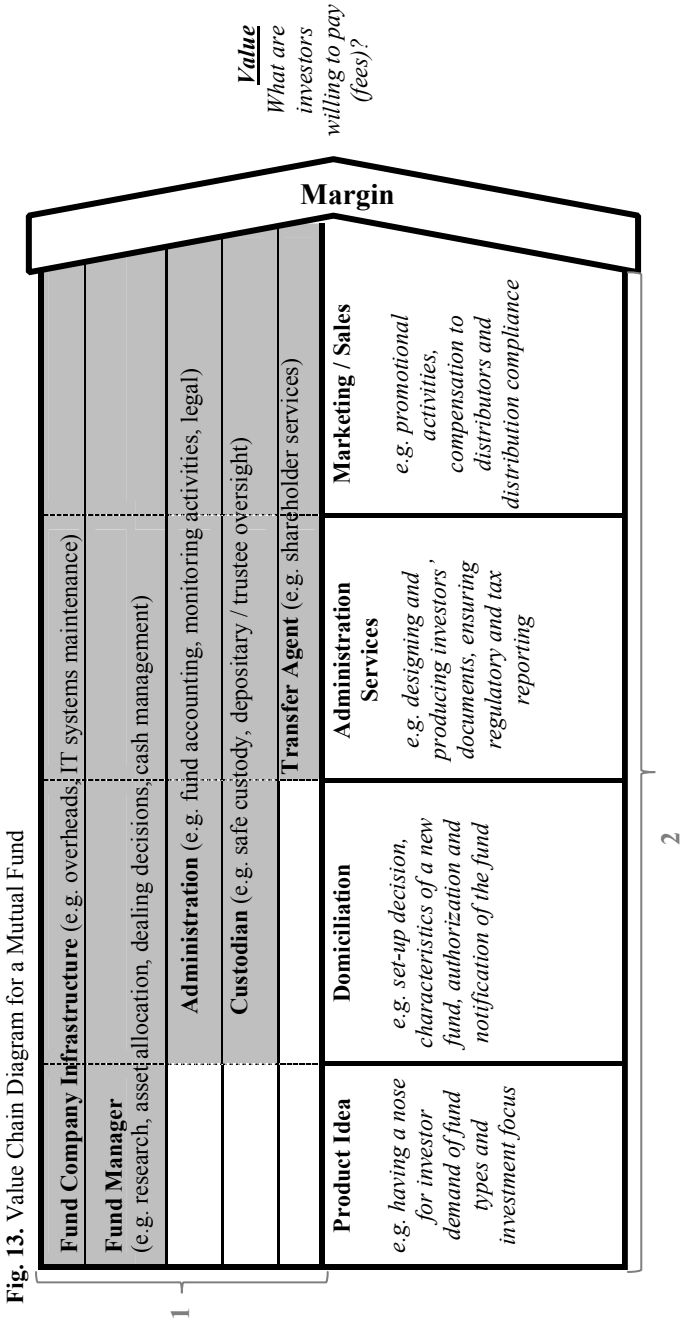


Fig. 13. Value Chain Diagram for a Mutual Fund

Source: Organized by the author; based on the model by Porter (2008: 310); 1 = support activities, grey markings indicate their functional relation to primary activities (= 2).

Table 11. Description of the Functions in the Value Chain

Responsibility	Function	Brief description
Management Overheads and systems	Management company overheads	Overhead allocation for premises, senior management, HR, cost of capital requirements at the company level
	Systems maintenance	Planning and implementation of new IT, operational and technical maintenance
Fund Manager, Asset Management	Research	Fundamental and technical economic and company analysis
	Cash management	Placing deposits, foreign exchanges
	Strategic and tactical Asset allocation	Long-term asset allocation, currency and risk management
	Operational asset management and dealing decisions	Asset selection, decision making and implementation, decisions to buy and sell investments, netting of trades, pre-trade broker liaison, deal administration and control, post-trade liaison with brokers and custodian
	Guarantee provision	Hedging portfolio in order to provide a guarantee on the capital value of the fund or on the returns made
Administration, Legal	*Fund domiciliation*	*Set-up decision, characteristics of a new fund, authorization and notification of the fund*
	Fund compliance, disclosure	Ensuring fund meets necessary tax rules in domicile location
	Documentation production	Designing and producing any necessary documents about the fund for investors
	Regulatory compliance	Regulatory reporting and monitoring activities related to the fund
	Fund accounting	Provisions of valuations, tax reclaims and management information, calculation of the net asset value
	Fund order processing	Automated processing from the deal to the administrator
	Performance measurement	Provision of investment performance reports, attribution analysis of returns
	Stock lending	Arranging and processing loans of stocks and bonds
Custodian	Safe custody	Security safe-keeping and control
	Depositary / trustee oversight	Oversight of the fund by the depositary
Transfer Agent	Administration of shares	Client dealing and associated administration including contract notes, distribution and trustee liaison, opening accounts for client
	Shareholder services	Payment of income, dividends, valuation, reports to customers

Table 11 (continued).

Responsibility	Function	Brief description
Sales unit, Marketing	*Fund domiciliation*	*Having a nose for the demand of fund types*
	Promotional activity	Advertising to gather assets (including internal sales and marketing costs)
	Compensation to distributors	Sales activities including commission to distributors
	Documentation provision	Provision of marketing and product documentation
	Distribution compliance	Regulatory requirements regarding the conduct of business or sale of investment funds
External Auditor	Auditing	External audit of the fund and fund company
Advisor, Service Company	Advice, Services	Consulting, IT, Lawyers and others

Source: author's illustration, based on CRA (2006); interviews in the pre-test in May 2009, and ICI (2011).

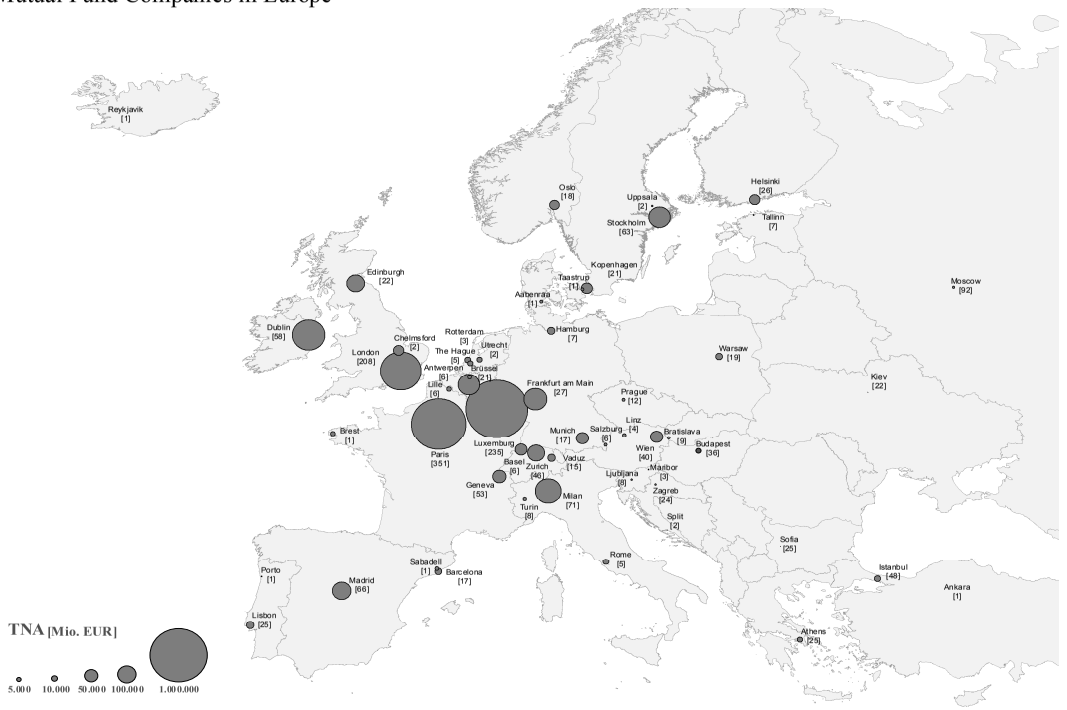
Figure 14 based on data from Lipper (2010b) illustrates the proportion of domiciled assets under management of fund companies in European cities. The strong position of Luxembourg, followed by Paris and London, is very clear. In Germany for instance, the major cities that agglomerate mutual fund companies (figure 15) show a similarly high market share in the asset management of mutual funds (figure 16), whereas fund managers are also spatially distributed outside financial centers in more rural areas. A total of 59 fund management companies are located in Frankfurt, where they manage 1,387 mutual funds; Munich is home to 44 mutual fund managers who manage the portfolios of 336 mutual funds.

CRA (2006) estimates the expected benefits of a closer integration of the European fund market and analyzes, among other things, production costs for equity funds by conducting interviews. The results suggest that operating costs in European countries lie within a range of about 37 basis points (France) to 53 basis points (United Kingdom).

According to Stabell and Fjeldstad (1998: 418), it is fundamentally difficult to obtain reliable and precise cost data for value chain activities, since accounting data is most often not collected and reported in a consistent fashion. This corresponds to the experience reflected in conversations with business experts. It is therefore all the more interesting that, according to the analysis of CRA (2006), the fractions of the involved functions seem to be relatively similar among the countries. The costs can be subsumed approximately in the following components: asset management (30%), fund accounting (28%), custody (14%), company's overhead costs (14%), transfer agency (8%), regulatory compliance (3%), and audit (1%).

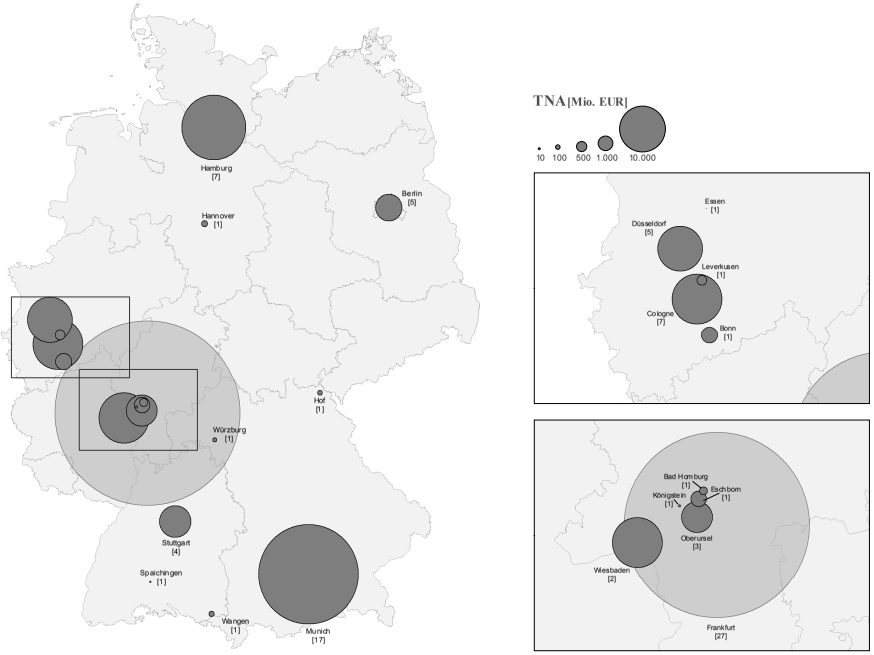
The subsequent analysis will set out the relevant location factors for domiciliation and examine their incidence in several countries. The subsequent chapter will then outline the underlying dataset and methods used.

Fig. 14. Distribution of Mutual Fund Companies in Europe



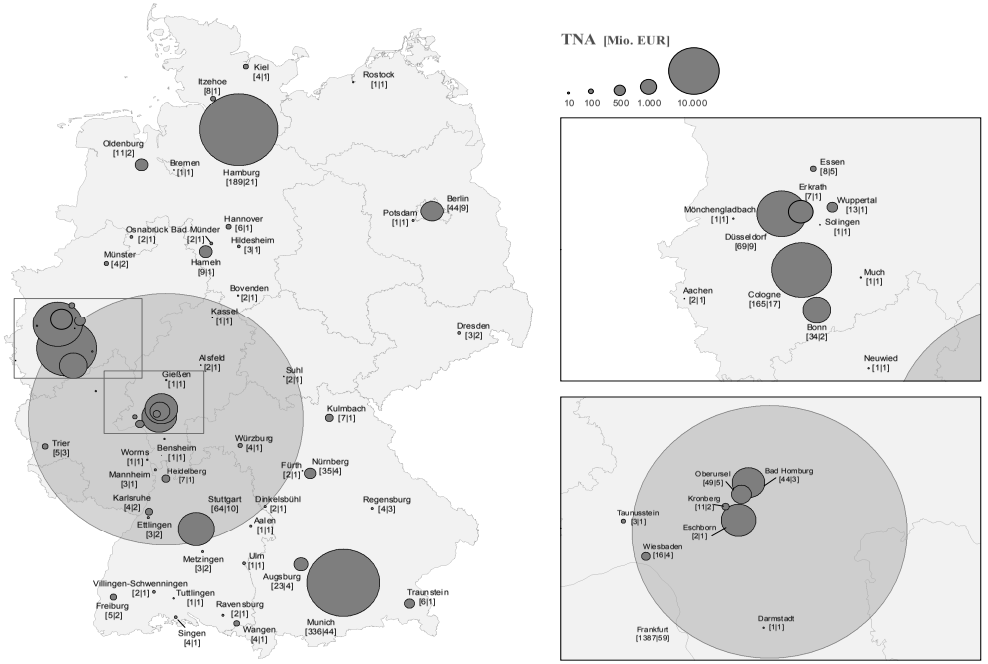
Source: author's calculations, based on the database of Lipper (2010b); bracket illustrates the number of fund companies; bubble latitude represents the magnitude of total net assets (TNA) in million euros domiciled by these fund companies in this city; information from active funds and their oldest share class are considered to prevent a multiple add-up; the three largest cities in a country are listed for brevity.

Fig. 15. Distribution of Mutual Fund Companies in Germany



Source: author's calculations, based on the database of Lipper (2010b); bracket illustrates the number of fund companies; bubble latitude represents the magnitude of the total net assets (TNA), in million euros, domiciled by these fund companies in this city; information of active funds and their oldest share class are considered to prevent a multiple add-up.

Fig. 16. Distribution of Fund Managers in Germany



Source: author's calculations, based on the database of Lipper (2010b); bracket shows (1) the number of funds (first part) that are managed by a (2) number of fund management companies (second part) in this city; bubble latitude represents the magnitude of the total net assets (TNA) in million euros managed by these fund managers in this city; information of active funds and their oldest share class are considered to prevent a multiple add-up.

4.3 Data and Empirical Approach

4.3.1 Sample and Methods

The survey focuses on mutual fund companies which domicile and distribute UCITS funds in Germany. To determine the relevant location factors, the described literature on location theory in general and for the finance sector in particular as well as research on mutual funds were analyzed intensively. The derived location factors were discussed in five interviews with industry experts. Based on the results, the first questionnaire was set up and pre-tested for three fund companies which are compatible with the sample. The pre-test feedback was included to adjust the final questionnaire. All 68 participants identified focal companies reported by the German industry association of fund companies (BVI, 2009) were approached with a questionnaire between July 1 and August 30, 2009. The managers addressed were responsible for deciding on the domiciliation of the company's mutual funds. Overall, 47 usable questionnaires were submitted, representing a focal market share of 78% of the overall UCITS market in Germany (data from BVI, 2009: Appendix 3-14; EFAMA, 2010). The focal market share is measured by the assets under management in UCITS funds of the participating fund companies in relation to the overall UCITS market. The experts were contacted and informed of the survey by phone before receiving the questionnaire by mail.

This analysis uses survey data on the fund industry. This procedure has obvious pros and cons; however, any survey entails potential limitations in terms of the inferences that can be drawn. The survey approach is not conventional in the finance literature, although it has clear methodological advantages (see van der Sar, 2004; Menkhoff and Schmidt, 2005; Lins et al., 2010). Nevertheless, in order to determine relevant factors in the domiciliation decision, applying the survey method was appropriate for several reasons. Due to the lack of data and earlier scientific research on domiciliation decisions of fund companies, a primary data collection was necessary. For this purpose, the survey method with a standardized questionnaire has several advantages over qualitative interviews, as the questioning features a higher degree of autonomy and anonymity. Furthermore, a representatively large sample size could be achieved, providing a more reliable interpretation space. The general conduct of the survey method followed the typical steps of defining the research objective and its operationalization in variables, the extension of primary knowledge and revision of the variables model, questionnaire setup, pre-test, revision of the model, questioning, and evaluation of the results (see Groves, 2009; Schaeffer, 2003; Bradburn et al., 2004). Several results were also presented at various seminars by practitioners and academics. This direct back and forth allowed the testing of some of the inferences this thesis was attempting to draw from the formal survey.

It is assumed that the survey questions were generally well understood. According to Lins et al. (2010), several concerns can arise when working with surveys. It is noted that there is a potential concern regarding the respondents' understanding of questions. Therefore, it is important to formulate appropriate questions in the practitioners' language. It is impossible to verify that each individual fully understood each question, but intensive personal interviews with members of the group in advance of the survey confirm that the questions were generally well understood and gave further information. Moreover, in a later stage, a beta version of the questionnaire was used in a pre-test with three experts as a final check of its appropriateness and acceptance.

A main concern is the possibility that the respondents are not the proper representatives for the domicile decisions made by their companies. It was expected that unsorted mailings to official addresses might in the best case be answered by press representatives. For this reason, the persons responsible for the domiciliation process in fund companies were identified and contacted directly by telephone before sending out the questionnaire. Moreover, at the end of each questionnaire, recipients were asked to score the general appropriateness of the questions and make comments in the space provided.

The data collected contains very commercially sensitive information. Consequently, there is the potential concern that managers may choose not to answer questions truthfully. Since the survey is completely anonymous, there are no reasons to believe that there is any systematic reason to answer questions in anything other than a truthful manner.[29] This implies that only information at an aggregate level is presented. For this reason, this analysis reports results on the level of averages and does not reveal quantitative information that could be used to identify a particular company. Finally, there may be also concerns about response biases and sample selection biases in general (Lins et al, 2010). The results do not indicate that a bias is likely to be decisive for the survey data, especially as the characteristics of the participating companies are similar to those studied in the other research work.

Overall, the fact that this thesis uncovers clear results that are economically meaningful is evidence against the notion that the responses gathered simply "noise."

[29] Lins et al. (2010) refer to Graham and Harvey (2001) and stress that upper-level managers would not take the time to respond to a lengthy survey if their intent was to be untruthful.

4.3.2 Survey Design

The survey is standardized and follows the principles of Groves et al. (2009). It asks two types of questions about every prompted aspect of fund domiciliation. First, each aspect begins with a hypothetical question about how relevant the respective aspect is assessed to be for the domiciliation decision. These are also aspects that appear within the other stages of the value-added process that could nevertheless remain relevant for the decision-making process in the domiciliation stage. For example, managers were asked how important they would consider the process and duration of fund issue approval to be in the whole process of domiciliation decision. Thus, it is possible to rank the individual determinants in the order of their attributed worthiness. Second, perceptual questions regarding real country-specific characteristics were asked. For example, managers were asked how they would judge the supervisory authority with respect to process and duration of fund domiciliation approval in the respective countries. In the course of these perceptual and hypothetical questions, this empirical work was oriented to theoretical and practical explanations of fund domiciliation and location attractiveness, which have been discussed previously.

To obtain the respondents' general assessment of the relationship between sales opportunities abroad and the location of domiciliation, the questionnaire starts out with a question on the importance of worldwide sales and the suitability of the countries of interest. The three European countries chosen by market size are Germany, France, and the UK. The countries chosen due to their position as special financial hubs are Luxembourg, Ireland, and Switzerland. Altogether, these six countries host 84.35% of total net assets of mutual funds and 73.68% of the total number of mutual funds in Europe. The next questions are divided into four main categories which are:

1. Regulatory framework conditions (collaboration with supervisory authorities, disclosure requirements, legal requirements placed on management companies, fund industry stability),
2. Costs of mutual fund domiciliation (tax burden of investment companies, labor costs, issuance costs),
3. Concentration in the cluster and competition (spatial proximity to other fund companies, availability of services providers for the fund administration, availability of other services and specialists/local infrastructure, availability and qualification of the workforce in the fund industry),
4. Soft location factors (government support for the fund industry and marketing, quality and performance of the industry, international reputation of the fund industry, quality of life, and leisure activities).

4.4 Relevant Location Factors and Country-Specific Characteristics

First, a short overview of the most relevant factors for fund domiciliation will be provided. Afterwards, this thesis will take a closer look at country-specific characteristics. The findings provide clear results for which location factors are considered most relevant for the UCITS domiciliation decisions of fund companies. Table 12 reports the mean degree of importance the respondents allocated to the respective location factors ordered from the most relevant to the least relevant factor. The scale ranges from very unimportant (1) to very important (5), with the center (3) indicating a neutral position.

In general, the majority of factors can be judged as relevant. It is therefore worth noting that only two factors considered rank below the neutral level and are thus assessed to be unimportant. This corresponds to the variety of chosen questions, since all of them were considered important in the interviews with experts before the survey. However, all other surveyed factors have a more or less than neutral impact on the participants' fund domiciliation decision. The lead group of the five most relevant factors with a mean importance above category "4", i.e., which were ranked between important and very important in the mean, consists of legal stability with the highest valuation (4.76), the domiciliation approval process (4.51), availability (4.47) and qualification (4.45) of a specialized workforce, and the requirement conditions for the management company (4.23).

Interestingly, lower standard deviations[30] in responses on more relevant factors suggest that the group of managers agreed on the importance of the respective factors. Higher standard deviations of the answers on less relevant factors show that responses were not as consistent as for the lead group of factors. This could also be interpreted as a signal of the respondents' uncertainty about these issues or a merely selective relevance for a minority of fund companies.

[30] Standard deviation refines the analysis of managers agreeing or differing in their responses better than simply presenting mean ranges (e.g., Loheide, 2008, and almost all studies described), because outliers could change the range in a misleading way. The simple instrument of standard deviation provides further distributional information, in particular on the observations in the distribution tails.

Table 12. Relevance of Location Factors for Domiciliation

Location Factor	Mean	Standard Deviation
(1) Fund legislation	4.76	0.4346
(2) Approval process	4.51	0.5850
(3) Workforce: availability	4.47	0.6606
(4) Workforce: qualification	4.45	0.7299
(5) Business regulation	4.23	0.6982
(6) Alternative legal forms	4.00	0.8892
(7) Taxation	4.00	0.7868
(8) Government support	3.96	0.8516
(9) International reputation	3.95	0.8340
(10) Quality industry association	3.91	0.8577
(11) Investor protection	3.89	0.9454
(12) Custodian service, proximity/cooperation	3.70	1.0300
(13) Service companies, proximity/cooperation	3.68	0.9350
(14) Sales channels, proximity/cooperation	3.64	1.0478
(15) Labor costs	3.64	0.7640
(16) Approval process for mergers	3.54	1.0479
(17) Administrators, proximity/cooperation	3.51	1.0606
(18) Quality of life	3.38	1.0507
(19) Disclosure requirements	3.36	0.9190
(20) Authorization costs	3.36	0.9806
(21) Partner fund companies, proximity/cooperation	3.24	0.9690
(22) Market authority, proximity/cooperation	3.04	1.3015
(23) Office expenses	2.96	0.9878
(24) Rival fund companies, proximity/cooperation	2.60	1.0966

Source: author's calculations; mean relevance scale 1 to 5, 1= very unimportant, 5= very important.

In the following, the top five location factors will be highlighted individually along with their country-specific peculiarities. A high level of relevance is assigned to regulatory conditions in general. Legal stability (4.76) plays the most important role for fund companies' domiciliation decisions. The standard deviation is remarkably small (0.43), implying that most questioned managers seem to agree on the role of legal stability. As all countries included may be considered more or less similar in political stability, legal stability is desirable in this context for planning reliability and continuity for the fund industry, i.e., minimizing changes that affect the internal processes of companies. Due to costs of internal reorganization, maintaining existing legal frameworks may be preferred over frequent changes towards more efficient rules.

The second most relevant factor, the approval process and duration of fund issues (4.51), is closely related to this industry-specific legal stability. The start-up process is almost always initiated by sales staff. The time needed to fulfill the requirements of authorities may be decisive for the sales pitch. The findings suggest that fund companies prefer to domicile UCITS funds abroad if the start-up time is shorter than at home. UCITS domiciliation seems to be most favorable in

Luxembourg, as almost 93% of all questioned managers rate the approval process and its duration either good or very good, similarly to Ireland, where only 17% assess the authority's registration efforts as neutral.[31] This underlines the disproportionately high market share of both countries, which can be seen in table 9 of chapter 4.2.2. France lags a little behind, with almost 72% of the experts assessing approval and duration conditions as either neutral or bad and only 28% as good. The situation seems to be similar in Switzerland, where, due to the lack of the "UCITS fund passport," compatible regulatory framework conditions have been implemented to go in line with EU law (see chapter 4.2.1). According to practitioners, the approval duration was very long in Germany in the past and has been significantly reduced in the last few years. For instance, it takes three weeks in Germany, at least two weeks in Luxembourg, four weeks in France, and six weeks in Ireland and the United Kingdom to obtain regulatory approval. Also, notification takes from as little as two weeks (Ireland) to up to eight weeks (CRA, 2006; KPMG, 2010).

The next two most relevant factors concern human capital. The findings show that the availability (4.47) and qualification of the workforce (4.45) also seem to be very important, as the mutual fund business naturally relies on highly qualified staff. Within the value chain, different specialized workforces are necessary. These include fund managers, administrators, custodians, transfer agents, and sales staff. Fund managers do not usually have to be located at the fund's domicile, and fund administration can also take place elsewhere. The results show that although Ireland and France trail somewhat behind, the availability of specialized workforces seems to be guaranteed in almost all countries. This is in line with the results for financial centers in general, although no significance was observed for this factor (see chapter 3.3.4.2). However, Luxembourg is appreciated somewhat more greatly in the presence of qualified staff.

The fifth most important location factor refers to requirements for fund management companies (4.23). This factor encompasses regulatory and supervisory conditions, such as minimum capital requirements, risk management, and infrastructure. In this regard, the new implementation of the UCITS IV Directive of 2011 is very important, as it allows UCITS funds to be set up and managed in another EU member state without having to comply with local "substance criteria" for infrastructure, i.e., the de facto requirement of having a subsidiary in the country in which the fund is domiciled. This leads to further decision opportunities for fund companies to geographically optimize their business models. The results suggest that Luxembourg provides favorable conditions for fund management companies in terms of their requirements, followed by Ireland and Switzerland.

---

[31] The vanguard role of Luxembourg is similar for fund mergers. Especially in the aftermath of a financial crisis, when assets under management shrink, fund companies are prompted to consolidate existing funds in order to reduce fixed costs. Merging funds from multiple countries necessitates a new domiciliation decision.

Existing alternative legal types of funds appear to be important (e.g., SICAF, SICAV, and FCP in Luxembourg). The tax burden for the domiciled fund also appears to be important in the decision process. In the last decade, several efforts were made to create a level playing field in taxation. In 2003, fund experts identified taxation policy to be the most important barrier to cross-border financial business (Heinemann et al., 2003). The best results were obtained for Ireland, Luxembourg, and Switzerland, each with over 70% of respondents favoring them over the other countries. In line with the findings of the analysis of the general location factors for the attractiveness of financial centers, Germany seems to be at a disadvantage here.

A similar impression could be drawn when focusing on governmental efforts promoting the fund industry. Government support is judged as important (3.96). In this point, Luxembourg and Ireland show a very competitive position. Almost all of the surveyed managers give a very good score to both countries. As many as 94% and 87% of the managers assess government support as either good or very good in Ireland and Luxembourg, respectively. This strong commitment may be the result of the important economic role of the financial sector for these countries, as a result of which the government makes a great effort to support it (see chapter 3.2.3.3). For instance, high-ranking politicians promote fund activities in international road shows. On the other side, 37% of respondents assess the German government's support as bad or very bad, compared to only 17% of respondents that perceive it as good. Practitioners sometimes view German fund regulation as bureaucratic and prone to gold-plating (see chapter 3.2.3.3). These results seem not to be determined by a difference in the performance of domestic industry associations in promoting their financial center, as the mean assessments are very similar. However, beneficial governmental support influences a country's international reputation as a domiciliation location. According to the findings, Luxembourg also leads in this point, although sharp distinctions cannot be observed. The level of disclosure requirements is considered weakly relevant (3.36), which can be traced to the widely standardized framework of UCITS, i.e., differences between the countries of choice tend to be minor. Thus, the countries do not differ greatly regarding investor protection.

Generally, labor costs are high in all countries compared and are considered weakly relevant (3.64), with Ireland receiving the best rating (3.67) and Great Britain the worst (2.31). Many administrative functions in the fund industry have been outsourced to Ireland in the past. The domiciliation provisions (i.e., fees) for fund domiciliation play a minor role and all countries march to the same tune. For instance, according to CRA (2006: 36-38), the pure authorization costs imposed by the national regulator were Eur 1,500 in Germany, Eur 2,650 in Luxembourg, and Eur 8 per million assets under management for a single fund in France. These are almost always payable annually (Germany, Eur 500 p.a.).[32]

Similarly, real estate costs are high in all countries and are assessed as not important. Several questions were posed regarding cluster concentration effects.

[32] See CRA (2006) for a detailed overview of costs components.

They account for the described cluster explanations due to agglomeration economies and positive externalities, such as knowledge and information spillover effects (see chapter 2.2). The relevance of these factors is basically moderate. However, Luxembourg leads in almost all cases. Last but not least, the prime position for leisure facilities was taken by Switzerland, closely followed by Germany. In the open space for comments, the managers additionally refer to aspects of infrastructure, transport connection and mobility, and double taxation agreements as further determinants of their domiciliation decisions. As all additional factors were named only once, their significance can be considered to be limited to individual cases.

The levels of relevance and the perceived configuration of individual factors are combined in figure 17, which gives a clear account of actual microeconomic business conditions for fund companies in the major European financial centers. Overall, the results indicate that differences in the framework conditions still exist on the micro level among the countries considered, although this thesis focuses on highly standardized UCITS funds in a predominantly harmonized sub-segment of the European financial market. However, Luxembourg leads the list for almost all factors which are crucial for the domiciliation decision. The assessment regarding Ireland also suggests business advantages.

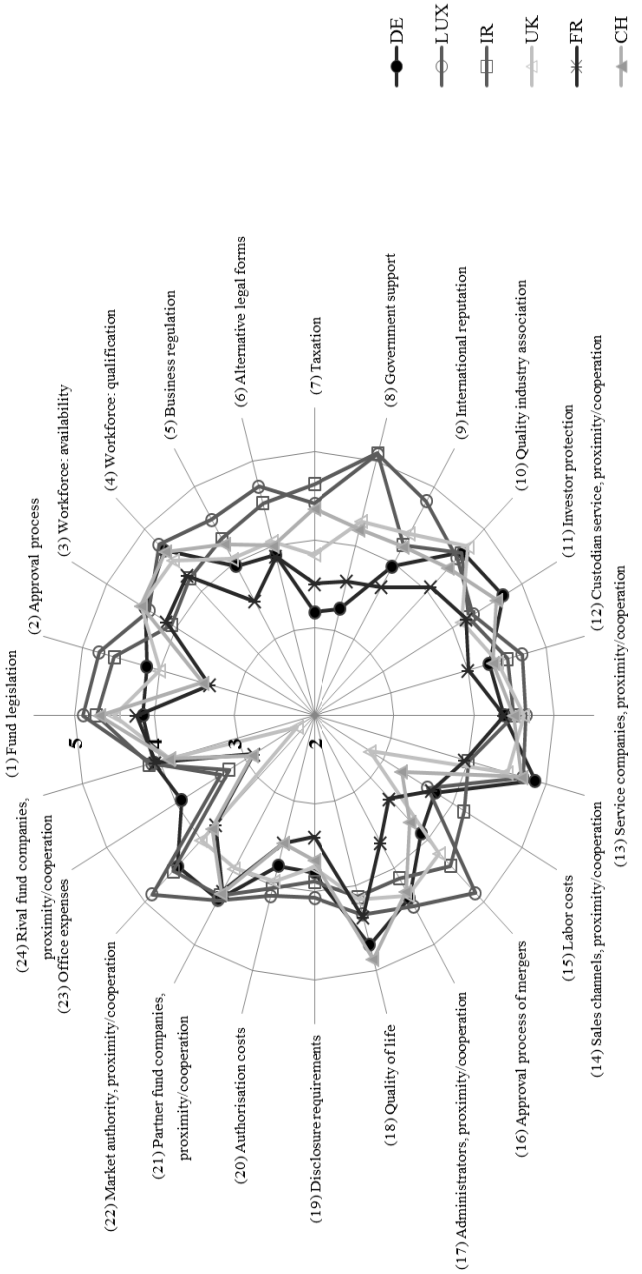


Fig. 17. Fulfillment of Relevant Location Factors

Source: author's calculations; location factors are sorted in a clockwise direction of mean relevances; the level of assessed country-specific characteristics is considered by the highest mean valuation at the outside border and lowest in the center of the circle.

4.5 Conclusion

This chapter investigated the rationale behind the domiciliation decision in the European fund industry. In order to carry out this research, the thesis analyzed the location decisions fund companies make when setting up UCITS funds and explored the quality of relevant microeconomic business environments in six European countries. These countries represent over 83% of the entire UCITS market. The survey data used provides us with detailed information on the assessments of managers responsible for domiciliation which cannot be obtained from publicly available statement data. The respondents represent a focal market share of 78%.

In particular, this chapter provides new evidence about the decision-making process in the financial industry. Several findings are prominent, and the data indicates that the decision on where to domicile a fund is not primarily driven by cost factors, such as registration charges and labor costs, but rather by the conditions of the approval process embedded in the legal framework and the quality of the workforce. Differences in these factors may allow fund companies to set up more innovative and complex funds in a shorter period of time in one country than in other countries. Traditional cost factors (i.e., economies of scale) thus play only a moderate role in domiciliation decisions and do not seem to be the primary reason for location at a particular financial center. Lower standard deviations in responses on more relevant factors suggest that the group of managers agreed on their importance. It is evident that Luxembourg is appraised as best fulfilling the most important factors. The development of Luxembourg as a special financial center for funds is attributed to governmental efforts to create favorable framework conditions, causing first-mover advantages regarding the implementation of the UCITS directives. As a result, Luxembourg is the second largest domiciliation hub in the world and located specialized experts and ancillary industries may continue to strengthen its position.

Policy recommendations can be derived from these results. Once financial institutions have settled in a certain location in which the infrastructure necessary for production is already given, relocation is usually only possible at high cost and risk and will therefore be avoided despite harmonized regulations. Consequently, favorable or unfavorable political decisions made in the past tend to have long-term effects for the future which, as illustrated in chapter 2.3, can even lead to lock-in effects. Therefore, the results are relevant both academically for the formulation of a theory and for economic practice.

Against the backdrop of the financial crisis, mutual funds have tended to become smaller as assets lost value and investors switched to other asset classes and divested from funds. Fund companies, in turn, increased fund consolidations in order to reduce fixed costs. Merging funds from multiple countries necessitates a new domiciliation decision.

In summary, the results indicate that the methods and the responses collected were useful for the purposes of this research. Nonetheless, the inferences drawn from this study must be interpreted with the understanding that the dataset arises

from a specific survey and not from extensive archival data obtained from a data provider.

This is the purpose of the following chapter. Such a line must be pursued, as this thesis examines whether the domiciliation decision made by fund companies has brought advantages to private and institutional investors. Hence location choice may also have long-lasting implications for company performance and consumer welfare. Processes in market integration should especially have lowered the costs to set up and run a mutual fund. Therefore, the determinants of mutual fund fees around the world will be analyzed with a particular focus on the domicile location.

5 Impact of the Domiciliation Decision on Fund Fees

5.1 Introduction

In late 2006, shortly before the financial crisis, more than 65,000 different mutual funds were sold around the globe (see ICI, 2011a) with the aim of offering investors more liquid and diversified investments at relatively low costs in comparison to direct investments in individual assets. For investors, fund fees represent the price for the described functions of the mutual funds' value chain (chapter 4.2.2), such as management, set-up, custodian, distribution, and other services related to these funds.

On the one hand, it can be argued that higher fees adversely affect investment performance. However, several studies indicate that the variation in fund performance is not attributable to fees; high-cost funds may underperform low-cost funds (Malkiel, 1995; Gruber, 1996; Carhart, 1997; Otten and Bams, 2002 and 2011). This variation can be better explained by characteristics of different fund managers, such as superior asset-picking and fund management skills (e.g., Chevalier and Ellison, 1999; Cohen et al., 2008). On the other hand, higher fees may increase the profitability of the issuing fund company.

However, fund companies risk losing market share when they charge higher fees than their competitors (Khorana and Servaes, 2008). Funds face competition in both national and supranational markets. In national markets, funds are only sold to investors in the country in which the fund is domiciled. By contrast, supranational funds are sold across borders. The cross-border distribution of funds has increased worldwide over the past few decades owing to a reduction of barriers to the cross-border sale of funds. This has intensified competition among fund companies, providing incentives to relocate their activities and to domicile their funds in countries which offer the most favorable regulatory environment. This in turn has led to greater competition among countries seeking to attract fund companies. The results of the previous chapters have shown that competition for the best regulatory framework within the EU has intensified over the years through the directives on Undertakings for Collective Investments in Transferable Securities (UCITS).

Furthermore, this chapter complements the literature on mutual fund fees in several aspects. Some studies suggest that economies of scale and sometimes economies of scope exist for larger fund companies, which may be reflected in lower fund fees or enhanced net performance. These studies mainly analyze US

equity and fixed income funds (e.g., Collins and Mack, 1997; Latzko, 1999; Ang and Lin, 2001 and Chen et al., 2004). Elton et al. (2003) show that performance-based fees increase market demand, while Barber et al. (2005) and Wilcox (2003) find that investors are more reluctant to accept non-recurring fees, such as front loads, than recurring expenses.[33] Ruenzi (2006) examines the fee structures for different fund classes of one fund. He finds that front loads alone do not lead to a separation of investors, but that a combination of recurring and non-recurring fees usually lead to the best outcome for investors. More recently, Gil-Bazo and Ruiz-Verdu (2009) have shown that funds with inferior before-fee performance levy higher fees. The authors base their study on the findings of Christoffersen and Musto (2002) and explain the relation between fees and performance as the result of different strategic fee-settings by the fund company in the presence of investors with different degrees of sensitivity to fund performance.

The study most closely related to the analysis made in this chapter is Khorana et al. (2009). They focus on the determinants of mutual fund fees and show that there is substantial variation in fees worldwide. Fees vary by investment objective and fund type. In addition, they find that larger funds and larger fund companies charge lower fees, while funds distributed in a greater number of countries charge higher fees, as do funds domiciled in so-called "offshore locations," such as Ireland and Luxembourg.

Khorana et al. (2005) and, using a similar approach, Fernando et al. (2003) with a focus on mutual fund industry growth, investigate why funds have been widely adopted in investors' portfolios in some countries and less so in others. Their analyses therefore focus especially on demand-side factors. Khorana et al. (2005) find that the demand for mutual funds is higher in countries with stricter rules, laws, and regulations, and specifically where mutual fund investors' rights are better protected. The fund industry is also found to be larger in countries with a wealthier and more educated population and with an older fund industry. Fernando et al. (2003) find that better developed market-based financial systems, as well as higher market returns, liquidity, and lower volatility have a positive influence on market growth. In high-income countries, openness to trade and a higher share of high-tech exports is conducive, while in middle-income countries, per capita income and strong banking systems contribute to market growth. Furthermore, the legal origin is important (equity funds are more advanced in common law countries and fixed income funds are more advanced in civil law systems), with restrictions on competing products enhancing market development.

Higher fees in financial centers may also be due to path dependence and lock-in effects (see chapter 2.3; Krugman, 1991; Martin and Sunley, 2006; Sydow et al.,

[33] In earlier papers, Chordia (1996) and Nanda et al. (2000) analyze the optimal price setting of funds. Chordia (1996) assumes that the fund market is a monopoly in order to analyze the price setting behavior of fund companies offering two different funds, while Nanda et al. (2000) presume that fees are determined endogenously in a competitive fund market.

2009).[34] For the mutual fund industry, this may imply that funds are domiciled in Luxembourg because the structures necessary to set up such funds already exist in this country and not because of an environment specifically favorable to the mutual fund industry. Hence higher fees may also be the result of inefficient existing market structures. Another reason for the high level of fees may be that funds from Luxembourg are often designed for sale in other countries. The rising number of distributors in different countries may increase costs for the fund company, as more negotiations are required on sales conditions and margins for the involved parties. This is surprising because benefits often attributed to financial clusters result from agglomeration effects, backward and forward linkages in the value-added chain, and increasing economies of scale (Krugman, 1991a and Venables, 1996). In the fund industry, for example, the availability of numerous fund administration specialists may lead to lower costs for all firms in the cluster, since they can share common services and knowledge or hire specialists without having to pay relocation costs. This may be important for fund companies, as indicated by the survey results (chapter 4.4) among executives of predominantly German fund companies. The survey suggests that the decision on where to domicile a fund is not primarily driven by cost factors, such as registration charges, fund company tax burden, and labor costs, but rather by the quality of the workforce and the approval process which may allow firms to set up more innovative and complex funds in a shorter period of time than in other countries. Thus, traditional cost factors do not seem to be the primary reason to domicile a fund in financial centers.

This chapter analyzes the determinants of mutual fund fees around the globe. To the best of knowledge, this is the first study to systematically test the significance of supply-side macro determinants for mutual fund fees. It allows for evidence to be provided on whether financial market integration influences the costs to set-up and run a fund and has led to greater consumer welfare, i.e., lower investor costs, by creating a pan-European market for mutual funds. Furthermore, systematic fund fee differences may help explain differences in fund performance.

The remainder of this chapter is structured as follows: Section 5.2 will describe the data and provide extensive descriptive statistics on possible determinants of mutual fund fees, while the econometric model and the results will be presented in Section 5.3. Section 5.3.4 will verify whether the results are driven by the choice of the sample and test whether Luxembourg and Ireland have competitive advantages in foreign mutual fund distribution. Section 5.4 will summarize the findings of this chapter.

---

[34] Porteous (1999) applies the concept of historical path dependence to financial centers, which may lead to a lock-in-effect, see chapter 2.3.

5.2 Data and Mutual Fund Fees

5.2.1 Dataset

The sample is based on data on mutual funds (open-end pooled investment vehicles that invest in transferable securities and are traded at the fund's net asset value) established around the world between 1997 and 2006. A relatively new sample period is needed to account for market integrating effects resulting from the recent facilitation of cross-border sales and domiciliation in different jurisdictions. The domicile is the country in which a fund is legally registered. The year 2006 was chosen as a cut-off point to prevent distortions caused by the financial crisis. The sample covers 80% of the total mutual fund starts based on fund size and 75% based on the number of funds started. The information on mutual fund starts is from Morningstar Direct.

This chapter also focuses on worldwide cross-border transactions. For this reason, the US survivorship free database "CRSP" cannot be used, nor the Lipper database (2010b), which only focuses on Europe. Morningstar Direct attempts to distinguish between all investments and only surviving investments, but understates the reality of closed funds. The CRSP database lists every single share class of a fund as an individual entry. This sample is not free of survivorship bias. If the disappeared group of closed funds did not depend on observable characteristics of the funds, this analysis would not have a bias. However, studies show, for example, that closed funds were smaller than surviving funds (Carhart, 1997; Zhao, 2005).

The Morningstar inception date, i.e., the date on which the fund began operating, was used for matching. Any fund not characterized as the oldest share class is excluded to account for errors caused by duplicity of observations in the data. Sometimes the same fund is recognized two or more times in the Morningstar database, when emitted in different currencies, for example. Given that the content of these funds is the same with different share classes, additional observations for one domiciliation could bias the results and will therefore be omitted. Similarly, Morningstar often publishes the same fund assets for different share classes. In addition, all observations without information on fees and fund size were dropped.

Table 13 indicates that annual mutual fund starts increased between 1997 and 2006. Fernando et al. (2003) and Heinemann (2002) relate the growth of mutual funds during the 1990s to the globalization of financial markets, a strong performance of equity and bond markets, an increased demand for mutual funds by an aging population in high and middle income countries, as well as to the demand for safe, liquid but high-return investments. The rise in the number of mutual fund starts was interrupted by the stock market crash in 2002 and 2003, which led to a significant reduction of mutual fund starts reflected by the sample. Table 14 shows the distribution of funds as broken down by fund type. The

sample includes allocation (2,138), alternative (1,575), equity (5,497), fixed income (1,960), and money market funds (565).[35] Allocation funds mix equity, bonds, and cash, while alternative funds invest in currencies, derivatives, as well as commodities and may employ shorting as a strategy. In contrast to allocation and alternative funds with possible specific derivative structures, equity and fixed income funds qualify more easily for a UCITS passport. This is reflected in table 14, which shows that more than 50% of equity and fixed income funds in the sample are UCITS funds. In Luxembourg and Ireland, even 90% of all funds are compliant with the UCITS directive.

Table 13. Number of Fund Starts, by Year

	Obs.	Percent	Cum.
1997	985	8.39	8.39
1998	1,076	9.17	17.56
1999	1,109	9.45	27.01
2000	1,355	11.55	38.56
2001	1,080	9.2	47.76
2002	948	8.08	55.84
2003	952	8.11	63.95
2004	1,149	9.79	73.75
2005	1,443	12.3	86.04
2006	1,638	13.96	100
Total	11,735	100	

Source: author's calculations, data based on Morningstar. Table 13 shows the distribution of mutual funds started by the 1,000 largest fund companies worldwide between 1997 and 2006. The dataset includes all funds not characterized as the oldest share class, which is excluded to account for mistakes caused by duplicity of observations in the data.

Table 14. Number of Funds, by Fund Type

	All Countries	**Domiciled in Luxembourg**	**Domiciled in Ireland**	**Domiciled in all other countries**
Allocation	2,138	452	13	1,673
Alternative	1,575	161	2	1,412
Equity	5,497	1,543	200	3,754
Fixed Income	1,960	681	96	1,183
Money Market	565	97	14	454
Total	11,735	2,934	325	8,476

[35] Municipal fixed income funds are excluded, as they are mostly driven by US tax reasons.

Table 14 (continued).

Non-UCITS funds	All Countries	Domiciled in Luxembourg	Domiciled in Ireland	Domiciled in all other countries
Allocation	1,209	98	2	1,109
Alternative	1,003	32	0	971
Equity	2,580	68	11	2,501
Fixed Income	829	54	6	769
Money Market	326	16	2	308
Total	5,947	268	21	5,658
UCITS funds	**All Countries**	**Domiciled in Luxembourg**	**Domiciled in Ireland**	**Domiciled in all other countries**
Allocation	929	354	11	564
Alternative	572	129	2	441
Equity	2,917	1,475	189	1,253
Fixed Income	1,131	627	90	414
Money Market	239	81	12	146
Total	5,788	2,666	304	2,818

Source: author's calculations, data based on Morningstar; table 14 shows the distribution of funds of the 1,000 largest fund companies worldwide between 1997 and 2006 according to fund type and the country in which the fund is domiciled. UCITS funds are funds compliant with the UCITS directive. Municipal fixed income funds are excluded as they are mostly driven by tax reasons.

Table 15 provides an overview of the geographical distribution of mutual funds and their origins. The total sample comprises 11,735 mutual funds from 22 countries. The countries in which most funds are domiciled are Luxembourg (2,934) and the United States (1,984). The global market allocation presented in chapter 4.2.2 shows that both countries account for a substantial share in the sample. The distinction is made between funds domiciled by fund companies with a foreign parent company and funds started by a domestic fund company. In Luxembourg, funds domiciled by foreign fund companies are much more important than in all other countries. Both countries combined account for more than two thirds of all funds started by foreign fund companies worldwide.

These fund companies primarily use Luxembourg and Ireland as hubs to distribute their funds abroad, as indicated in table 16. Funds from Luxembourg are, on average, distributed in almost 12 countries, while funds domiciled in Ireland are, on average, sold in almost 9 countries. Although these funds are also registered for sale in Luxembourg and Ireland, they are mainly sold abroad. In contrast, in most other countries in the sample, mutual funds are mainly sold in a single market – the country in which they are domiciled – and not established for cross-border distribution.

Table 15. Number of Funds, by Country

	Number of Funds	Domiciled by foreign companies	Domiciled by domestic companies
Austria	542	74	468
Belgium	318	6	312
Switzerland	193	62	131
Germany	529	46	483
Spain	1,580	171	1,409
Finland	32	0	32
France	1,454	386	1,068
United Kingdom	690	212	478
Ireland	325	321	4
India	376	149	227
Italy	12	0	12
Luxembourg	2,934	2,911	23
Mexico	59	25	34
Malaysia	65	27	38
Netherlands	107	0	107
Norway	19	0	19
Portugal	45	8	37
Sweden	12	2	10
Singapore	127	51	76
Thailand	141	29	112
Taiwan	191	78	113
United States	1,984	193	1,791
Total	11,735	4,751	6,984

Source: author's calculations, data based on Morningstar; table 15 shows the geographical distribution of mutual funds of the 1,000 largest fund companies worldwide between 1997 and 2006.

The large number of foreign fund companies and the large number of countries in which funds are sold reflect Luxembourg's and Ireland's prominent role as financial centers for the mutual fund industry. Both countries have developed into financial centers owing to their rapid implementation of the UCITS directive and the creation of a favorable environment for the European mutual fund industry. In 1988, Luxembourg became the first EU member state to transpose the directive concerning UCITS into national law. The legal and regulatory environment thus created a competitive edge for Luxembourg as a first mover over rival financial centers. Ireland was popular for low corporate tax rates and other incentives for companies to set up operations in Dublin's International Financial Services Centre

established in 1987.[36] The Irish fund industry originated in 1989 and benefited from low tax rates for fund companies and easy access to the EU market via the product passport of UCITS. Both locations are not only used for sales in the EU; they have established themselves as locations for domiciling mutual funds for sales worldwide.

Table 16. Number of Countries in which Funds are Sold, by Country

	Obs.	Mean	Median	Std. Dev.	Max.	Min.
Austria	542	1.68	1.00	0.94	8.00	1.00
Belgium	318	2.80	2.00	2.75	11.00	1.00
Switzerland	193	1.09	1.00	0.32	3.00	1.00
Germany	529	1.30	1.00	0.67	6.00	1.00
Spain	1,580	1.00	1.00	0.06	2.00	1.00
Finland	32	2.59	2.00	0.91	5.00	2.00
France	1,454	1.25	1.00	0.97	10.00	1.00
United Kingdom	690	1.81	1.00	2.23	15.00	1.00
Ireland	325	8.70	8.00	4.82	21.00	1.00
India	376	1.00	1.00	0.00	1.00	1.00
Italy	12	1.00	1.00	0.00	1.00	1.00
Luxembourg	2,934	11.97	12.00	8.16	39.00	1.00
Mexico	59	1.00	1.00	0.00	1.00	1.00
Malaysia	65	1.00	1.00	0.00	1.00	1.00
Netherlands	107	1.07	1.00	0.25	2.00	1.00
Norway	19	1.26	1.00	0.56	3.00	1.00
Portugal	45	1.00	1.00	0.00	1.00	1.00
Sweden	12	1.08	1.00	0.29	2.00	1.00
Singapore	127	1.32	1.00	0.68	5.00	1.00
Thailand	141	1.00	1.00	0.00	1.00	1.00
Taiwan	191	1.00	1.00	0.00	1.00	1.00
United States	1,984	1.05	1.00	0.23	3.00	1.00
Total	11,735	4.15	1.00	6.33	39.00	1.00

Source: author's calculations, data based on Morningstar. Table 16 shows the mean, median, standard deviation, maximum and minimum values of the number of countries in which a fund is sold. Funds that are sold in more than one country are distributed across borders, while funds sold in only one country are usually distributed in a single market: the country in which they are domiciled.

[36] For a detailed overview on the developments in the Irish financial sector, see Murphy (1998) and Sokol (2007).

5.2.2 Fragmentation of Fund Fees

In general, fees can be divided into performance-based fees and non-performance-based fees. Performance-based fees are charged when performance exceeds certain pre-specified benchmarks. Since they play a minor role in the global mutual fund industry, except in the segment of hedge funds, and are not related to domiciliation costs, this analysis concentrates on non-performance-based fees.

Performance-based fees are not common in the US because mutual fund fees have had to be symmetric since 1970 (Khorana and Servaes, 2008). Elton et al. (2003) examine performance-based fees in the US and establish that only 1.7% of all funds charged incentive fees in 1999, although these funds control 10.5% of all fund assets. On average, these funds do not earn any performance-based fees because they do not outperform their benchmarks. Sigurdsson (2007) finds that, in Europe, equity funds with a share in assets of 12% have particularly incentive elements.

Performance-based fees can be further categorized into non-recurring fees that are charged once and those that are charged frequently. Fees charged once may include front loads, redemption fees, and conditioned redemption fees. In most cases, funds charge a combination of one-off and recurring fees. It cannot be determined exactly how much the investor is charged with non-recurring price elements, as most of the distribution channels usually give investors various discounts. Therefore, the actual fees paid may differ from the fees published as a result of the bargaining power of institutional investors. The published non-recurring fees in the dataset thus represent the maximum rates and may be negotiated to lower levels.[37] Front loads are usually levied for distribution. They are thus income for the distributor rather than the fund company. The discounts increased between 1997 and 2006, resulting in larger differences for old funds. The difference between the posted and the paid fee also varies between countries. Fees are maintained over time once they are established. Fund companies cannot select the countries and apply different non-recurring fees in the main share class. Including front and end load fees would have a distorting effect, as frequent transactions, i.e., buying and selling funds, are not representative. The typical buy-and-hold investor tends to invest based on long-term considerations. For this reason, this analysis concentrates on recurring fees.

This analysis follows the literature (e.g., Khorana et al., 2009; Bergstresser et al., 2009) and applies the following two measures of recurring mutual fund fees: (1) total expense ratio (TER) and (2) management fee (MGFEE). The data on mutual fund fees is from Morningstar Direct (2010), which gathers the data from the funds' annual reports. According to Morningstar Direct (2010), management fees are the annual revenues of the investment management. They are used to pay

[37] To index these one-time costs, Khorana et al. (2009) assume an investor's average holding period of five years and split the front and back-end loads.

investment advisers for supervising and rebalancing a fund's portfolio as well as for managing its operations. Portfolio managers in the fund management are located independently of legal domiciliation and frequently work in teams (see chapter 4.2.2). According to the findings of Bär et al. (2011), fund companies prefer a portfolio management in the form of a team of managers when the average fund is larger and specialized knowledge is essential. The authors therefore cite balanced funds as an example. In some cases, fund companies employ another company, called the sub-advisor, to handle the fund's day-to-day management, e.g., due to specific industry knowledge. In these instances, the portfolio manager is generally located in the same place as the fund's sub-advisor. According to Kuhnen (2009), the majority of funds use in-house asset management.

The total expense ratio includes not only management fees, but all annual expenses levied by a fund on its investors, covering distribution, administration, custodian, transfer agent, accounting, audit, legal, and others. The definition of mutual fund fees is therefore much broader than that of management fees.

Morningstar publishes several expense ratios with different levels of coverage. This analysis uses the audited trailing perspective of the annual report net expense ratio, which is the "percentage of fund assets used to pay for operating expenses and management fees, including 12b-1 fees, administrative fees, and all other asset-based costs" incurred by the fund. Fund expenses are reflected in the fund's NAV. According to the analyses of Khorana et al. (2009: 1286), it typically includes "the following types of fees: accounting, administrator, advisor, auditor, board of directors, custodial, distribution (12b-1), legal, organizational, professional, registration, shareholder reporting, sub-advisor, and transfer agency." It does not reflect the fund's brokerage costs. Sales charges are also not included in the expense ratio, because "the charge may vary depending on the amount invested and the fund chosen" (ICI, 2010: 190-191).

In addition, this analysis extends the two measures by a compound ratio which calculates the difference between the total expense ratio and management fee as a proxy for (3) administrative fees (ADFEE). Administrative fees should better reflect domiciliation costs, because the fund management is usually located in a country other than the fund domicile. ADFEE should measure costs unrelated to the fund management, such as fees for the custodian, transfer agent, accounting, audit, legal companies, and for the internal administrative functions of a fund company.[38]

[38] However, since published management fees usually differ in terms of the services included, ADFEE may also include costs unrelated to the set-up and running of funds. Despite these limitations, it is assumed that the addition of ADFEE gives a more representative picture of the fee structure, as it serves as a proxy for local differences in efficiency rather than salary levels.

Table 17. Mutual Fund Fees, by Country

	Total Expense Ratio		Management Fees		Administrative Fees	
	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
Austria	1.72	1.36	1.09	0.94	0.63	0.42
Belgium	1.21	1.20	0.90	0.86	0.31	0.34
Finland	1.82	1.92	1.65	1.78	0.17	0.14
France	1.68	1.11	1.06	0.76	0.62	0.35
Germany	1.40	1.08	1.00	0.87	0.39	0.21
India	1.64	1.09	0.78	0.56	0.85	0.53
Ireland	1.39	1.05	1.05	0.83	0.34	0.22
Italy	1.55	0.62	1.25	0.49	0.31	0.13
Luxembourg	1.64	1.45	1.20	1.10	0.44	0.35
Malaysia	1.48	1.20	1.29	1.11	0.18	0.09
Mexico	1.61	1.39	0.85	0.55	0.76	0.84
Netherlands	1.11	0.85	0.94	0.74	0.17	0.11
Norway	1.35	1.29	1.27	1.22	0.08	0.07
Portugal	1.42	1.18	1.17	0.92	0.25	0.27
Singapore	1.93	1.67	1.28	1.26	0.65	0.41
Spain	1.22	1.14	0.95	0.87	0.27	0.27
Sweden	1.55	1.56	1.30	1.32	0.25	0.24
Switzerland	1.06	0.59	0.89	0.52	0.17	0.07
Taiwan	1.57	1.02	1.36	0.83	0.21	0.19
Thailand	0.97	0.86	0.75	0.67	0.21	0.19
Total	1.43	1.08	1.00	0.78	0.43	0.30
United Kingdom	1.44	1.19	1.16	1.02	0.28	0.17
United States	1.07	0.81	0.64	0.51	0.43	0.30

Source: author's calculations, data based on Morningstar. Table 17 shows weighted and asset-weighted means of mutual fund fees. Fees are weighted by fund size. Mutual fund fees are measured by the total expense ratio (TER), management fees (MGFEE), and administrative fees (ADFEE). Administrative fees are calculated as the difference between the total expense ratio and management fees. All fees are displayed in percent.

Table 17 provides an overview of these three measures for recurring fees by country of domiciliation. The asset-weighted and unweighted average fee levels are compared for all funds, as well as for allocation, alternative, equity, fixed income, and money market funds. It is assumed that asset-weighted fees are a better representation of the fees paid by the consumer. Mutual fund fees vary considerably from country to country. For example, on asset-weighted basis, mean total expense ratios range from 0.59 in Switzerland to 1.92 in Finland. Funds from Luxembourg have a mean expense ratio of 1.45 (weighted by fund size). This does

not place it among the most affordable funds, despite the cluster effects attributed to financial clusters. Irish funds, in contrast, have the much lower mean expense ratio of 1.05 (weighted by fund size). Similar results are obtained for management and administrative fees. Although this perspective neglects the influence of other important variables, such as fund type and the number of countries in which a fund is sold, it is striking that Luxembourg continues to charge higher fees than most other countries despite the cost advantages that may arise from industry size advantages and cluster effects, which are usually attributed to financial centers.

5.2.3 Determinants of Fund Fees

The following will present descriptive statistics of mutual fund fees in order to identify potential determinants that may explain why fees differ from country to country. An important determinant of mutual fund fees is the fund type, since factors such as different creative leeway in the regulation of the fund and the fund company or different authorization proceedings for underlying assets and the use of hedging instruments with derivatives should be more relevant for some fund types than for others. This is reflected in table 18, which shows that equity[39] and allocation funds are on average the most expensive, while money market and fixed income funds are the cheapest owing to lower transaction and management costs. Furthermore, competition from banks and insurance companies is greater for the latter two types of funds, which is because deposit products are a direct competitor to fixed income and money market funds.[40] This should reduce the scope of fund companies to raise fees on money market and fixed income funds.

Table 18. Mutual Fund Fees, by Fund Type

Total Expense Ratio

	Obs.	Mean	Median	Std. Dev.	Max.	Min.
Allocation	2,138	1.19	1.25	0.75	6.97	0.06
Alternative	1,575	1.37	1.35	0.55	4.32	0.02
Equity	5,497	1.34	1.34	0.67	7.17	0.05
Fixed Income	1,960	0.91	0.90	0.49	4.39	0.05
Money Market	565	0.39	0.30	0.30	2.50	0.04
Total	11,735	1.08	1.03	0.68	7.17	0.02

[39] Cooper et al. (2011) analyze dispersion in mutual fund fees and find evidence of systematic differences in prices across US equity funds.

[40] The variation in management fees is rarely the result of the ratio of the non-recurring to the recurring part of the total fees (e.g., Spanish funds have traditionally been sold without a load fee, a fact that explains some of the highest management fees in Europe).

Table 18 (continued).

Management Fees

	Obs.	Mean	Median	Std. Dev.	Max.	Min.
Allocation	2,138	0.81	0.81	0.58	2.97	0.01
Alternative	1,575	1.01	1.00	0.45	2.46	0.01
Equity	5,497	0.99	0.90	0.53	3.00	0.01
Fixed Income	1,960	0.66	0.64	0.36	2.25	0.02
Money Market	565	0.25	0.20	0.20	1.91	0.01
Total	11,735	0.78	0.71	0.53	3.00	0.01

Administrative Fees

	Obs.	Mean	Median	Std. Dev.	Max.	Min.
Allocation	2,138	0.39	0.24	0.47	5.97	0.01
Alternative	1,575	0.36	0.20	0.42	2.85	0.01
Equity	5,497	0.36	0.30	0.33	6.05	0.01
Fixed Income	1,960	0.25	0.18	0.26	3.39	0.00
Money Market	565	0.14	0.09	0.19	2.21	0.00
Total	11,735	0.30	0.20	0.33	6.05	0.00

Source: author's calculations, data based on Morningstar. Table 18 shows weighted and asset-weighted means of mutual fund fees for different types of funds. Fees are weighted by fund size. Mutual fund fees are measured by the total expense ratio (TER), management fees (MGFEE) and administrative fees (ADFEE). Administrative fees are calculated as the difference between the total expense ratio and management fees. All fees are displayed in percent.

Another important determinant of mutual fund fees may be the number of countries in which a mutual fund is sold. Since mutual fund companies have to incur registration costs for each country in which the fund is sold, fees should rise with an increasing number of countries in which a fund is sold. This is demonstrated in table 19, which shows a positive relationship between mutual fund fees and the number of countries in which a fund is sold. In concrete terms, selling a fund in over seven countries should raise the asset-weighted total expense ratio on average by almost 60 basis points compared to a fund which is sold in only one country. This may explain why funds domiciled in Luxemburg report higher fees than funds domiciled in other European countries, although the UCITS regulation should be conducive to similar fees across the EU (European Commission, 2009).

Table 19. Mutual Fund Fees, by Number of Countries in which a Fund is Sold

Total Expense Ratio

	Obs.	Mean	Median	Std. Dev.	Max.	Min.
1	7,545	0.91	0.88	0.59	6.60	0.02
2 to 3	1,473	0.96	0.81	0.69	7.17	0.07
3 to 5	322	1.32	1.19	0.58	4.36	0.17
5 to 7	232	1.45	1.31	1.05	6.97	0.17
over 7	2,163	1.50	1.58	0.64	4.79	0.16
Total	11,735	1.08	1.03	0.68	7.17	0.02

Management Fees

	Obs.	Mean	Median	Std. Dev.	Max.	Min.
1	7,545	0.62	0.60	0.45	3.00	0.01
2 to 3	1,473	0.71	0.60	0.53	3.00	0.03
3 to 5	322	1.09	1.00	0.51	3.00	0.09
5 to 7	232	1.05	1.02	0.62	2.75	0.05
over 7	2,163	1.15	1.20	0.51	2.50	0.10
Total	11,735	0.78	0.71	0.53	3.00	0.01

Administration Fee

	Obs.	Mean	Median	Std. Dev.	Max.	Min.
1	7,545	0.29	0.17	0.31	4.98	0.00
2 to 3	1,473	0.24	0.12	0.37	6.05	0.01
3 to 5	322	0.23	0.17	0.22	3.00	0.01
5 to 7	232	0.41	0.16	0.74	5.97	0.01
over 7	2,163	0.35	0.32	0.28	3.29	0.01
Total	11,735	0.30	0.20	0.33	6.05	0.00

Source: author's calculations, data based on Morningstar. Table 19 shows the mean, median, standard deviation, maximum, and minimum values of mutual fund fees. Fees are weighted by fund size. Mutual fund fees are measured by the total expense ratio (TER), management fees (MGFEE) and administrative fees (ADFEE). Administrative fees are calculated as the difference between the total expense ratio and management fees. All fees are displayed in percent.

Fund size is an important determinant of mutual fund fees, as well. Earlier studies indicate economies of scale in the mutual fund industry for the US (Baumol et al., 1980) and France (Dermine and Röller, 1992). Larger funds should generate economies of scale in fund management and administration, leading to lower mutual fund fees. This is illustrated in table 20, which relates mutual fund fees to fund size. The results indicate that average mutual fund fees decrease as the size of the fund increases. For example, a fund that belongs to the first quartile based on fund size has an average total expense ratio of 1.57 weighted by assets.

In contrast, a fund in the fourth quartile has the significantly lower average total expense ratio of 1.02. The negative relationship is also observable for management and administrative fees, although fees tend to increase for smaller fund sizes before they begin to decrease. This may indicate that fund companies must incur fixed overhead costs for fund management and administration in the first stage before economies of scale result in lower average costs. To control for the non-linear relationship between fund size and fees, a squared term in the regression analysis will be included later. In addition, it will be tested whether economies of scale also derive from a greater size of the mutual fund company.

Table 20. Mutual Fund Fees, by Fund Size

Total Expense Ratio

	Obs.	Mean	Median	Std. Dev.	Max.	Min.
1. Quartile	2,937	1.57	1.54	0.79	7.17	0.02
2. Quartile	2,931	1.52	1.51	0.67	6.60	0.06
3. Quartile	2,931	1.41	1.38	0.67	5.89	0.04
4. Quartile	2,936	1.02	0.97	0.67	6.97	0.04
Total	11,735	1.08	1.03	0.68	7.17	0.02

Management Fees

	Obs.	Mean	Median	Std. Dev.	Max.	Min.
1. Quartile	2,937	1.04	1.00	0.56	3.00	0.01
2. Quartile	2,931	1.08	1.05	0.53	3.00	0.01
3. Quartile	2,931	1.02	1.00	0.52	3.00	0.01
4. Quartile	2,936	0.74	0.66	0.52	2.50	0.01
Total	11,735	0.78	0.71	0.53	3.00	0.01

Administrative Fees

	Obs.	Mean	Median	Std. Dev.	Max.	Min.
1. Quartile	2,937	0.53	0.35	0.54	6.05	0.00
2. Quartile	2,931	0.43	0.29	0.43	4.84	0.00
3. Quartile	2,931	0.39	0.27	0.39	4.69	0.01
4. Quartile	8,799	0.40	0.28	0.41	6.05	0.00
Total	11,735	0.30	0.20	0.33	6.05	0.00

Source: author's calculations, data based on Morningstar. Table 20 shows asset-weighted means of mutual funds of different sizes. Funds are differentiated based on their size in four quartiles. Mutual fund fees are measured by the total expense ratio (TER), management fees (MGFEE) and administrative fees (ADFEE). Administrative fees are calculated as the difference between the total expense ratio and management fees. All fees are displayed in percent.

5.3 Econometric Model

Since the determinants of mutual fund fees are correlated, the following regression model will be estimated to isolate the effect of several fund, company and country-specific variables affecting mutual fund fees:

$$Fee_{ijct} = \alpha + \beta_1 FUNDTYPE_i + \beta_2 X_{ijct} + \beta_3 Z_{ijct} + \beta_4 Y_{ct} + \varepsilon_{ijct}$$

where *Fee* is either the total expense ratio, management fee, or administrative fee of fund *i* that was established by fund company *j* in country *c* and year *t*. FUNDTYPE refers to a set of dummy variables for different fund types. This analysis distinguishes between allocation, fixed income, money market, and alternative funds. Equity funds are the benchmark. In addition, dummy variables for institutional (INSTITUTIONAL) and guarantee funds (GUARANTEE) are also included.

X is a matrix of fund-specific variables, Z a matrix of company-specific variables, and Y a matrix of country controls. The fund-specific variables used are the size of the fund (FUNDSIZE), fund age (FUNDAGE), and the number of countries in which a fund is sold (SALE). Firm-specific controls comprise the size (FIRMSIZE) and age of the fund company (FIRMAGE) and the degree of product specialization (SPECIAL). In addition, this analysis tests whether foreign fund companies have competitive disadvantages relative to domestic fund companies in issuing funds (FOREIGN). Country variables are included in matrix Y and controls for fund-specific regulations, such as the requirement of having an independent custodian (CUSTODIAN), the possibility of having umbrella structures (UMBRELLA), the level of taxation of the fund company (TAX), and the time necessary to start a fund (STARTUP). Furthermore, a set of variables in included to control for the size of the financial sector as well as the overall level of regulation in the financial sector.

Table 21 provides the complete list of variables included in the model. ε_{ijct} is the error term and $\alpha, \beta_1, \beta_2, \beta_3$ and β_4 are coefficient vectors. To account for the role of Luxembourg and Ireland as financial centers, dummies are included for Luxembourg (LU) and Ireland (IE). Cook's (1977) distance criterion is used to remove outliers. Moreover, since mutual fund fees may not be independent within firms, robust standard errors clustered at the level of the fund company are used.[41]

[41] Following Khorana et al. (2009) fees are clustered at the level of fund types. The results are quantitatively and qualitatively identical. The results can be obtained upon request. Since it is assumed that clustering standard errors at the firm-level is more

Table 21. Variable Definitions

Variable	Description
ALLOCATION	Dummy variable for allocation funds. Source: Morningstar (2010)
ALTERNATIVE	Dummy variable for alternative funds. Source: Morningstar (2010)
FIXED INCOME	Dummy variable for fixed income funds. Source: Morningstar (2010)
MONEY MARKET	Dummy variable for money market funds. Source: Morningstar (2010)
INSTITUTIONAL	Dummy variable for institutional funds. Source: Morningstar (2010)
GUARANTEE	Dummy variable for guarantee funds. Source: Morningstar (2010)
UCITS	Dummy variable for UCITS funds. Source: Morningstar (2010)
SALE	Number of countries in which a fund is sold. Source: Morningstar (2010)
FUND SIZE	Logarithm of the total fund assets, in euro. Source: Morningstar (2010)
FUND AGE	Logarithm of the number of years since the fund was started. Source: Morningstar (2010)
FIRM SIZE	Logarithm of total assets under management, in euro. Source: Morningstar (2010)
FIRM AGE	Logarithm of the number of years since the first fund of a fund company was set up. Source: Morningstar (2010)
SPECIAL	Sum of the squared assets (by fund type) set up by a fund company. Source: Morningstar (2010)
FOREIGN	Dummy variable indicating whether a fund was set up in a country other than the home country of the issuing company. Source: Morningstar (2010)
IE	Dummy variable for funds domiciled in Ireland. Source: Morningstar (2010)
LU	Dummy variable for funds domiciled in Luxembourg. Source: Morningstar (2010)
CUSTODIAN	Dummy variable for countries in which a custodian is mandatory. Source: KPMG (2010)
UMBRELLA	Dummy variable for countries in which umbrella structures are allowed. Source: KPMG (2010)
TAX	Tax rate charged to the mutual fund company in a country. Source: KPMG (2010), Country fund industry associations
STARTUP	Time necessary to start a mutual fund in a country. Source: KPMG (2010), PWC (2010), Country fund industry associations
GDPPC	Logarithm of the GDP per-capita in a country. Source: WDI (2010)
STKMTCAP	Ratio of stock market capitalization to GDP. Source: IMF (2010)
DBAGDP	Ratio of deposit-bank assets to GDP. Source: IMF (2010)
FINFREE	Index of Financial Freedom. Source: Heritage Foundation (2010)
SALE*LU	Interaction term between SALE and LU
SALE*IE	Interaction term between SALE and IE

Source: Organized by the author.

appropriate than at the level of fund types, the results with firm-level clustered standard errors are reported.

The potential determinants of mutual fund fees are based on Khorana et al. (2005, 2009). In addition, this analysis uses evidence from chapter 4 that provides background information on the fund company decision process for selecting the most favorable domicile in Europe. The survey results reveal that continuity in legal stability, the approval process, and the availability and qualification of specialized experts in a cluster play the most important roles. Cost factors such as registration charges, fund company tax burden, and labor costs are, in contrast, generally considered to be less important in the domiciliation decision. According to the experts surveyed, Luxembourg is best in four of the five aforementioned factors, while Ireland ranks second based on three out of five of the most relevant location factors. This suggests that the decision to domicile a fund in Luxembourg and Ireland is not primarily driven by location factors usually assumed to reduce costs, but rather by the quality of the workforce and the approval process which may allow companies to set up more innovative and complex funds in a shorter period of time than in other countries.

The regression analysis proceeds in steps to prevent multicollinearity among the explanatory variables and to test whether the results are robust to the inclusion of different sets of control variables. First, country dummies as well as a set of fund and firm-specific variables were included in the model to find out which fund and firm characteristics determine mutual fund fees. This is the baseline model. Second, several regulatory variables were included to analyze the impact of fund-specific regulations on mutual fund fees. Third, several other country variables were used to check whether the results for the fund-specific regulatory variables are driven by other country characteristics. Finally, the results were tested for their sensitivity to the sample chosen and analyze whether Luxembourg and Ireland have comparative cost advantages in distributing mutual funds abroad compared to all other countries.

5.3.1 Baseline Regression

In the first step of the regression analysis, a set of fund and firm-specific control variables is included. To control for unobserved heterogeneity across countries, the model is estimated with country dummy variables. Owing to the importance outlined above of Luxembourg (LU) and Ireland (IE) as financial centers, the coefficients for these dummies are reported. The coefficients of the remaining country dummies are left out for the sake of brevity. See table 21 for a description of the variables used in the regression analysis. The results of the baseline model are then shown in table 22 (Model 1).

Table 22. Regression Results

Panel A: Total Expense Ratio

	Model 1 = Baseline	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALLOCATION	-0.216***	-0.204***	-0.210***	-0.223***	-0.224***	-0.219***	-0.227***
	(0.0279)	(0.0300)	(0.0293)	(0.0292)	(0.0300)	(0.0289)	(0.0298)
ALTERNATIVE	-0.907***	-0.927***	-0.889***	-0.985***	-0.967***	-0.959***	-0.952***
	(0.0954)	(0.0843)	(0.0747)	(0.0835)	(0.0842)	(0.0828)	(0.0834)
FIXED INCOME	-0.692***	-0.702***	-0.660***	-0.671***	-0.682***	-0.672***	-0.675***
	(0.0265)	(0.0295)	(0.0276)	(0.0270)	(0.0285)	(0.0266)	(0.0280)
MONEY MARKET	-1.102***	-1.102***	-1.075***	-1.125***	-1.113***	-1.132***	-1.121***
	(0.0356)	(0.0337)	(0.0379)	(0.0359)	(0.0364)	(0.0361)	(0.0374)
INSTITUTIONAL	-0.473***	-0.484***	-0.516***	-0.490***	-0.483***	-0.482***	-0.478***
	(0.0341)	(0.0345)	(0.0361)	(0.0359)	(0.0359)	(0.0353)	(0.0354)
GUARANTEE	0.415***	0.447***	0.372***	0.458***	0.451***	0.415***	0.420***
	(0.116)	(0.112)	(0.111)	(0.108)	(0.111)	(0.111)	(0.113)
UCITSFUND	0.0671**	0.0669**	0.0525*	0.0158	0.0416	0.0382	0.0468
	(0.0334)	(0.0291)	(0.0285)	(0.0275)	(0.0297)	(0.0292)	(0.0304)
SALE	0.00975***	0.0117***	0.0130***	0.0122***	0.00963***	0.0108***	0.00914***
	(0.00297)	(0.00305)	(0.00286)	(0.00297)	(0.00334)	(0.00292)	(0.00326)
FUND SIZE	-0.0420***	-0.0472***	-0.0548***	-0.0499***	-0.0474***	-0.0464***	-0.0458***
	(0.00652)	(0.00718)	(0.00681)	(0.00670)	(0.00664)	(0.00653)	(0.00648)
FUND AGE	0.0173	0.0230*	0.0204	0.0181	-0.0351**	0.000421	-0.0444***
	(0.0128)	(0.0139)	(0.0132)	(0.0132)	(0.0143)	(0.0136)	(0.0151)
FIRM SIZE	-0.0396***	-0.0358***	-0.0454***	-0.0415***	-0.0404***	-0.0414***	-0.0409***
	(0.00750)	(0.00751)	(0.00800)	(0.00771)	(0.00761)	(0.00769)	(0.00760)
FIRM AGE	0.0157	0.00427	-0.0245	-0.00193	0.0168	0.00490	0.0133
	(0.0320)	(0.0323)	(0.0324)	(0.0324)	(0.0283)	(0.0331)	(0.0288)
SPECIAL	-0.00000103	-0.0000144*	-0.0000210**	-0.0000136	-0.00000854	-0.0000100	-0.00000666
	(0.00000873)	(0.00000854)	(0.00000903)	(0.00000845)	(0.00000874)	(0.00000848)	(0.00000873)

Table 22 (continued).

Panel A: Total Expense Ratio

	Model 1 = Baseline	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
FOREIGN	-0.0373	-0.00233	0.0129	-0.0204	-0.0371	-0.0245	-0.0360
	(0.0406)	(0.0433)	(0.0444)	(0.0419)	(0.0406)	(0.0408)	(0.0394)
IE	0.282***	0.0530	-0.252**	-0.116	-0.489***	-0.187	-0.592***
	(0.109)	(0.136)	(0.101)	(0.134)	(0.143)	(0.130)	(0.144)
LUX	0.468***	0.469***	0.0000490	0.347***	0.305***	0.280***	0.270***
	(0.0831)	(0.108)	(0.0665)	(0.103)	(0.0962)	(0.102)	(0.0933)
CUSTODIAN		0.406***		0.321***	0.276***	0.188**	0.236***
		(0.0776)		(0.0692)	(0.0706)	(0.0791)	(0.0704)
TAX		0.00868		0.00402	0.0384	0.0676	0.0987*
		(0.00564)		(0.00562)	(0.0533)	(0.0709)	(0.0586)
UMBRELLA			-0.00972	0.0467	-0.0181***	-0.00388	-0.0244***
			(0.0602)	(0.0654)	(0.00637)	(0.00546)	(0.00565)
STARTUP			-0.0604***	-0.0290***	-0.0356***	-0.0295***	-0.0320***
			(0.0105)	(0.0107)	(0.00979)	(0.0105)	(0.00862)
DBAGDP					-0.391***		-0.427***
					(0.0645)		(0.0794)
STMKTCAP					-0.0276		-0.0488
					(0.0318)		(0.0341)
GDPPC						-0.00445	0.0483*
						(0.0193)	(0.0247)
FINFREE						-0.00330***	-0.00297**
						(0.00121)	(0.00121)
Observations	11,735	11,676	11,277	11,218	10,245	11,218	10,245

Table 22 (continued).

Panel B: Management Fees

	Model 1 = Baseline	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**
ALLOCATION	-0.207***	-0.197***	-0.185***	-0.196***	-0.193***	-0.198***	-0.197***
	(0.0216)	(0.0217)	(0.0228)	(0.0223)	(0.0232)	(0.0222)	(0.0232)
ALTERNATIVE	-0.736***	-0.659***	-0.552***	-0.673***	-0.665***	-0.664***	-0.665***
	(0.0785)	(0.0639)	(0.0569)	(0.0663)	(0.0680)	(0.0665)	(0.0682)
FIXED INCOME	-0.504***	-0.513***	-0.468***	-0.485***	-0.483***	-0.480***	-0.480***
	(0.0180)	(0.0194)	(0.0186)	(0.0182)	(0.0197)	(0.0178)	(0.0195)
MONEY MARKET	-0.818***	-0.792***	-0.759***	-0.796***	-0.786***	-0.798***	-0.789***
	(0.0278)	(0.0257)	(0.0274)	(0.0268)	(0.0289)	(0.0270)	(0.0293)
INSTITUTIONAL	-0.299***	-0.311***	-0.336***	-0.311***	-0.311***	-0.310***	-0.309***
	(0.0311)	(0.0308)	(0.0301)	(0.0318)	(0.0316)	(0.0315)	(0.0312)
GUARANTEE	0.418***	0.405***	0.297***	0.401***	0.400***	0.389***	0.395***
	(0.0857)	(0.0803)	(0.0842)	(0.0826)	(0.0832)	(0.0846)	(0.0852)
UCITSFUND	0.114***	0.148***	0.200***	0.144***	0.145***	0.143***	0.139***
	(0.0274)	(0.0248)	(0.0277)	(0.0255)	(0.0288)	(0.0267)	(0.0297)
SALE	0.00852***	0.00811***	0.00971***	0.00850***	0.00817***	0.00850***	0.00823***
	(0.00292)	(0.00289)	(0.00295)	(0.00289)	(0.00277)	(0.00294)	(0.00278)
FUND SIZE	-0.00658	-0.00858	-0.0165***	-0.0108**	-0.00996*	-0.0109**	-0.0101*
	(0.00540)	(0.00545)	(0.00580)	(0.00536)	(0.00547)	(0.00533)	(0.00549)
FUND AGE	0.00536	0.00962	0.00549	0.00704	-0.00211	0.00556	-0.00679
	(0.00986)	(0.0102)	(0.0105)	(0.0101)	(0.0119)	(0.0110)	(0.0122)
FIRM SIZE	-0.0180***	-0.0150***	-0.0231***	-0.0165***	-0.0178***	-0.0169***	-0.0180***
	(0.00562)	(0.00569)	(0.00645)	(0.00582)	(0.00576)	(0.00583)	(0.00579)

Table 22 (continued).

Panel B: Management Fees

	Model 1 = Baseline	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**
FIRM AGE	0.0284	0.0263	0.000459	0.0280	0.0246	0.0231	0.0195
	(0.0230)	(0.0225)	(0.0244)	(0.0223)	(0.0205)	(0.0232)	(0.0209)
SPECIAL	-0.00000152	0.00000333	-0.00000455	0.00000151	0.00000119	0.00000178	0.00000136
	(0.00000713)	(0.00000683)	(0.00000775)	(0.00000692)	(0.00000713)	(0.00000701)	(0.00000709)
FOREIGN	-0.0458	-0.0333	-0.0268	-0.0546	-0.0574*	-0.0533	-0.0552*
	(0.0319)	(0.0333)	(0.0357)	(0.0334)	(0.0320)	(0.0332)	(0.0316)
IE	0.357***	-0.321***	-0.161**	-0.386***	-0.467***	-0.403***	-0.553***
	(0.0827)	(0.0966)	(0.0777)	(0.0981)	(0.110)	(0.0969)	(0.115)
LUX	0.445***	0.225***	0.00293	0.178**	0.147*	0.170**	0.148*
	(0.0648)	(0.0814)	(0.0555)	(0.0841)	(0.0800)	(0.0842)	(0.0839)
CUSTODIAN		0.214***		0.189***	0.150**	0.191***	0.181**
		(0.0523)		(0.0539)	(0.0622)	(0.0633)	(0.0745)
TAX		-0.0148***		-0.0169***	0.0975*	0.132***	0.138**
		(0.00350)		(0.00350)	(0.0569)	(0.0456)	(0.0603)
UMBRELLA			-0.0273	0.110**	-0.0219***	-0.0180***	-0.0252***
			(0.0428)	(0.0432)	(0.00462)	(0.00371)	(0.00469)
STARTUP			-0.0450***	-0.00902	-0.00922	-0.00619	-0.00612
			(0.00850)	(0.00748)	(0.00805)	(0.00732)	(0.00784)
DBAGDP					-0.0456		-0.110
					(0.0673)		(0.0761)
STMKTCAP					-0.0126		-0.0374
					(0.0348)		(0.0350)
GDPPC						0.0287*	0.0424**
						(0.0149)	(0.0188)
FINFREE						-0.00129	-0.000804
						(0.000860)	(0.000924)
Observations	11,735	11,676	11,277	11,218	10,245	11,218	10,245

Table 22 (continued).

Panel C: Administrative Fees

	Model 1 = Baseline	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALLOCATION	-0.00891	-0.00683	-0.0250	-0.0265	-0.0305	-0.0206	-0.0296
	(0.0214)	(0.0229)	(0.0226)	(0.0226)	(0.0243)	(0.0225)	(0.0242)
ALTERNATIVE	-0.171***	-0.268***	-0.337***	-0.312***	-0.302***	-0.295***	-0.286***
	(0.0391)	(0.0420)	(0.0382)	(0.0418)	(0.0419)	(0.0394)	(0.0402)
FIXED INCOME	-0.188***	-0.189***	-0.192***	-0.186***	-0.198***	-0.191***	-0.196***
	(0.0172)	(0.0181)	(0.0182)	(0.0180)	(0.0184)	(0.0182)	(0.0182)
MONEY MARKET	-0.285***	-0.310***	-0.316***	-0.329***	-0.327***	-0.334***	-0.332***
	(0.0268)	(0.0247)	(0.0275)	(0.0261)	(0.0262)	(0.0264)	(0.0269)
INSTITUTIONAL	-0.174***	-0.173***	-0.180***	-0.179***	-0.172***	-0.171***	-0.168***
	(0.0177)	(0.0178)	(0.0191)	(0.0177)	(0.0182)	(0.0175)	(0.0181)
GUARANTEE	-0.00371	0.0414	0.0752*	0.0568	0.0517	0.0263	0.0250
	(0.0433)	(0.0462)	(0.0400)	(0.0421)	(0.0432)	(0.0418)	(0.0425)
UCITSFUND	-0.0471*	-0.0806***	-0.148***	-0.128***	-0.104***	-0.105***	-0.0926***
	(0.0259)	(0.0252)	(0.0251)	(0.0249)	(0.0254)	(0.0250)	(0.0254)
SALE	0.00123	0.00354	0.00326	0.00367	0.00147	0.00230	0.000909
	(0.00285)	(0.00268)	(0.00271)	(0.00268)	(0.00312)	(0.00271)	(0.00308)
FUND SIZE	-0.0355***	-0.0386***	-0.0384***	-0.0391***	-0.0375***	-0.0355***	-0.0357***
	(0.00605)	(0.00621)	(0.00617)	(0.00616)	(0.00622)	(0.00625)	(0.00622)
FUND AGE	0.0119	0.0134	0.0149	0.0111	-0.0330**	-0.00514	-0.0376***
	(0.00963)	(0.0101)	(0.0103)	(0.0104)	(0.0128)	(0.0110)	(0.0134)
FIRM SIZE	-0.0216***	-0.0208***	-0.0222***	-0.0250***	-0.0226***	-0.0245***	-0.0229***
	(0.00608)	(0.00642)	(0.00652)	(0.00644)	(0.00643)	(0.00634)	(0.00633)
FIRM AGE	-0.0127	-0.0220	-0.0250	-0.0300	-0.00780	-0.0182	-0.00622
	(0.0193)	(0.0206)	(0.0200)	(0.0201)	(0.0183)	(0.0202)	(0.0186)

Table 22 (continued).

Panel C: Administrative Fees

	Model 1 = Baseline	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
SPECIAL	0.000000493	-0.0000177***	-0.0000165***	-0.0000151**	-0.00000973	-0.0000118*	-0.00000802
	(0.00000635)	(0.00000624)	(0.00000627)	(0.00000626)	(0.00000627)	(0.00000631)	(0.00000631)
FOREIGN	0.00849	0.0310	0.0397	0.0343	0.0203	0.0288	0.0192
	(0.0313)	(0.0339)	(0.0349)	(0.0334)	(0.0301)	(0.0326)	(0.0294)
IE	-0.0752	0.374***	-0.0912	0.270***	-0.0214	0.216**	-0.0388
	(0.0662)	(0.0968)	(0.0679)	(0.0941)	(0.115)	(0.0994)	(0.123)
LUX	0.0235	0.243***	-0.00288	0.169**	0.158**	0.110	0.122*
	(0.0594)	(0.0751)	(0.0522)	(0.0691)	(0.0709)	(0.0788)	(0.0714)
CUSTODIAN		0.192***		0.132***	0.126**	-0.00247	0.0544
		(0.0572)		(0.0502)	(0.0553)	(0.0671)	(0.0613)
TAX		0.0235***		0.0209***	-0.0590	-0.0645	-0.0391
		(0.00469)		(0.00491)	(0.0616)	(0.0615)	(0.0659)
UMBRELLA			0.0176	-0.0636	0.00382	0.0141***	0.000792
			(0.0496)	(0.0574)	(0.00583)	(0.00544)	(0.00595)
STARTUP			-0.0154**	-0.0200**	-0.0264***	-0.0233**	-0.0259***
			(0.00737)	(0.00932)	(0.00887)	(0.0104)	(0.00893)
DBAGDP					-0.345***		-0.316***
					(0.0620)		(0.0731)
STMKTCAP					-0.0150		-0.0114
					(0.0304)		(0.0316)
GDPPC						-0.0332*	0.00593
						(0.0175)	(0.0208)

Table 22 (continued).

Panel C: Administrative Fees

	Model 1 = Baseline	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
FINFREE						-0.00202**	-0.00217**
						(0.00101)	(0.000950)
Observations	11,735	11,676	11,277	11,218	10,245	11,218	10,245

Source: author's calculations, Table 22 reports the results of regressions with fund-specific regulatory variables. Panel A shows the results for the total expense ratio (TER), Panel B for management fees (MGFEE) and Panel C for administrative fees (ADFEE). Model 1 is the baseline model. Model 2 includes CUSTODIAN and TAX, Model 3 UMBRELLA, and STARTUP. Model 4 includes all fund-specific regulatory variables together. The size of the stock market (STKMTCAP) and the banking system (DBAGDP) are included in Model 5 and real GDP per capita (GDPPC) and the degree of financial freedom (FINFREE) in Model 6. All country variables are included in Model 7. The variables used in the regression analysis are described in table 21. Regressions are estimated with robust standard errors clustered on the firm level. Country dummies are included in the baseline model (Model 1). ***/**/* indicates significance at the 1%, 5%, and 10% level, respectively.

The results suggest that the fund type matters for mutual fund fees. Consistent with Khorana et al. (2009), this analysis finds that the fees of allocation (ALLOCATION), alternative (ALTERNATIVE), fixed income (FIXED INCOME), and money market funds (MONEY MARKET) are significantly lower (at the 1% level) than the fees of equity funds, which represent the benchmark. Institutional funds exhibit lower fees as well, as indicated by the significant (at the 1% level) and negative coefficient for INSTITUTIONAL. Institutional investors are organizations who pool large sums of money, and their funds may be cheaper than funds that are not set up for institutional investors. Because of their small investor group, they do not entail extensive marketing expenses and costs to fulfill the requirements for private consumer protection. Furthermore, employees in the treasury units of their organizations often specify the investment strategy and take an active part in investment management, which may further reduce costs.

In contrast, guarantee funds (GUARANTEE) report significantly (at the 1% level) higher total expense ratios and management fees than funds that do not guarantee the value of the initial investment. This contrasts with Khorana et al. (2009). They argue that guarantee funds should have lower fees, since fund management is easier for guarantee funds, as they often mimic an underlying index. Guarantee funds may, however, also have higher fees for the investor. First, the set of derivatives required for their strategy may increase transaction costs. Furthermore, derivative elements may reduce price transparency. This may increase the potential for mutual fund companies to raise fees. Second, an increasing market demand for the protection of the initial investment may enable management companies to charge higher fees for guarantee funds. This argument will also play an important role in the explanation of the outcome when investigating the start-up time below. However, the increase in the total expense ratio seems to be entirely driven by higher management fees, as it is impossible to find evidence that administrative fees are significantly higher for guarantee funds. Higher management fees therefore seem to be the dominant factor that makes guarantee funds more expensive.

Funds that are set up under the UCITS directive are more expensive for investors, as well, as indicated by the significant coefficient for UCITS. These results even continue to hold when controlling for the number of countries in which a fund is sold, which is an important determinant of fees, as this thesis will show later. According to the estimates, investors have to pay an average total-expense ratio which is 7 basis points higher for a UCITS fund than for funds that do not comply with the UCITS directive. This may reflect the fact that UCITS funds are subject to stricter requirements which increase the costs of UCITS funds compared to non-UCITS funds. The registration procedure for cross-border funds is generally complex and generates uncertainty. UCITS funds benefit from their simplified notification process. Nevertheless, the requirements on which documents have to be submitted still differ from country to country. Because of this complexity, the notification procedure has developed into a de facto registration procedure, which can be very time consuming and significantly

increases costs (chapter 4.2.1).[42] The results also suggest that UCITS funds have higher fund management costs, as indicated by the positive and significant (at the 1% level) coefficient in the regression for management fees. In contrast, this thesis finds evidence that fund companies offering UCITS funds may benefit from the cost effects of the economies of scale created by a larger market, as indicated by the negative and significant coefficient in the regression for administrative costs (ADFEE).

Furthermore, a dummy variable which controls for the nationality of the fund (FOREIGN) is also included. FOREIGN does not identify funds sold outside of their domicile (and that are not offshore funds), but rather identifies whether funds are set up by a foreign fund company. Ferreira and Ramos (2009) find that fees tend to be higher in countries where foreign mutual fund companies have a larger market share. FOREIGN allows us to identify whether foreign mutual fund companies have cost disadvantages relative to domestic fund companies in domiciling funds. Foreign funds may be disadvantaged by market entry costs, such as a company's start-up costs and specialized recruitment. The results do not provide strong evidence that foreign mutual fund companies offer funds at higher costs. FOREIGN therefore turns out to be insignificant. This indicates that market integration seems to function in the globalized mutual fund industry and that foreign fund companies do not have cost disadvantages compared to domestic companies. Furthermore, even if the first-time registration in a foreign country results in disproportional set-up costs, these disadvantages may not outweigh benefits in the long run.

Fund characteristics are important determinants of mutual fund fees, as well. Consistent with Khorana et al. (2009), this thesis confirms that funds sold in many countries are significantly (at the 1% level) more expensive than funds sold in a small number of countries (SALE). SALE is positive and significant for management fees as well, but positive and insignificant for administrative fees. The sale of funds in multiple countries drives up fees, as funds need to obtain authorization in every country. In addition, increasing distribution expenses are used to finance activities such as advertising, printing of sales literature for non-current investors, and especially for payments to broker-dealers and shareholder servicing agents. Selling a fund in multiple countries requires business negotiations on sales conditions, with a larger number of distributors from different countries. Furthermore, with a growing number of distributors, their individual market power to minimize the margins of the fund company could also shrink. This effect may also translate into higher fees for investors.[43] Since funds

---

42 In interviews, practitioners pointed out that UCITS have also become a global brand enjoying considerable success in Asia, Latin America, and the Middle East. The governments and the fund associations of Luxembourg and Ireland, for example, arrange international road shows with government officials to advertise the advantages of their country as domiciles for funds.

43 A comparison of the component costs of average TER's among cross-border and US funds reveals the importance of distribution costs for European funds. For an actively

that are sold abroad are mainly domiciled in Luxembourg and Ireland, a more detailed analysis on whether these countries have comparative cost advantages in distributing funds across borders will be provided in chapter 5.3.4.

The size of the mutual fund and the fund company is an important determinant of fund fees as well.[44] The size of a fund is measured by the logarithm of total fund assets (FUND SIZE), while the size of the fund company is the logarithm of total assets under management (FIRM SIZE).[45] If economies of scale reduce costs, larger funds and funds that are set up by larger fund companies are expected to have lower fees. The cumulative experience in larger fund companies should lead to lower costs and fees as well (see e.g., Porter, 1980). This analysis confirms this expectation. In line with Collins and Mack (1997), Latzko (1999), Ang and Lin (2001), Latzko (2003) and Chen et al. (2004), this thesis finds that the total expense ratio decreases with the size of the fund as reflected by the negative and significant (at the 1% level) coefficient for FUND SIZE.

Larger firms also report significantly (at the 1% level) lower management fees as indicated by the negative and significant coefficient for FIRM SIZE, while there is no evidence that they decrease as the size of the fund increases. This is in line with the findings of Gao and Livingston (2008), who find that the decrease in fees for larger funds is due to minor expenses (e.g., custodian, printing, registration, auditing fees), not from a change in management fees. To control for the potential non-linearity of fund size and firm size, squared terms of fund size and firm size were added. Since they turn out to be insignificant and since the main results remain unchanged, the results are not reported here for the sake of brevity. Furthermore, this result may indicate that funds keep their fee structure in spite of growing assets and that established funds are able to charge higher fees because they attract a great demand due to their reputation as a more promising investment.[46]

---

managed equity fund, for example, the average fractions for investment management and distribution of the total fee in 2009 was 42% and 37% in Europe, respectively, and 51% and 14% in the US (Moisson, 2009).

44 Khorana and Servaes (1999) find that large fund companies and companies that have more experience in opening funds are more likely to open new funds.

45 The variable FIRM SIZE faces limitations by the Morningstar Database. In contrast to the Lipper database (Lipper, 2010b), which only covers Europe, Morningstar refers to each legal firm by its legal name without providing a reference about its relationship to other firms. For example, if firm ‘A’ has a subsidiary located in Luxembourg called ‘A LU’, the subsidiary’s relationship cannot be traced back to A, especially since variations in firm names are rarely this simple and consistent. Consequently, the firm size tends to be smaller than the true economic size of a group. In addition, results may be contorted if foreign subsidiaries are consistently smaller than their counterparts at home. Firm size is also limited to fund assets under management and excludes any non-mutual fund assets.

46 Latzko (2003) provides related explanations. The author utilizes a panel dataset containing up to seven annual observations on a cross-section of 398 US equity and fixed income funds and analyzes the relationship between asset size and various

The age of a fund may be a relevant determinant of mutual fund fees as well. Thus, FUND AGE was also included. FUND AGE is the logarithm of the number of years since the launching of a fund. In addition, the age of the fund company (FIRM AGE) is controlled for. FIRM AGE is the logarithm of years since the first fund was set up by the fund company. Both variables capture potential experience effects. Older funds and firms should, for example, have had more time to establish well-practiced operating cycles for the domiciliation of funds, which should reduce fees. However, fees may increase if established operating cycles are outdated and lead to inefficiencies. Older firms may also face higher fixed costs when relocating their fund set-up division. In line with Khorana et al. (2009), the results support neither of these hypotheses. FUND AGE and FIRM AGE turn out to be insignificant.

Fees may not only depend on the size or the age of the mutual fund company, but also on the degree of product specialization. For this reason, SPECIAL has been included.[47] Fees of more specialized fund companies are expected a priori to be lower, as fund specialists may generate gains in efficiency from experience effects and specialist knowledge. The results do not support this hypothesis, as SPECIAL turns out to be negative, but insignificant in most regressions. Due to the important role of Luxembourg and Ireland for the global industry, dummy variables for Luxembourg (LU) and Ireland (IE) have also been included. In most of the models, LU is significant and positive, while IE turns out to be mostly significant, but negative for the total expense ratio and management fees. In contrast, both variables are mostly insignificant for administrative fees.

There are several possible explanations for these findings. In the past, both countries had tax and regulatory advantages over other EU nations, which helped to attract many fund companies. However, the advantages of this regulatory arbitrage have declined over time. In particular, the common European framework of UCITS has achieved harmonization across all countries. In view of the functioning processes and the unique infrastructure current available in the funds industry, relocation would entail high costs and uncertainty. In addition, path

published categories of fund expenses. Interestingly, all categories indicate scale economies in administration, except the payments for distribution, whereby diseconomies of scale were assessed when assets grow. The greatest sources of economies of scale are indicated in operating activities such as custodian, audit and legal, shareholder report, registration fee, and managers expenses, although they comprise a small portion of total costs.

47 Assume, for example, a fund company only issues equity and money market funds. Based on the size of the individual funds, equity funds account for 60% and money market funds for 40% of the funds issued. The value for SPECIAL is then calculated as $60^2+40^2=5{,}200$. If the fund company had concentrated on equity funds only, SPECIAL would, in contrast, be $100^2=10{,}000$. If it had not concentrated on any type fund and issued the same proportion of every fund type, SPECIAL would be $20^2+20^2+20^2+20^2+20^2=2{,}000$. SPECIAL thus ranges between 2,000 and 10,000, with higher values indicating a greater degree of product specialization.

dependence and lock-in effects (e.g., Porteous, 1999; Sydow et al., 2009) can postpone or even completely eliminate the possibility of relocation. This may induce higher costs for funds domiciled in Luxembourg than for funds domiciled in other countries.

Likewise, the successful launch of funds with higher fees can be explained by the differing sensitivity of investors with respect to costs. These funds are later primarily domiciled in the two unique financial centers. It was shown in chapter 4.4 that the time required for a fund to be set up is of particular importance to its issuance. As reflected in the study, even strong competition between fund companies will not reduce the high fees charged in the initial stages, since fund fees are usually not adjusted throughout a fund's lifetime (see Otten and Bams 2002, 2011). As a result, countries such as Luxembourg, which allow for the quick set-up of funds, are especially popular for setting up funds which cater to new trends and are hence in high demand. This may explain why funds from Luxembourg do not charge significantly lower rates than funds from other countries despite the cluster effects, which are usually argued to give funds from Luxembourg comparative advantages relative to funds domiciled in other countries.

5.3.2 Regulatory Variables

Owing to the globalization of financial markets, fund regulation has become an important locational determinant for mutual funds companies. In the EU, the competition for the best regulatory framework has been intensified by the UCITS directive, which introduced a product passport for mutual funds, allowing any fund registered in one EU country to be sold in any other EU country without a lengthy authorization process. Since a more favorable regulatory environment should result in lower fees in a competitive market, mutual fund fees are expected to be lower in countries which impose fewer regulations on the domestic mutual fund industry. Indirect costs may arise if regulations increase the time-to-market. Hence it is presumed that the regulatory environment directly influences the cost to set up and run a fund.

Several fund-specific regulatory variables were included in the model to analyze the impact of mutual fund regulations on fees. Since the regulatory variables are time-invariant, the country dummies were dropped from the model. However, given the importance of Luxembourg and Ireland, the dummies for both countries were left in the model.[48] The results are reported in Models 2 to 4 of table 22.

[48] In addition to standard errors clustered at the firm level, it is verified whether the results change when standard errors at the country level are clustered. The results are quantitatively and qualitatively the same and thus not reported for the sake of brevity.

The first regulatory variable included is CUSTODIAN. The custodian has the double mission of safekeeping the investment assets and carrying out a number of oversight functions to ensure that the fund company manages the assets in compliance with the law. The custodian fee is usually a percentage of net assets, so that custodian fees increase with assets. CUSTODIAN measures whether the custodian bank has to be independent of the fund company or not. Functionally separate depositaries are one of the pillars of the UCITS framework. Since the requirement to have an independent custodian should drive up domiciliation costs, fees are expected to be higher in countries that require an independent custodian (e.g., Germany and France). This is what this analysis ascertains. CUSTODIAN turns out to be significant (at the 1% level) and positive, indicating that funds charge higher fees if they are required to have an independent custodian.

The second regulatory variable included measures whether umbrella structures are permitted or not (UMBRELLA). An umbrella structure allows a fund company to offer sub-funds which are traded individually, but are organized under one legal entity. Since umbrella structures reduce costs, fees should be lower in countries that allow umbrella structures. The results do not support this hypothesis, however. UMBRELLA turns out to be insignificant for the total expense ratio, management fees, and administrative fees. A possible explanation is that UMBRELLA is a country variable that does not distinguish between whether funds use these structures or not.

The third fund-specific regulatory variable is TAX. Unlike Khorana et al. (2009), this analysis does not analyze the impact of investor fund tax rates, because it should be irrelevant owing to pervasive double taxation agreements. Instead, the main focus lies on the tax rate charged to the fund company in the country of domiciliation. Since taxes reduce profits, it is expected that fund companies increase fees if taxes are higher, as companies seek to maintain their profit margin. This suggests a positive relationship between fees and taxes. The results do not support this hypothesis, however. Overall, this analysis does not find consistent evidence that taxation matters for mutual fund fees. This is consistent with the previous results. Chapter 4.4 shows that the fund company tax burden is generally considered not very important (at position number seven) in set-up decisions made by the fund experts who are responsible for domiciliation.

Finally, a variable has been added to measure the time required to start a mutual fund (STARTUP). Chapter 4.2.2 has shown that European fund companies prefer to domicile their funds abroad if the start-up time is shorter than at home. The start-up process is almost always initiated by the sales staff. The time needed to fulfill authorities' requirements may decide on the sales pitch. Prima facie, one might expect fees of funds with a longer start-up time to be higher because of the possibly higher operating costs for the fund company. However, mutual funds with the same underlying assets should follow the pricing mechanism of homogeneous goods, which states that companies levy higher fees if they are on the market earlier than other fund companies. This is indeed found in this analysis. STARTUP is negative and significant (at the 1% level) for the total expense ratio. The effect is almost entirely driven by higher administrative costs, as STARTUP turns out to be insignificant for management fees. The result indicates that fees are

lower if it takes a long time to set up a fund. The duration of the required start-up time leads to more competition on a growing supply-driven fund market over time, resulting in lower fees.[49] Furthermore, funds issued earlier may have competitive advantages relative to funds issued later. This may be particularly relevant for funds investing in asset classes that are subject to current trends, such as gold or other commodities. Fund companies may thus be given the possibility to raise fees due to less cost-sensitive investors.

5.3.3 Further Controls

Mutual fund fees may depend on other country-specific characteristics, as well. For this reason, the logarithm of real GDP per capita (GDPPC) and an index of financial freedom (FINFREE) have also been included as additional control variables. The results are reported in Models 5, 6, and 7 in table 22. GDPPC controls for demand-side factors influencing fees in the fund industry. Khorana et al. (2005 and 2009) argue that the demand for mutual funds should be higher in more developed countries, suggesting a positive relationship between mutual fund fees and GDPPC, as fund companies should have more power to raise fees when the demand for mutual funds is high. The results do not support this hypothesis: GDPPC turns out to be mostly insignificant. Furthermore, an index on financial freedom (FINFREE) is included. FINFREE measures restrictions on banking activities and barriers to market access. Since competition among fund companies should be greater when financial freedom is high, FINFREE and fees are expected to be related negatively. The results support this hypothesis: FINFREE is negative and partly significant for the total expense ratio and management fees and always significant for administrative fees. To control for the structure of the financial system in the country where the fund is domiciled, the ratio of stock market capitalization to GDP (STKMCAP) and the ratio of deposit bank assets to GDP (DBAGDP) are also included. STKMTCAP measures the size of a country's stock market, while the ratio of deposit bank assets over GDP (DBAGDP) controls for the size of the banking market. Since competition should be greater among financial institutions in countries with larger stock and banking markets, mutual fund fees are expected to be lower in countries with a more developed financial system. This is confirmed by this analysis. As indicated in table 11 (Models 6, 9, 10, and 12), both variables turn out to be negative and significant in most regressions. More importantly, the results for the fund and firm-specific variables as well as for the regulatory variables do not change, even if additional country control variables are included.

---

[49] Wahal and Wang (2011) show that funds lower their fees to better compete when they face competition from new funds (as defined by the overlap in quarterly holdings).

5.3.4 Sample Selection and Model Extension

In the previous section, several robustness checks have already been performed in the context of testing whether the results hold when country dummies as well as different sets of control variables are included. This section will additionally verify whether the results depend on the choice of the sample. In particular, there are concerns that the results are driven by the large number of funds domiciled in Luxembourg und Ireland.

Luxembourg and Ireland have developed into international financial centers owing to their favorable regulatory environments. They are used as international hubs, i.e., the funds set up in these countries are predominantly sold in other countries. To check whether this has influenced the results of the analysis, all funds domiciled in Luxembourg and Ireland were dropped from the sample. Table 23 (Models 8 to 9) show the results. The exclusion of Luxembourg and Ireland considerably reduces the total number of funds observed. The main results, however, remain unchanged. This suggests that the results are not driven by the large number of funds from Luxembourg und Ireland.

Table 23. Results for different Samples

Panel A: Total Expense Ratio

	Model 8	Model 9
ALLOCATION	-0.225***	-0.231***
	(0.0368)	(0.0366)
ALTERNATIVE	-1.028***	-0.999***
	(0.0809)	(0.0817)
FIXED INCOME	-0.696***	-0.686***
	(0.0383)	(0.0376)
MONEY MARKET	-1.109***	-1.100***
	(0.0434)	(0.0435)
INSTITUTIONAL	-0.436***	-0.417***
	(0.0422)	(0.0403)
GUARANTEE	0.525***	0.497***
	(0.107)	(0.112)
UCITSFUND	-0.0197	0.0147
	(0.0327)	(0.0364)
SALE	0.0478**	0.0446**
	(0.0191)	(0.0186)
FUND SIZE	-0.0497***	-0.0448***
	(0.00751)	(0.00710)
FUND AGE	0.0201	-0.0334**
	(0.0148)	(0.0156)
FIRM SIZE	-0.0421***	-0.0404***
	(0.00894)	(0.00858)
FIRM AGE	-0.0145	0.0111
	(0.0336)	(0.0297)
SPECIAL	-0.0000177*	-0.00000722
	(0.00000978)	(0.00000928)
FOREIGN	-0.0246	-0.0401
	(0.0422)	(0.0399)
CUSTODIAN	0.373***	0.301***
	(0.0836)	(0.0820)
TAX	0.0595	0.120**
	(0.0664)	(0.0572)
UMBRELLA	0.00549	-0.0259***
	(0.00579)	(0.00579)
STARTUP	-0.0235**	-0.0282***
	(0.0111)	(0.00882)
DBAGDP		-0.491***
		(0.0906)
STMKTCAP		-0.0644*
		(0.0372)
GDPPC		0.0612**
		(0.0265)
FINFREE		-0.00292**
		(0.00137)
Observations	7,959	7,447

Table 23 (continued).

Panel B: Management Fees

	Model 8	**Model 9**
ALLOCATION	-0.201***	-0.209***
	(0.0248)	(0.0257)
ALTERNATIVE	-0.732***	-0.733***
	(0.0599)	(0.0648)
FIXED INCOME	-0.476***	-0.467***
	(0.0236)	(0.0232)
MONEY MARKET	-0.759***	-0.758***
	(0.0284)	(0.0301)
INSTITUTIONAL	-0.240***	-0.229***
	(0.0348)	(0.0336)
GUARANTEE	0.475***	0.469***
	(0.0762)	(0.0799)
UCITSFUND	0.131***	0.118***
	(0.0298)	(0.0342)
SALE	0.0338***	0.0318***
	(0.0103)	(0.0111)
FUND SIZE	-0.0127**	-0.0103*
	(0.00593)	(0.00587)
FUND AGE	0.00815	-0.00286
	(0.0120)	(0.0129)
FIRM SIZE	-0.0174**	-0.0190***
	(0.00693)	(0.00682)
FIRM AGE	0.00348	-0.00475
	(0.0216)	(0.0209)
SPECIAL	0.00000787	0.00000789
	(0.00000721)	(0.00000705)
FOREIGN	-0.0653*	-0.0645*
	(0.0354)	(0.0334)
CUSTODIAN	0.233***	0.224***
	(0.0630)	(0.0861)
TAX	0.105**	0.158**
	(0.0434)	(0.0628)
UMBRELLA	-0.0147***	-0.0240***
	(0.00375)	(0.00503)
STARTUP	-0.00658	-0.00318
	(0.00809)	(0.00837)
DBAGDP		-0.107
		(0.0894)
STMKTCAP		-0.0698*
		(0.0414)
GDPPC		0.0511**
		(0.0203)
FINFREE		-0.000559
		(0.00104)
Observations	7,959	7,447

Table 23 (continued).

Panel C: Administrative Fees

	Model 8	Model 9
ALLOCATION	-0.0241	-0.0218
	(0.0277)	(0.0276)
ALTERNATIVE	-0.296***	-0.266***
	(0.0487)	(0.0468)
FIXED INCOME	-0.220***	-0.219***
	(0.0226)	(0.0227)
MONEY MARKET	-0.349***	-0.342***
	(0.0293)	(0.0302)
INSTITUTIONAL	-0.196***	-0.188***
	(0.0209)	(0.0211)
GUARANTEE	0.0504	0.0271
	(0.0494)	(0.0497)
UCITSFUND	-0.151***	-0.104***
	(0.0294)	(0.0306)
SALE	0.0140	0.0128
	(0.0149)	(0.0141)
FUND SIZE	-0.0370***	-0.0345***
	(0.00666)	(0.00683)
FUND AGE	0.0120	-0.0305**
	(0.0118)	(0.0136)
FIRM SIZE	-0.0247***	-0.0214***
	(0.00690)	(0.00676)
FIRM AGE	-0.0180	0.0159
	(0.0223)	(0.0194)
SPECIAL	-0.0000256***	-0.0000151**
	(0.00000633)	(0.00000599)
FOREIGN	0.0407	0.0244
	(0.0344)	(0.0305)
CUSTODIAN	0.139**	0.0771
	(0.0593)	(0.0652)
TAX	-0.0458	-0.0379
	(0.0577)	(0.0688)
UMBRELLA	0.0202***	-0.00191
	(0.00492)	(0.00593)
STARTUP	-0.0169*	-0.0250***
	(0.00931)	(0.00878)
DBAGDP		-0.384***
		(0.0877)
STMKTCAP		0.00540
		(0.0376)
GDPPC		0.0101
		(0.0222)
FINFREE		-0.00236**
		(0.00103)
Observations	7,959	7,447

Source: author's calculations, table 23 reports the results of regressions with fund-specific regulatory variables. Panel A shows the results for the total expense ratio (TER), Panel B for management fees (MGFEE), and Panel C for administrative fees (ADFEE). Models 8 and 9 exclude Luxembourg and Ireland. The variables used in the regression analysis are described in table 21. Regressions are estimated with robust standard errors clustered on the firm level. Country dummies are included in Model 8. ***/**/* indicates significance at the 1%, 5%, and 10% level, respectively.

In the previous regressions, it was found that mutual fund fees are significantly higher when funds are sold in many countries. The descriptive analysis has shown that funds domiciled in Luxembourg and Ireland are sold in many more countries than funds from other countries. This suggests that Luxembourg and Ireland have specialized in distributing funds to several countries worldwide. These specialization advantages may make it cheaper to market a mutual fund from these countries in several foreign countries than a mutual fund, for example, from Finland. To analyze whether it is cheaper to distribute funds worldwide from Luxembourg and Ireland than from other countries, SALE will be included to interact with the dummy variables for Luxembourg (SALE*LU) and Ireland (SALE*IE), respectively. The signs of these coefficients can then be used to assess the existence of specialization advantages in these countries. The results with interaction terms are reported in Models 11 to 12.

The results indicate that Luxembourg has significant advantages in distributing funds to foreign countries with respect to the total expense ratio and management fees. The negative coefficient suggests that the costs of distributing funds from Luxembourg are significantly lower than for all other countries. For instance, the results in Model 10 suggest that selling a fund in seven countries as opposed to only one country increases the total expense ratio by almost 30 basis points. The total expense ratio of a fund domiciled in Luxembourg that is sold in the same number of countries is 24 basis points lower. This is consistent with the hypothesis that Luxembourg enjoys cost advantages in distributing funds abroad. However, there seems to be no significant effect on administrative fees, as indicated by the insignificant coefficient for the interaction term for ADFEE. Ireland does not seem to offer specialized advantages in the distribution of funds abroad.

Table 24. Results with Interaction Terms

	Panel A: Total Expense Ratio		
	Model 10	**Model 11**	**Model 12**
ALLOCATION	-0.211***	-0.218***	-0.222***
	(0.0283)	(0.0297)	(0.0301)
ALTERNATIVE	-0.912***	-0.988***	-0.952***
	(0.0948)	(0.0833)	(0.0833)
FIXED INCOME	-0.690***	-0.669***	-0.675***
	(0.0263)	(0.0267)	(0.0277)
MONEY MARKET	-1.097***	-1.118***	-1.114***
	(0.0353)	(0.0355)	(0.0371)
INSTITUTIONAL	-0.479***	-0.494***	-0.483***
	(0.0349)	(0.0367)	(0.0360)
GUARANTEE	0.430***	0.469***	0.428***
	(0.115)	(0.108)	(0.113)
UCITSFUND	0.0558*	0.00212	0.0350
	(0.0335)	(0.0284)	(0.0312)
SALE	0.0439**	0.0460**	0.0451**
	(0.0181)	(0.0192)	(0.0182)
FUND SIZE	-0.0429***	-0.0503***	-0.0466***
	(0.00639)	(0.00674)	(0.00642)
FUND AGE	0.0165	0.0174	-0.0460***
	(0.0128)	(0.0132)	(0.0151)
FIRM SIZE	-0.0389***	-0.0409***	-0.0403***
	(0.00755)	(0.00779)	(0.00768)
FIRM AGE	0.0153	-0.00267	0.0120
	(0.0311)	(0.0314)	(0.0279)
SPECIAL	-0.000000148	-0.0000129	-0.00000601
	(0.00000871)	(0.00000836)	(0.00000864)
FOREIGN	-0.0434	-0.0273	-0.0452
	(0.0406)	(0.0420)	(0.0394)
IE	0.216	-0.130	-0.608***
	(0.138)	(0.171)	(0.174)
LUX	0.538***	0.467***	0.387***
	(0.0881)	(0.121)	(0.109)
CUSTODIAN		0.360***	0.273***
		(0.0792)	(0.0780)
UMBRELLA		0.0552	0.107*
		(0.0657)	(0.0586)
TAX		0.00571	-0.0232***
		(0.00581)	(0.00574)
STARTUP		-0.0240**	-0.0279***
		(0.0112)	(0.00872)
GDPPC			0.0505**
			(0.0249)
FINFREE			-0.00300**
			(0.00121)
DBAGDP			-0.438***
			(0.0790)
STMKTCAP			-0.0454
			(0.0344)
SALE*IE	-0.0207	-0.0213	-0.0239
	(0.0221)	(0.0229)	(0.0222)
SALE*LU	-0.0358**	-0.0356*	-0.0379**
	(0.0178)	(0.0187)	(0.0179)
Observations	11,735	11,218	10,245

Table 24 (continued).

Panel B: Management Fees

	Model 10	Model 11	Model 12
ALLOCATION	-0.204***	-0.192***	-0.193***
	(0.0218)	(0.0224)	(0.0235)
ALTERNATIVE	-0.739***	-0.674***	-0.664***
	(0.0781)	(0.0662)	(0.0683)
FIXED INCOME	-0.503***	-0.483***	-0.479***
	(0.0178)	(0.0179)	(0.0191)
MONEY MARKET	-0.814***	-0.791***	-0.785***
	(0.0278)	(0.0268)	(0.0293)
INSTITUTIONAL	-0.303***	-0.314***	-0.313***
	(0.0315)	(0.0322)	(0.0316)
GUARANTEE	0.429***	0.409***	0.401***
	(0.0853)	(0.0823)	(0.0849)
UCITSFUND	0.106***	0.134***	0.131***
	(0.0275)	(0.0258)	(0.0295)
SALE	0.0331***	0.0337***	0.0329***
	(0.0103)	(0.0106)	(0.0112)
FUND SIZE	-0.00720	-0.0112**	-0.0106*
	(0.00530)	(0.00542)	(0.00545)
FUND AGE	0.00490	0.00660	-0.00785
	(0.00987)	(0.0102)	(0.0123)
FIRM SIZE	-0.0176***	-0.0161***	-0.0176***
	(0.00561)	(0.00581)	(0.00580)
FIRM AGE	0.0278	0.0272	0.0183
	(0.0224)	(0.0215)	(0.0203)
SPECIAL	-0.00000103	0.00000187	0.00000168
	(0.00000718)	(0.00000690)	(0.00000710)
FOREIGN	-0.0499	-0.0595*	-0.0613*
	(0.0322)	(0.0338)	(0.0322)
IE	0.390***	-0.315**	-0.492***
	(0.103)	(0.123)	(0.139)
LUX	0.490***	0.262***	0.223**
	(0.0655)	(0.0913)	(0.0922)
CUSTODIAN		0.218***	0.206**
		(0.0598)	(0.0804)
UMBRELLA		0.117***	0.144**
		(0.0431)	(0.0593)
TAX		-0.0157***	-0.0244***
		(0.00366)	(0.00489)
STARTUP		-0.00528	-0.00329
		(0.00806)	(0.00802)
GDPPC			0.0441**
			(0.0190)
FINFREE			-0.000821
			(0.000940)
DBAGDP			-0.119
			(0.0759)
STMKTCAP			-0.0350
			(0.0352)
SALE*IE	-0.0243*	-0.0252*	-0.0248*
	(0.0132)	(0.0136)	(0.0141)
SALE*LU	-0.0254***	-0.0260**	-0.0255**
	(0.00979)	(0.0101)	(0.0109)
Observations	11,735	11,218	10,245

Table 24 (continued).

Panel C: Administrative Fees

	Model 10	Model 11	Model 12
ALLOCATION	-0.00786	-0.0255	-0.0285
	(0.0219)	(0.0232)	(0.0245)
ALTERNATIVE	-0.173***	-0.314***	-0.287***
	(0.0390)	(0.0418)	(0.0401)
FIXED INCOME	-0.187***	-0.186***	-0.196***
	(0.0173)	(0.0179)	(0.0182)
MONEY MARKET	-0.283***	-0.326***	-0.330***
	(0.0265)	(0.0257)	(0.0265)
INSTITUTIONAL	-0.176***	-0.180***	-0.170***
	(0.0182)	(0.0182)	(0.0185)
GUARANTEE	0.000755	0.0598	0.0276
	(0.0429)	(0.0424)	(0.0424)
UCITSFUND	-0.0505*	-0.132***	-0.0965***
	(0.0262)	(0.0261)	(0.0265)
SALE	0.0108	0.0124	0.0123
	(0.0141)	(0.0146)	(0.0137)
FUND SIZE	-0.0357***	-0.0392***	-0.0360***
	(0.00600)	(0.00612)	(0.00618)
FUND AGE	0.0116	0.0108	-0.0382***
	(0.00965)	(0.0104)	(0.0135)
FIRM SIZE	-0.0213***	-0.0248***	-0.0227***
	(0.00610)	(0.00646)	(0.00635)
FIRM AGE	-0.0125	-0.0299	-0.00635
	(0.0192)	(0.0200)	(0.0186)
SPECIAL	0.000000882	-0.0000148**	-0.00000769
	(0.00000631)	(0.00000625)	(0.00000627)
FOREIGN	0.00658	0.0323	0.0161
	(0.0315)	(0.0338)	(0.0299)
IE	-0.175*	0.184	-0.116
	(0.0898)	(0.126)	(0.140)
LUX	0.0485	0.205**	0.164*
	(0.0683)	(0.0930)	(0.0907)
CUSTODIAN		0.142**	0.0661
		(0.0571)	(0.0660)
UMBRELLA		-0.0616	-0.0366
		(0.0580)	(0.0665)
TAX		0.0214***	0.00120
		(0.00506)	(0.00594)
STARTUP		-0.0187**	-0.0246***
		(0.00943)	(0.00896)
GDPPC			0.00645
			(0.0210)
FINFREE			-0.00218**
			(0.000944)
DBAGDP			-0.319***
			(0.0742)
STMKTCAP			-0.0104
			(0.0318)
SALE*IE	0.00358	0.00398	0.000861
	(0.0168)	(0.0175)	(0.0165)
SALE*LU	-0.0104	-0.00955	-0.0124
	(0.0144)	(0.0146)	(0.0138)
Observations	11,735	11,218	10,245

Source: author's calculations; table 24 reports the regression results for different samples and with interaction terms for SALE. Panel A shows the results for the total expense ratio (TER), Panel B for management fees (MGFEE), and Panel C for administrative fees (ADFEE). Models 10, 11 and 12 include an interaction term for SALE. Regressions are estimated with robust standard errors clustered on the firm level. Mutual fund fees are measured by the total expense ratio (TER), management fees (MGFEE), and administrative fees (ADFEE). The variables used in the regression analysis are described in table 21. ***/**/* indicates significance at the 1%, 5%, and 10% level, respectively.

5.4 Conclusion

The determinants of mutual fund fees around the world have been analyzed with a particular focus on the fund domicile location. The results are based on a dataset of mutual fund fees charged by more than 12,000 funds around the world between 1997 and 2006, covering 80% and 75%, respectively, of total global fund starts based on fund size and the total number of funds launched. This thesis examines the total expense ratio, management fee and additionally creates a compound ratio of both factors in order to approximate the administrative expenses of a fund company. The results show considerable variation in mutual fund fees across countries.

By focusing on the place of domicile, it is assumed that the process of international financial integration contributes to increasing competition among fund companies, allowing them to concentrate their activities in specialized hubs. This should lower the costs to set up and run a mutual fund. In the EU, financial integration is considered to be one of the key factors for making Europe more efficient and competitive, contributing to sustainable economic growth (European Commission, 2009). Since formerly separated national fund markets have evolved into supranational markets over the past number of years, fund companies are now better able to choose the country of domicile for new funds. This process should be further optimized as a result of the implementation of the new UCITS IV Directive in 2011. When fully implemented, fund companies will be able to set up and manage a UCITS fund in another EU member state without having to comply with local "substance criteria" of infrastructure, i.e., the de facto requirement of having a subsidiary in the country in which the fund is domiciled. This leads to further decision opportunities for fund companies to optimize their business models geographically, which should further reduce fund fees. This applies not only to funds issued in the future, but also to existing funds merged from different countries with respect to their location commitments.

This analysis shows that the introduction of the UCITS directive has created a European market for mutual funds by facilitating the cross-border distribution of funds. However, owing to greater administrative requirements, UCITS funds are more costly to set up than non-UCITS funds. Furthermore, funds sold in many countries are often more expensive than funds sold in a smaller number of countries. If supranational funds from Luxembourg comply with the UCITS

Directive and avoid the cross-border distribution costs of registering in multiple markets, the added administrative burdens may increase the overall costs of UCITS funds compared to non-UCITS funds. These disadvantages may be outweighed by the significant economies of scale that can be generated if the domiciliation of funds is centralized in financial centers. Moreover, financial integration creates economic benefits by encouraging the concentration of fund specialists in such clusters. These benefits are reflected by significantly lower costs for the cross-border distribution of Luxembourg-based funds compared to funds domiciled in other countries.

The results indicate that the distribution of funds across borders indeed significantly increases fees. The estimates suggest that selling a fund in seven countries instead of only one country increases the total expense ratio by almost 30 basis points. Complying with the UCITS directive raises mutual fund fees by an additional seven basis points. However, this thesis also finds that distributing funds from Luxembourg abroad is significantly less costly than from other countries in the sample. As an illustration, the results suggest that a fund domiciled in Luxembourg and sold in seven countries has a total expense ratio which is 24 basis points lower than that of a fund domiciled in another country and sold in the same number of countries. This indicates that Luxembourg offers significant cost advantages in the cross-border distribution of funds.

The results further show that the size of the fund and the size of the originating mutual fund company affect mutual fund fees by reducing administration and management costs through economies of scale. These cost benefits are passed on to investors. More specialized fund companies charge lower fees, indicating efficiency gains from experience effects and specialist knowledge. Furthermore, fund companies charge higher fees if they are domiciled in countries that legally require an independent custodian. The time necessary to start a mutual fund and to fulfill all regulatory requirements matters, as well. However, contrary to the intuition that a longer start-up period increases fees, this thesis has confirmed the opposite. Funds issued with a shorter start-up time may have competitive advantages relative to funds that have longer start-up times. This may be particularly relevant for funds investing in asset classes that are subject to current market trends, such as gold or other commodities, and may give fund companies greater scope to raise fees due to less cost-sensitive investors, such as those seeking huge returns. This may also explain why funds in Luxembourg continue to charge higher fees than funds domiciled in most other countries despite the favorable regulatory environment and scale economies that can be generated by domiciling funds in financial centers.

6 General Conclusion

This study addresses the attractiveness of financial centers with a primary focus on the mutual fund industry and aims to disentangle the reasons for their relative attractiveness. In order to achieve this, the thesis sheds light on the quality of the macroeconomic business environment and its relationship to influencing location factors over time. The research presented promotes an understanding of the decision-making process on the part of financial companies and allows for several conclusions. The overall findings of this thesis imply that it is important to consider several facets of location determinants in order to obtain a more comprehensive picture of the attractiveness of financial centers.

A financial center can be defined as a nexus of ties between companies and institutions in a geographically defined area which are involved in functions that enable and facilitate financial transactions. Better information technology, deregulation, and harmonization of legal requirements in the international financial market facilitate cross-border activities and increase competition between financial companies. Given the vast literature on financial centers that has identified a large amount of different possible determinants of increasing attractiveness, a high amount of uncertainty exists nevertheless regarding the right choice. In the literature, there are suppositions of a decreasing general relevance of agglomeration, or even an "end of geography" in a globalized financial world. However, the findings of this thesis indicate that spatial proximity still matters in finance according to the theoretical background on agglomeration that has been analyzed by researchers from various disciplines such as economics, management, strategy, and economic geography.

The mutual fund market provides an excellent arena in which to investigate location factors, since it exhibits a high level of market integration and the production and distribution of mutual funds often diverge in location. However, little attention has been devoted to understanding decision-making processes in the fund industry even though cross-border location decisions are obvious for every fund launch and are therefore discernible, enabling a clear isolation of relevant determinants. Against the backdrop of the financial crisis, mutual funds had become smaller and have led fund companies to increased fund consolidations in order to reduce fixed costs. Merging funds from multiple countries necessitates further post hoc decisions.

As emphasized in chapter 2, the historical developments should always be taken into account when considering the relevance of the financial centers of today. Aside from strategic decisions by the government (e.g., clustering in Frankfurt or the Euromarkets in London), financial centers have generally developed where there was a need for financial services and the demand for

investment and credit possibilities was high. In particular, the demand for credit on the part of the emerging territorial states gave rise to the establishment of financial companies which satisfied this demand. The literature underlines that the outcomes of location decisions are long-lasting and often irreversible. The effects of path dependence would have far-reaching consequences, not just for the financial company itself, but also for its social relations with other institutions (in the cluster) and for the (fiscal) government.

The empirical evidence in chapter 3 provides a unique insight into experts' judgments on location factors and European financial centers before, during, and after the financial crisis. The assessment of the attractiveness of financial centers is explained by assessing central influencing factors. Due to the time period covered, it affords a deeper understanding of changing views regarding the general determinants that are relevant to financial intermediaries, which to a great extent depend on several external conditions. The thesis confirms the suggestion that the decisive part of the comparative advantage in a financial center lies outside the company and even outside its industry. It is shown that financial companies benefit from active collective efficiencies (e.g., improved access to knowledge and other intangible resources) in addition to passive collective efficiencies due to cost minimization (e.g., close proximity to ancillary industries). The rapid exchange of information within dense social networks is a competitive advantage. In comparison, an existing specialized pool of labor without concentration does not seem to be relevant, as the human capital factor is relatively mobile in an increasingly integrated Europe.

Furthermore, the empirical evidence shows that the assessment of a financial center's attractiveness varies significantly over time. However, the results also indicate that the decisive location factors are persistent over time. The attractiveness of the benchmark country Germany was higher at the peak of the financial crisis (when it acted as a safe haven in the European financial market), but lower after than before the financial crisis. However, the domestic sales market is a sufficient but not necessary condition for attractiveness.

The results do not indicate that governments have lost their influence on competition to global forces, as is partially indicated in other studies. Support by the government strongly increases attractiveness. Consequently, the regulatory framework is an additional crucial determinant. Despite some progress in establishing a level playing field in the EU, however, the financial market is not yet fully harmonized and countries may take different paths in regulation as long as there is scope for interpretation. As a result, the influence of cross-country competition has become increasingly important, as cross-border transactions have become more common and easier to handle. Hence even minor differences in financial regulation within the EU may lead to regulatory arbitrage.

On the other hand, the level of tax burden seems to be less important in competition between business locations. This finding also confirms the ambiguous literature which addresses whether tax competition in Europe leads to an increase or decrease in economic welfare. Either harmonization reduces the tax base, which compels a benevolent government to restrict public goods, or competition improves welfare because it constrains big governments (Brulhart and Jametti,

2006). Regarding corporate tax, Becker and Fuest (2011) find that the optimal tax policy for a government to prevent companies from leaving the country depends on how profitable that country's mobile companies are relatively to its immobile companies.

Stability with regard to the political and economic system seems to be irrelevant for the countries in question. Furthermore, the analysis emphasizes that, in contrast to the location factors, the socio-economic background of the actors (age, work experience, education, and location) is negligible, and the empirical findings do not corroborate differences in individual behavior.

Therefore, an increased awareness of the relevance of the spatial interconnectedness of market participants in the fund industry would be of great use for future empirical research.

However, the probability of reporting an increase in attractiveness is lower for market participants from fund companies, who tend to be more pessimistic about the attractiveness of a financial center than actors from other sectors. Interestingly, their impact is the strongest among all considered variables. Thus, fund companies seem to value the attractiveness of a financial center much highly than banks, insurance companies, and corporates.

The chosen approach, i.e., explaining the attractiveness of financial centers by the assessing central influencing factors, only allows for a cautious, causal interpretation of the results. Further research could therefore try to explain their attractiveness on the basis of published exogenous explanatory factors. That would also be a very promising way to apply this model to an international context.

Chapter 4 showed that the cross-border distribution of funds has increased around the globe over the past decades owing to a reduction of barriers to cross-border sale. This has intensified competition among fund companies, providing incentives to relocate companies' activities and to domicile their funds in countries which offer the most favorable regulatory environment. This, in turn, has led to greater competition among countries seeking to attract fund companies. Due to this financial liberalization, offshore locations have become the most important mutual fund domiciles worldwide. Among EU countries, Luxembourg and Ireland have benefited from the rapid implementation of the UCITS directive and the creation of a favorable environment for the European mutual fund industry. The legal and regulatory environment thus created a competitive edge for Luxembourg as a first mover over rival financial centers. An additional important implication of this thesis is that fund-specific legislation, conditions in the approval process, and the cluster of specialized experts play the most important role in the domiciliation decision of a UCITS fund. By contrast, cost factors are generally considered to be less important.

A further important implication of this study is that fund companies sort their preferences with regard to the domiciliation decision in a very similar manner and that managers' assessments are more persistent the more relevant the determinants are. Further, this thesis stresses that, despite virtually uniform regulation conditions, differences in practice still exist between the countries (e.g., the relationship between actors from fund companies and authorization bodies).

Luxembourg remains the winner in almost all determinants considered, whereas countries with a large domestic market size, such as France and Germany, lag behind. Hence the common locational divergence of the production and distribution of funds is still motivated by clear reasons; indications for path dependence seem not to exist.

Managers who are responsible for domiciliation were only asked for their assessment of a specific mutual fund type, the UCITS fund, which is certainly an advantage of this research approach, although it has the drawback that generalizations of the results must be made with care. Nevertheless, since this fund type constitutes a market share of 83% in Europe, the results are relatively representative.

Nonetheless, the inferences drawn from the analyses in chapter 3 and chapter 4 have to be interpreted with the understanding that the datasets arise from specific surveys and not from extensive archival data obtained from a data provider.

Future research should investigate additional components of the fund value chain which play a role in the domiciliation decision and the interaction between market participants within and outside the firm-level value chain (e.g., advisors, accountants). Also, as was shown here, a fund's services are considered contractual goods. This has particular effects on the sales function, e.g., on investor insecurity. These effects could become a new object of study when considering insights derived from research into services economy. Such research could provide further insights into investor behavior.

Finally, chapter 5 built on the foundation of the preceding chapters, analyzing the determinants of the costs for holding a fund in order to find out whether investors benefit from a concentrated domiciliation in a financial center, which has been made possible by the EU market integration of the European fund industry. Drawing on an extensive international dataset covering 80% of the total mutual fund starts based on fund size and 75% based on the number of funds started worldwide between 1997 and 2006, the results clearly demonstrate that cost advantages are usually related to cluster effects of financial centers. It is shown that investors do not actually pay lower fees for funds based in specialized financial centers, such as Luxembourg and Ireland, than for funds from most other countries. Likewise, putting together UCITS-compliant funds is usually more expensive for investors, primarily due to greater administrative requirements which drive up costs.

Furthermore, the results strongly suggest that the time required to start a mutual fund is also important. This may be particularly the case for funds investing in asset classes subject to current market trends. In the early stages of a rising market demand, such funds potentially attract a greater number of cost-insensitive investors, which allows fund companies to achieve higher profit margins. Moreover, as time goes by, strong competition tends to lower fees. Consequently, fund companies are anxious to choose a location with a prompt set-up process, wide registration experiences for abroad distribution, and a close cluster of experts in the whole value chain of a fund, e.g., Luxembourg.

The distribution of funds across borders significantly increases fees, as funds require sales partners and authorization in every country. These disadvantages on

the investor's side are outweighed by significant economies of scale that can be generated if the domiciliation of funds is centralized in financial centers. Financial integration creates economic benefits by encouraging the concentration of fund specialists in clusters, such as Luxembourg and Ireland. These benefits are reflected in significantly lower costs for the cross-border distribution of Luxembourg-based funds compared to funds domiciled in other countries. The results suggest that the UCITS passport facilitates market access and allows the concentration of funds in financial centers. As a consequence, funds benefit from economies of scale, since the costs for investors decrease as the size of the funds and the fund companies increases. Fund companies that are more specialized in setting up certain types of mutual funds have lower fees as well, indicating efficiency gains from experience effects and specialist knowledge.

Several further key findings emerge. The thesis shows that funds in countries protecting investors' assets with independent custodians usually charge higher fees. Similarly, guarantee elements drive up the annual costs of funds, while institutional investors bear lower costs. Corporate tax considerations, in contrast, do not seem to be the main motive for selecting a certain location to set up mutual funds. Foreign fund companies do not have cost disadvantages compared with domestic companies. Overall, the UCITS framework leads to significant cost reductions, lower mutual funds fees, and thus greater economic welfare.

There are several potentially interesting directions for further research based on the findings reported in chapter 5 of this thesis. The research approach implemented here could be further substantiated through an additional analysis which attempts to control for the "market trend" more accurately and therefore uses a more detailed classification of fund types. In addition, the individually reported investment benchmarks may also be employed as an indicator for further classification. On the one hand, it may be possible that a type of fund which has already been accounted for (e.g., equity fund), but which has a specific asset focus (e.g., green funds, socially responsible investments, commodities, biotechnology sector) or country focus (e.g., Asia), has a tendency to be domiciled in particular locations. However, the presented literature denies the necessity of a direct relationship between domiciliation and fund managers who decide on the investment selection process and who furthermore do not have to be located in one place. Nevertheless, governments could still have incentives to strengthen some domestic business domiciliation. For example, they could impose regulations on the domiciliation decisions of companies in order to strengthen a domestic sector (e.g., the biotechnology sector).

However, a more detailed classification of the types of funds could reveal additional determinants of the pricing of mutual funds. Funds with a specific investment focus frequently transfer their fund management to a sub-advisor which employs specific specialists and is usually located elsewhere. This outsourcing strategy may have an effect on fund fees. It could also be a sensible idea to test whether belonging to a bank, insurance company, or an independent asset manager influences fund fees.

Moreover, future research on the determinants of fund fees should control for further characteristics of bundled investment objectives, e.g., regarding the

increasing splay in the magnitude of active and passive fund management or published individual performance benchmarks. One would have to test whether a higher return in the previous period leads to an ex-post increase in fund price. Furthermore, another interesting avenue would be the relationship between investment flows and fees, as one can assume higher inflows to imply greater demand and thus higher fund fees, and vice versa. It may also be very useful to gain a better understanding of price formation effects by taking closed mutual funds into consideration, since the literature indicates closed funds were smaller than surviving funds, for instance (Carhart, 1997). For this purpose, it would be necessary to construct a dataset compiled from various sources. The results would highlight the need for worldwide coherent transparency in fund pricing.

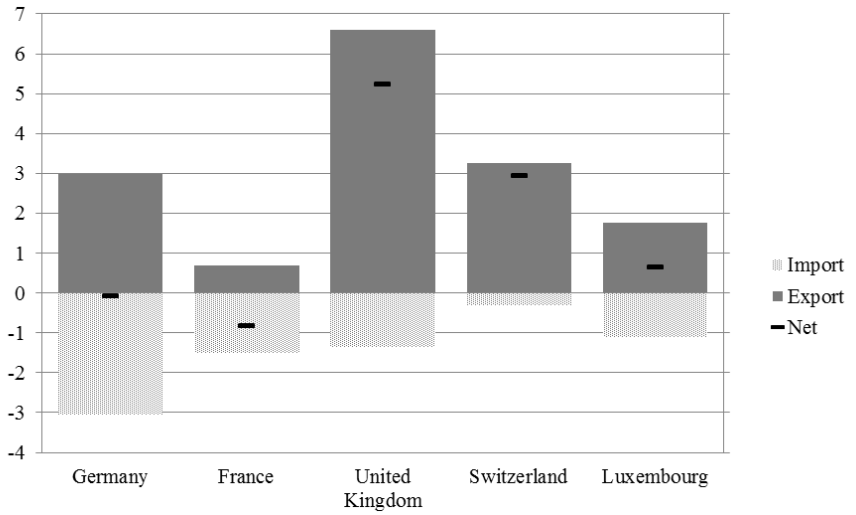
Direct policy recommendations can be drawn from the findings present here, as financial centers emerge neither out of nowhere nor overnight. Nevertheless, opening the window for alternatives is necessary although insufficient for attracting financial companies. New alternatives must be superior, because implementing an equal (or inferior) alternative would not be attractive in comparison with familiar and (long-standing) working practices. However, what does it mean for one country to be a less attractive location than another? In addition to representing a less favorable competitive situation for the financial industry, being a less attractive location can result in unequal conditions with consequences for companies as well as consumers. Individual business units or even whole companies might relocate abroad. This study has tested how individual location factors are viewed and what influence they have on the attractiveness of a financial center to domicile mutual funds. The exact triggers for a relocation decision due to relevant location factors have yet to be determined. It is likely that a certain threshold of difference has to be passed in order for actors to "vote with their feet" and move to another place that offers a more attractive bundle of location determinants.

However, if a common market among several countries is sufficiently harmonized and has equalized major country-specific location factors, the previously minor factors either come to the fore, eventually become decisive, or remain how they were. In the latter case, it would not make sense to relocate, and the location decision would then be based on the former scope of decisions. In this case, it would be difficult for policy makers to encourage companies to relocate to their jurisdiction. If this were not the case, the situation would seem to be historically induced, with long-lasting lock-in effects for the involved economies that could lead to the inefficient characteristics of path dependence.

The core findings of this thesis support all economists who believe in the virtues of economic integration in international finance. Overall, the results of this study strongly indicate that market integration functions well in the globalized mutual fund industry.

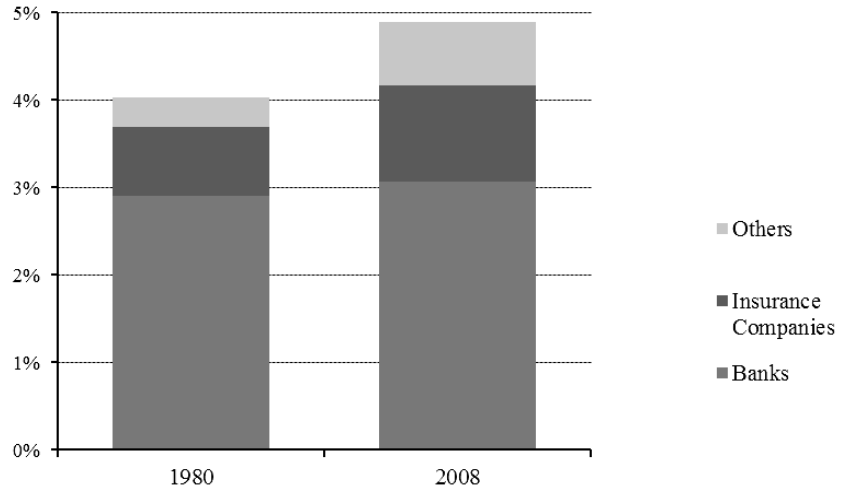
Appendix

Fig. 18. Average Export and Import of Insurance Companies, 2004-2008



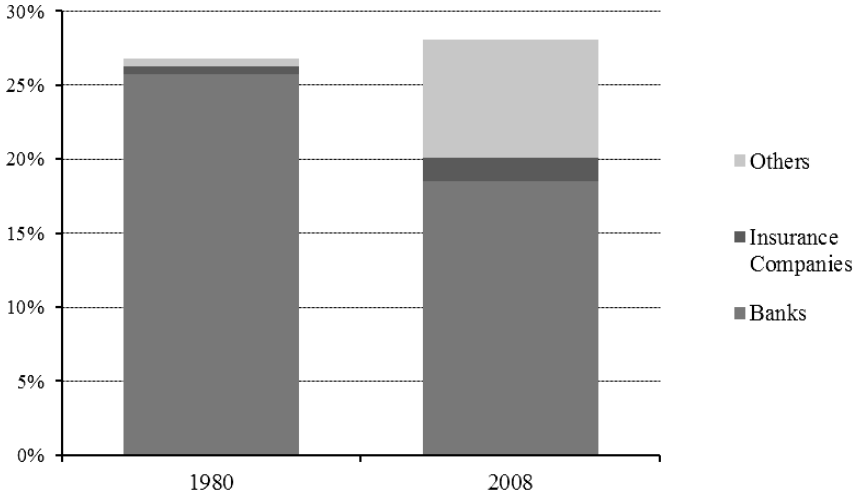
Source: BAK Basel Economics (2010), OECD, Statistics on International Trade in Services (2010), in billion euros.

Fig. 19. Importance of the Financial Sector for the German Economy



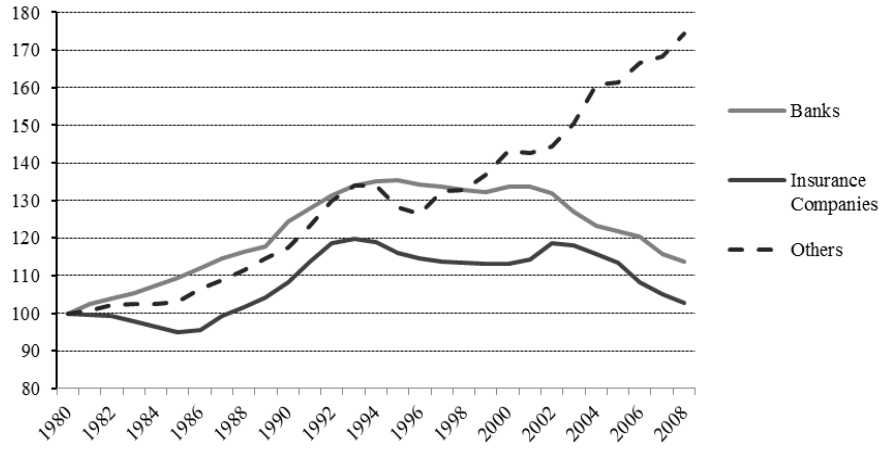
Source: Based on BAK Basel Economics (2010), Eurostat (2010); share of financial sectors of total domestic economic value creation.

Fig. 20. Importance of the Financial Sector for the Luxembourg Economy



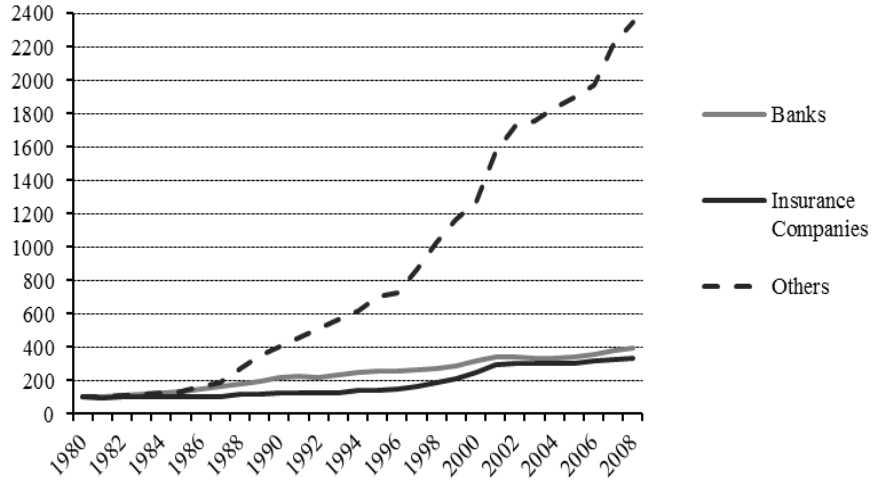
Source: Based on BAK Basel Economics (2010), Eurostat (2010); share of financial sectors of total domestic economic value creation.

Fig. 21. Workforce in the German Financial Sector



Source: Based on BAK Basel Economics (2010), Eurostat (2010); workforce in the financial sector, indexed: 1980 = 100.

Fig. 22. Workforce in the Luxembourg Financial Sector



Source: Based on BAK Basel Economics (2010), Eurostat (2010); workforce in the financial sector, indexed: 1980 = 100.

Table 25. Mutual Fund Companies in the Sample (by Name and City)

- Allianz Global Investors Kapitalanlagegesellschaft mbH, Frankfurt/Main
- ALTE LEIPZIGER Trust Investment-Gesellschaft mbH, Oberursel
- AmpegaGerling Invest
- ment GmbH, Cologne
- Barclays Global Investors (Deutschland) AG, Munich
- BayernInvest Kapitalanlagegesellschaft mbH, Munich
- Commerz Real AG, Wiesbaden
- Credit Suisse Asset Management Funds AG, Zurich
- Deutsche Asset Management Investmentgesellschaft mbH, Frankfurt/Main
- DB PLATINUM ADVISORS, London
- DEGI Deutsche Gesellschaft für Immobilienfonds mbH, Frankfurt/Main
- DEKA Bank Deutsche Girozentrale, Frankfurt/Main
- Dewey & LeBoeuf LLP, Frankfurt/Main
- DJE Investment S.A., Luxembourg
- DWS Investment GmbH, Frankfurt/Main
- ETFlab Investment GmbH, Munich
- Fidelitiy FIL Investment Services GmbH, Kronberg im Taunus
- First Private Investment Management KAG mbH, Frankfurt/Main
- FRANKFURT-TRUST Investment-Gesellschaft mbH, Frankfurt/Main
- FWW GmbH, Haar b. München
- Generali Investments Deutschland Kapitalanlagegesellschaft mbH, Cologne
- Hanseatische Investment-GmbH, Hamburg
- Helaba Invest Kapitalanlagegesellschaft mbH, Frankfurt/Main
- HSBC Global Asset Management (Deutschland) GmbH, Düsseldorf
- Invesco Asset Management Deutschland GmbH, Frankfurt/Main
- Lazard Asset Management (Deutschland) GmbH, Frankfurt/Main
- LBBW Asset Management Investmentgesellschaft mbH, Stuttgart
- LRI Invest S.A., Munsbach
- MEAG MUNICH ERGO AssetManagement GmbH, Munich
- Merrill Lynch International, London
- Metzler Asset Management GmbH, Frankfurt/Main
- Monega Kapitalanlagegesellschaft mbH, Cologne
- NORDCON Investment Management AG (NORD/LB), Hannover
- Oppenheim Kapitalanlagegesellschaft mbH, Cologne
- Pioneer Investments Kapitalanlagegesellschaft mbH, Unterföhring
- RBC Dexia Investor Services Bank S. A., Esch-sur-Alzette
- RREEF Spezial Invest GmbH, Frankfurt/Main
- SEB Asset Management AG, Frankfurt/Main
- Structured Invest S.A., Luxembourg-Kirchberg
- UBS Global Asset Management (Deutschland) GmbH, Frankfurt/Main
- Union Asset Management Holding AG, Frankfurt/Main
- Union Investment Privatfonds GmbH, Frankfurt/Main
- Union Investment Institutional GmbH, Frankfurt/Main
- Universal-Investment-Gesellschaft mbH, Frankfurt/Main
- Xchanging Transaction Bank GmbH, Frankfurt/Main

Source: Organized by the author.

Appendix: Questionnaire on Financial Center Attractiveness

1) How attractive is Germany as an international financial center?
(scale +1 to +5, 1 = very unattractive, 5 = very attractive)

[1] [2] [3] [4] [5]

very unattractive *very attractive*

2) How do you classify Germany, France, Great Britain, Switzerland, and Luxembourg with respect to framework conditions for the financial industry? *(Please grade each country according to its attractiveness as an international financial center 1= most attractive, 5= not attractive at all)*

France	[ ]
Great Britain	[ ]
Switzerland	[ ]
Luxembourg	[ ]
Germany	[ ]

3) How important are the following location conditions for the attractiveness of a financial center?
(Scale -2 to +2, -2=unimportant, +2=very important)

1. **Market potential** (size of the economy and growth outlook)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

2. **Concentration of important market participants** (e.g., high presence of other financial institutions; close proximity to central bank, supervisory authority and stock exchange)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

3. **Tax burden** (e.g., company taxation, taxation of capital yields and capital transfers, taxation of highly qualified persons)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

4. **Human capital and knowledge** (e.g., availability of qualified employees, colleges, university and research institutions)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

5. **Regulatory and supervisory framework** (e.g., regulation of financial institutions and supervisory conditions)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

6. **Stability of the political system** (e.g., legal security, stable political guidelines)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

7. **Stability of the economic system** (e.g., prices, interest rate, exchange rates, business cycle development)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

8. **Innovation potential** (e.g., positioning in future-oriented fields, e.g., private equity and venture capital, hedge funds)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

9. **Soft factors** (e.g., quality of living, attractiveness of regions for high potentials, multiculturalism, language)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

4) How well is <u>Germany</u> performing as a financial center in international comparison to the above mentioned location conditions? *(scale -2 to +2, -2= very much worse, +2= very much better)*

1. **Market potential** (size of the economy and growth outlook)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

2. **Concentration of important market participants** (e.g., high presence of other financial institutions; close proximity to central bank, supervisory authority and stock exchange)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

3. **Tax burden** (e.g., company taxation, taxation of capital yields and capital transfers, taxation of highly qualified persons)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

4. **Human capital and knowledge** (e.g., availability of qualified employees, colleges, university and research institutions)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

5. **Regulatory and supervisory framework** (e.g., regulation of financial institutions and supervisory conditions)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

6. **Stability of the political system** (e.g., legal security, stable political guidelines)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

7. **Stability of the economic system** (e.g., prices, interest rate, exchange rates, business cycle development)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

8. **Innovation potential** (e.g., positioning in future-oriented fields, e.g., private equity and venture capital, hedge funds)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

9. **Soft factors** (e.g., quality of living, attractiveness of regions for high potentials, multiculturalism, language)
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

5) How do you rate the current efforts by the German government (in grades) to establish favorable framework conditions for the financial center Germany?

[ ] fail/insufficient (F) [ ] adequate (D) [ ] satisfactory (C) [ ] good (B) [ ] very good (A)

6) How do you rate the previous 2 year's efforts by the German government to establish favorable framework conditions for the financial center Germany?

[ ] rather worsened [ ] remained the same [ ] rather improved

7) Which factors are decisive for the further development of Germany as a financial center?
(Scale -2 to +2, -2=unimportant, +2= very important)

1. **Consolidation in the banking sector**
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2
2. **Improved management through banks and other financial intermediaries**
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2
3. **Support by the legislator**
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2
4. **Efficient banking supervision and the reduction of over-regulation**
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2
5. **Lower tax burden**
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2
6. **Enhancing the capacity of innovation and highly-skilled workforce**
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2
7. **More marketing for the financial center Germany**
   [ ] -2 [ ] -1 [ ] 0 [ ] +1 [ ] +2

8) Do you have any further remarks or suggestions?

Source: Organized by the author.

Appendix: Questionnaire on Fund Domiciliation

[For the sake of brevity, the boxes in the questionnaire were imaged just once in the thesis]

Name of your fund company, contact person: _____

The following lists location factors for mutual fund domiciliation. **Please refer your answers only to funds subject to EU directive 85/611 (UCITS).**

First, we ask you to determine the general relevance of each individual factor. Then, please evaluate the attractiveness of Germany, Luxembourg, Ireland, United Kingdom, France, and Switzerland regarding the respective factor separately.

1. Sales potential outside Germany
How important is the sales potential outside Germany for your location decision?

unimportant	less important	neutral	important	very important	not specified
□	□	□	□	□	□

How do you judge the sales potential from the considered countries to the following regions?
(scale 1 to 5, 1= very good, 5= very bad)

	Eurozone (ex. Ireland)	Ireland + UK	Eastern Europe	Arab countries	Asia	not specified
DE	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
LUX	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
IR	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
UK	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
FR	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
CH	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

I Regulatory Conditions
2. Process and duration of fund issue approval
How important is this factor for your location decision in general?

unimportant	less important	neutral	important	very important	not specified
□	□	□	□	□	□

How do you judge the supervisory authority with respect to process and duration of fund issue approval in the respective countries?

	very bad	bad	neutral	good	very good	not specified
DE	□	□	□	□	□	□
LUX	□	□	□	□	□	□
IR	□	□	□	□	□	□
UK	□	□	□	□	□	□
FR	□	□	□	□	□	□
CH	□	□	□	□	□	□

3. Process and duration of fund merger approval
How important is this factor for your location decision in general?
How do you judge the supervisory authority with respect to the process and duration of fund merger approval in the respective countries?
4. Publication requirements of the mutual fund (extent of publication requirements)
How important is this factor for your location decision in general?
How do you judge the publication requirements in the respective countries?
5. Alternatives when choosing the fund's legal form and experience with the legal form chosen in the country of fund issue
How important is this factor for your location decision in general?
How do you judge the alternatives available when choosing a legal form for the fund in the respective countries?
6. Legal and supervisory requirements for the management company
How important is this factor for your location decision in general?
How do you judge the legal and supervisory requirements for the management company in the respective countries?
7. Investor protection rules
How important is this factor for your location decision in general?
How do you judge investor protection from the management company's perspective in the respective countries?

II Costs of mutual fund domiciliation
8. Labor costs in the mutual fund industry
How important is this factor for your location decision in general?
How do you judge labor costs in the respective countries?
9. Tax burden of Management Company (e.g., corporate tax)
How important is this factor for your location decision in general?
How do you judge the tax burden of the management company in the respective countries?
10. Real estate costs of the management company (office space)
How important is this factor for your location decision in general?
How do you judge real estate costs in the respective countries?
11. Fees for fund issue of the management company
How important is this factor for your location decision in general?
How do you judge the amount of fees for issuing a mutual fund in the respective countries?

III Local Financial Market Concentration

12. Spatial proximity to financial supervisory authority

How important is this factor for your location decision in general?

How do you judge contact and cooperation with the financial supervisory authority in the respective countries?

13. Spatial proximity to other competing investment companies (real competitors)

How important is the factor for your location decision in general?

How do you judge contact with competitors in the respective countries?

14. Spatial proximity to other cooperating investment companies (intermediaries)

How important is this factor for your location decision in general?

How do you judge contact with other cooperating investment companies in the respective countries?

15. Spatial proximity to service providers for mutual fund administration

How important is this factor for your location decision in general?

How do you judge contact and cooperation with service providers in the respective countries?

16. Spatial proximity to further local services (e.g., lawyers, consultancies, auditors, IT firms)

How important is this factor for your location decision in general?

How do you judge contact and cooperation with further local services (e.g., lawyers, consultancies, accountants, IT firms) in the respective countries?

17. Supply of globally operating custodians at financial center

How important is this factor for your location decision in general?

How do you judge contact and cooperation with custodians in the respective countries?

18. Spatial proximity to customers

How important is this factor for your location decision in general?

How do you judge contact and cooperation with customers in the respective countries?

19. Availability of specialized workforce for the mutual fund sector

How important is this factor for your location decision in general?

How do you judge the availability of workforce for the mutual fund sector in the respective countries?

20. Qualification of workforce in the mutual fund sector

How important is this factor for your location decision in general?

How do you judge the qualification of the workforce in the mutual fund sector in the respective countries?

IV Soft location factors

21. Support of mutual fund industry and marketing by the respective government

How important is this factor for your location decision in general?

How do you judge the support of the mutual fund industry by the government of the respective countries?

22. Quality and capability of industry association

How important is this factor for your location decision in general?

How do you judge the quality and capability of the industry association in the respective countries?

23. International reputation of the mutual fund industry

How important is this factor for your location decision in general?

How do you judge the international reputation of the mutual fund industry in the respective countries?

24. Quality of life and leisure facilities (living value, culture, international schools, security)
How important is this factor for your location decision in general?
How do you judge quality of life and leisure facilities in the respective countries?
25. Legal reliability, continuity of legislation in the mutual fund sector
How important is this factor for your location decision in general?
How do you judge the legal stability in the respective countries?

26. Concerning this survey
1. How do you judge the questions regarding the survey's task and were all points considered?
2. We would like to learn more about your location factors/propositions:
3. Would you like to receive the survey after completion? Yes [ ] No [ ]
4. Would you allow us to mention your name in the list of participating experts?
(No inference to your answers or propositions possible) Yes [ ] No [ ]

Thank you.

Source: Organized by the author.

List of Figures

List of Tables

References

Abraham, J.-P., Bervaes, N. and Guinotte, A. (1994): The Competitiveness of European International Financial Centers, in: Revell, J. (Ed.), The Changing Face of European Banks and Securities Markets, Macmillan, Basingstoke.

Aghion, P., Bloom, N., Blundell, R., Griffith, R., and Howitt, P. (2005): Competition and Innovation: An Inverted-U Relationship, Quarterly Journal of Economics, 120(2), 701-728.

Aghion, P., Blundell, R., Griffith, R., Howitt, P. and Prantl, S. (2009): The Effects of Entry on Incumbent Innovation and Productivity, The Review of Economics and Statistics, 91(1), 20–32.

Alonso, W. (1964): Location and Land Use, Harvard University Press, Boston, MA.

Amiti, M. (1998): New Trade Theories and Industrial Location in the EU: A Survey of Evidence, Oxford Review of Economic Policy, 14(2), 45-53.

Ang, J. and Lin, W. (2001): A Fundamental Approach to Estimating Economies of Scale and Scope of Financial Products: The Case of Mutual Funds, Review of Quantitative Finance and Accounting, 16(3), 205-222.

Arendt & Medernach (2012): Investment management - undertakings for collective investment in transferable securities (UCITS), Luxembourg.

Arthur, W. B. (1989): Competing technologies, increasing returns and lock-in by historical events, Economic Journal, 99(394), 116–131.

Arthur, W. B. (1994): Increasing Returns and Path Dependence in the Economy, University of Michigan Press, Ann Arbor.

Audretsch, B. (1998): Agglomeration and the location of innovative activity, Oxford Review of Economic Policy, 14(2), 18-29.

BAK Basel Economics (2010): Database on international benchmarking, Basel.

Baker, W. E. (1990): Market Networks and Corporate Behaviour, American Journal of Sociology, 96, 589-625.

Baldwin, R. (1989): On the growth effects of 1992, NBER Working Paper Series, Working Paper No. 3119, Cambridge, MA.

Bär, M., Kempf, A. and Ruenzi, S. (2011): Is a Team Different from the Sum of Its Parts? Team Management in the Mutual Fund Industry, Review of Finance, 15(2), 359-396.

Barabasi, A.-L. and Albert, R. (1999): Emergence of scaling in random networks, Science, 286, 509–512.

Battilossi, S. (2000): Financial innovation and the golden ages of international banking: 1890–1931 and 1958–81, Financial History Review, 7, 141–175.

Bathelt, H. and Glückler, J. (2003): Wirtschaftsgeographie. Ökonomische Beziehungen in räumlicher Perspektive, Second Edition, UTB-Ulmer, Stuttgart.

Bathelt, H. and Taylor, M. (2002): Clusters, Power and Place: Inequality and Local Growth in Time-Space, Geografiska Annaler, 84(2), 93-109.

Baum, J.A.C., Shipilov, A.V. and Rowley, T.J. (2003): Where Do Small Worlds Come From?, Industrial and Corporate Change, 12 (4).

Baumol, W.-J., Goldfeld, S.-M., Gordon, L.-A. and Koehn, M.-F. (1980): The economics of mutual fund markets: Competition versus regulation, Kluwer Academic, Boston, MA.

Becker, J. and Fuest, C. (2011): Optimal Tax Policy when Firms are Internationally Mobile, International Tax and Public Finance, 18(5), 580-604.

Beckman, C. M. and Burton, M. D. (2008): Founding the future: Path dependence in the evolution of top management teams from founding to IPO, Organization Science, 19(1), 3-24.

Bell, S., Tracey, J. P. and Heide,, J. B. (2009): The Organization of Regional Clusters, Academy of Management Review, 34 (4), 623-642.

Bergstresser, D., Chalmers, J. and Tufano, P. (2009): Assessing the Costs and Benefits of Brokers in the Mutual Fund Industry, Review of Financial Studies, 22(10), 4129-4156.

Bindemann, K. (1999): The Future of European Financial Centres, Routledge, London.

Bradburn, N., Sudman, S. and Wansink, B. (2004): Asking Questions, San Francisco, Jossey-Bass.

Brulhart, M. and Jametti, M. (2006): Vertical versus horizontal tax externalities: An empirical test, Journal of Public Economics, Elsevier, 90(10), 2027-2062.

Buch, C. M. (2000): Financial Market Integration in the US: Lessons for Europe? Comparative Economic Studies, 44(1), 46-71.

Burt, R. S. (2000): Decay Functions**,** Social Networks, 2000, 22(1), 1-28.

BVI (2009): BVI-Jahrbuch, Appendix, Bundesverband Investment und Asset Management, Frankfurt/Main.

Cairncross, F. (1997): The death of distance: How the communications revolution will change our lives, Harvard Business School Press, Boston, MA.

Capelle-Blancard, G. and Tadjeddine, Y. (2010): The Urban Location of Financial Activities, Working Paper, University Paris 1 Panthéon-Sorbonne.

Carhart, M.-M. (1997): On Persistence in Mutual Fund performance, Journal of Finance, 52(1), 57-82.

Cassis, Y. (2006): A History of International Financial Centres: 1780-2005, Cambridge University Press, Cambridge, MA.

Cerutti E., Dell'Ariccia, G. and Martinez Peira, M. S. (2005): How banks go abroad: branches or subsidiaries?, World Bank Working Paper Series, 3753.

CESR (2004): CESR's guidelines for supervisors regarding the transitional provisions of the amending UCITS Directives (2001/107/EC and 2001/108/EC).

Chen, J., Hong, H., Huang, M. and Kubik, J. (2004): Does fund size erode performance? Liquidity, organizational diseconomies, and active money management, American Economic Review, 94, 1276—1302.

Chevalier, J.-A. and Ellison, G.-D. (1999): Are some mutual fund managers better than others? Cross-sectional patterns in behavior and performance, Journal of Finance, 54, 875-899.

Chordia, T. (1996): The Structure of Mutual Fund Charges, Journal of Financial Economics, 41(1), 3-39.

Christaller, W. (1933): Die zentralen Orte in Süddeutschland, Gustav Fischer, Jena.

Christoffersen, S. and Musto, D.-K. (2002): Demand curves and the pricing of money management, Review of Financial Studies, 15, 1499-1524.

Christoffersen, S. and Sarkissian, S. (2009): City size and fund performance, Journal of Financial Economics, 92, 252-275.
City of London (2010): Global Financial Centres 7, Z/Yen Group, London.
Claessens, S. and Van Horen, N. (2007): Location decisions of foreign banks and competitive advantage, World Bank Working Paper Series, 4113.
Clark, G. L. (2006): Setting the agenda: the geography of global finance, in: Bagchi-Sen, S. and Lawton-Smith, H. (Eds.): Economic Geography: Past, Present and Future, Routledge, London, 83–93.
Clarke, G. R. G., Cull, R. and Martínez Pería, M. S. (2006): Foreign bank participation and access to credit across firms in developing countries, Journal of Comparative Economics, 34(4), December 2006, 774–795.
Coase, R. H. (1937): The Nature of the Firm, Economica, New Series, 4(16), Nov. 1937, 386-405.
Cohen, B. J. (1998): The Geography of Money, Cornell University Press, Ithaca, London.
Cohen, L., Frazzini, A. and Malloy, C.-J. (2008): The Small World of Investing: Board Connections and Mutual Fund Returns, Journal of Political Economy 116(5), 951-979.
Collins, S. and Mack, P. (1997): The Optimal Amount of Assets under Management in the Mutual Fund Industry, Financial Analysts Journal, 53, 67-73.
Commission of the European Communities (1988): European Economy: The Economics of 1992, No. 35, March 1988, Brussels.
Cooper, M., Halling, M. and M. Lemmon (2011): Fee dispersion and persistence in the mutual fund industry, Working Paper, University of Utah.
Corbridge, S., Martin, R. L. and Thrift, N. (Eds.) (1994): Money, Power and Space, Blackwell, Oxford.
CRA (2006): Potential cost savings in a fully integrated European investment fund market, report to the European Commission Directorate General for Internal Market and Services.
Danneels, E. (2002): The Dynamics of Product Innovation and Firm Competences, Strategic Management Journal, 23, 1095-1121.
David, P. A. (1985): Clio and the Economics of QWERTY, American Economic Review, 75(2), Papers and Proceedings of the Ninety-Seventh, Annual Meeting of the American Economic Association, May 1985, 332-337.
David, P.A. (2001): Path Dependence, its Critics, and the Quest for Historical Economics, in: P. GARROUSTE AND S. IOANNIDES (Eds.): Evolution and Path Dependence in Economic Ideas: Past and Present, Cheltenham, Glos., UK: Edward Elgar.
Davies, H. and Green, D. (2008): Global financial regulation: The essential guide, Polity Press, Cambridge, UK.
Dermine, J. and Röller, L.-H. (1992): Economies of scale and scope in French mutual funds, Journal of Financial Intermediation, 2, 83-90.
Dietl, H. M., Pauli, M. and Royer, S. (1999): Internationaler Finanzplatzwettbewerb – Ein Ressourcenorientierter Vergleich, Gabler, Wiesbaden.
Dixit, A. K. and Stiglitz, J. E. (1977): Monopolistic Competition and Optimum Product Diversity, American Economic Review, 67(3), 297-308.
Djelic, M.-L. and Quack, S. (2007): Overcoming Path Dependencies – Path Generation in Open Systems, Theory and Society, 36(2), 161-186.
Dow, S. (1990): Financial Markets and Regional Economic Development, Avebury, Aldershot.

Dufey, G. and Giddy, I. H. (1978): The International Money Market, Prentice-Hall Englewood Cliffs, New York.

Duranton, G. and Puga, D. (2004): Micro-Foundations of Urban Agglomeration Economies, in: J.V. HENDERSON and J.-F. THISSE (Eds.), Handbook of Urban and Regional Economics, Vol. 4, North Holland, New York.

EFAMA (2009): UCITS as a Global Brand: An industry survey, European Fund and Asset Management Association, Brussels.

EFAMA (2010): Fact Book, Trends in European Investment Funds, European Fund and Asset Management Association, Brussels.

EFAMA (2011a): Quarterly Statistical Release, No. 47, European Fund and Asset Management Association, Brussels.

EFAMA (2011b): International Statistical Release (2011:Q2), European Fund and Asset Management Association, Brussels.

EFAMA (2011c): Supplementary Tables for Q3 2011, 01/12/12, European Fund and Asset Management Association, Brussels.

EFAMA (2011d): The Evolving Investment Strategies of UCITS, EFAMA report on the so called "Newcits" phenomenon, European Fund and Asset Management Association, Brussels.

Ellison, G. and Glaeser, E. (1997): Geographic Concentration in U.S. Manufacturing Industries: A Dartboard Approach, Journal of Political Economy, 105(5), 889-927.

Ellison, G. and Glaeser, E. (1999): The geographic concentration of an industry: Does natural advantage explain agglomeration, American Economic Association Papers and Proceedings, 89, 311-316.

Elschner, C., Dressler, D. and Heckemeyer, J. (2009): BAK Taxation Index 2009 – Effective Tax Rates on Companies and on Highly Qualified Manpower, Study prepared for the BAK International Benchmark Program, Mannheim.

Elton, E. J., Gruber, M. J. and Blake, C. R. (2003): Incentive Fees and Mutual Funds, Journal of Finance, 58(2), 779–804.

European Commission (1985): Completing the Internal Market, White paper, COM (85) 310 final.

European Commission (1993): COM (93) 37 final.

European Commission (1999): Financial Services: Implementing the framework for financial markets: Action Plan, COM (1999) 232, 11.05.99.

European Commission (2009): European Financial Integration Report, Working Paper, European Commission.

Fernando, D., Klapper, L. F., Sulla, V. and Vittas, D. (2003): The Global Growth of Mutual Funds, Working Paper, 3055, World Bank.

Ferreira, M.-A. and Ramos, S.-B. (2009): Mutual Fund Industry Competition and Concentration: International Evidence, Working Paper.

Financial Center Initiative (2003): Finanzplatz Zürich: Eine ungewisse Zukunft, Office for Economy and Labour.

Florida, R. and Gates, G. (2001): Technology and Tolerance: The Importance of Diversity to High-Tech Growth, Brookings Institution, Washington DC.

Focarelli, D. and Pozzolo, A. (2005): Where Do Banks Expand Abroad? – An Empirical Analysis, Journal of Business, 78(6), 2053-2495.

Focarelli, D. and Pozzolo, A. (2006): The pattern of cross border bank mergers and shareholdings in OECD countries, Journal of Banking & Finance, 25(12), 2305-2337.

Fonteyne, W., Faruqee, H. and Decressin, J. (2007): Integrating Europe's Financial Markets: Interaction Between Financial Integration and Financial Stability - a Global Model?, International Monetary Fund, Washington D.C.

Fujita, M. (1999): Location and Space-Economy at half a century: Revisiting Professor Isard's dream on the general theory, The Annals of Regional Science, 33(4), 371-381.

Fujita, M. and Thisse J.-F. (2002): Economics of agglomeration: Cities, industrial location and regional growth, Cambridge University Press, Cambridge.

Fujita, M., Krugman, P. and Venables, A. J. (1999): The Spatial Economy: Cities, Regions and International Trade, MIT Press, Cambridge.

Gao, X. and Livingston, M. (2008): The Components of Mutual Fund Fees, Financial Markets, Institutions and Instruments, 17(3), 197-223.

Gärtner, S. (2009): Balanced Structural Policy: German Savings Banks from a Regional Economic Perspective, Brussels: World Savings Banks Institute, Perspectives, 58.

Gehrig, T. (1998): Cities and the Geography of Financial Centers, CEPR Discussion Paper, 1894.

Geiger, H. and Kappel, V. (2006): Innovationen im Finanzsektor – eine Untersuchung am Finanzplatz Schweiz, Studie im Auftrag des Arbeitskreises Kapital und Wirtschaft (akw), Universität Zürich.

Gil-Bazo, J. and Ruiz-Verdu, P. (2009): The Relation between Price and Performance in the Mutual Fund Industry, Journal of Finance, 64(5), 2153-2183.

Glaeser, E. L., Kallal, H. D., Scheinkman, J. A. and Shleifer, A. (1992): Growth in Cities, Journal of Political Economy, 100(6), 1126-1152.

Glückler, J. (2007): Economic geography and the evolution of networks, Journal of Economic Geography, 7(5), 619-634.

Graham, J. R. and Harvey, C. R. (2001): The theory and practice of corporate finance - Evidence from the field, Journal of Financial Economics, 61, 187-243.

Granovetter, M. (2005): The Impact of Social Structure on Economic Outcomes, Journal of Economic Perspectives, 19(1), 33-50.

Greene, W.H. (2012): Econometric Analysis, Prentice Hall.

Grillet-Aubert, L. and Rifaldi, S. (2009): Will retail investors benefit from economies of scale generated by the mutual fund industry, AMF Working Paper.

Groves, R. M., Fowler, F. J., Couper, M. P., Lepkowski, J. M., Singer, E. and Tourangeau, R. (2009): Survey Methodology, John Wiley and Sons, Hoboken, New Jersey.

Gruber, M.-J. (1996): Another puzzle: The growth in actively managed mutual funds, Journal of Finance, 51(3), 783–810.

Gulati, R. (1998): Alliances and Network, Strategic Management Journal, 19, 293-317.

Gulati, R. and Gargiulo, M. (1999): Where do interorganizational networks come from?, American Journal of Sociology, 104 (5), 1439-1493.

Gulati, R. and Puranam, P. (2009): Renewal through Reorganization: The Value of Inconsistencies between Formal and Informal Organization, Organization Science, 20(2), 422-440.

Gulati, R., Nohria, N. and Zaheer, A. (2000): Strategic networks, Strategic Management Journal, 21(3), 203-215.

Guler, I. (2007): Throwing Good Money after Bad? Political and Institutional Influences on Sequential Decision Making in the Venture Capital Industry, Administrative Science Quarterly, 52(2), 248-285.

Hargadon, A. B. and Douglas, Y. (2001): When Innovations meet Institutions: Edison and the Design of the Electric Light, Administrative Science Quarterly, 46(3), 476-501.

Harrschar-Ehrnborg, S. (2002): Finanzplatzstrukturen in Europa, Peter Lang, Bern.
Haslem, J. A. (2003). Mutual funds: risk and performance analysis for decision making, UK: Blackwell Publishing, Oxford.
Heinemann, F. (2002): The Benefits of Creating a Real EU Market for Investment Funds, Working Paper, ZEW.
Heinemann, F., Schröder, M., Schüler, M., Stirböck, C. and Westerheide, P. (2003): Towards a Single European Market in Asset Management, London.
Heritage Foundation (2010): Index of Economic Freedom, 2010.
Hertig, G. (2000): Regulatory Competition for EU Financial Services, Journal of International Economic Law, June 2000, 349-375.
Hippel, E. von (1994): Sticky Information and the Locus of Problem Solving: Implications for Innovation, Management Science, 40(4), 429-439.
Holtfrerich, C.-L. (2005): Frankfurts Weg zu einem europäischen Finanzzentrum, in: Merki, C. (Ed.): Europas Finanzzentren – Geschichte und Bedeutung im 20. Jahrhundert, Campus Verlag, Frankfurt/Main, New York.
Hong, H., Kubik, J. and Stein, J. (2005): Thy neighbor's portfolio: Word-of-mouth effects in the holdings and trades of money managers, Journal of Finance, 60, 2801-2824.
ICI (2010): Investment Company Fact Book, Investment Company Institute, Washington DC.
ICI (2011a): 2011 Investment Company Factbook: A Review of Trends and Activity in the Investment Company Industry, Investment Company Institute, Washington D.C.
ICI (2011b): Mutual Funds Assets and Flows, Third Quarter 2011, Investment Company Institute, Washington D.C.
Isard, W. (1956): Location and space economy: A general theory relating to industrial location, market areas, land use, trade, and urban structure, Cambridge, MA.
Jacobs, J. (1969): The Economy of Cities, Vintage, New York.
Jao, Y. C. (1997): Hong Kong as an International Financial Centre: Evolution, Prospects and Policies, Hong Kong: City University of Hong Kong Press.
Kacperczyk, A. J. (2009): Inside or Outside: The Social Mechanisms of Entrepreneurship Choices, Evidence from the Mutual Fund Industry, University of Michigan.
Kaldor, N. (1972): The Irrelevance of Equilibrium Economics, Economic Journal, 82 (328), 1237-1255.
Karim, S. and Mitchell, W. (2000): Path-dependent and path-breaking change: Reconfiguring business resources following acquisitions in the U.S. medical sector, 1978-95, Strategic Management Journal, 21, 1061-1081.
Kern, S. (2010): Global financial centres after the crisis, EU Monitor (76), Deutsche Bank Research.
Khorana, A. and Servaes, H. (1999): The Determinants of Mutual Fund Starts, Review of Financial Studies, 12(5), 1043-74.
Khorana, A. and Servaes, H. (2008): On the Future of the Mutual Fund Industry Around the World, in: Y. FUCHITA and R. E. LITAN (Eds.), Pooling Money: The Future of Mutual Funds, Brookings Institution.
Khorana, A., Servaes, H. and Tufano, P. (2005): Explaining the Size of the Mutual Fund Industry around the World, Journal of Financial Economics, 78(1), 145–185.
Khorana, A., Servaes, H. and Tufano, P. (2009): Mutual Fund Fees Around the World, Review of Financial Studies, 22(3), 1279-1310.

Kim, S. (1995): Expansion of Markets and the Geographic Distribution of Economic Activities: The Trends in U.S. Regional Manufacturing Structure, 1860-1987, Quarterly Journal of Economics, 110(4), 881-908.

Kim, S. (1999): Regions, Resources and Economics Geography: Sources of U.S. Regional Comparative Advantage, 1880-1987, Regional Science and Urban Economics, 29(1), 1-32.

Kindleberger, C. P. (1974): The Formation of Financial Centres: A Study in Comparative Economic History, Princeton Studies in International Finance, No. 36, Princeton University Press, Princeton, New Jersey.

Klagge, B. and Martin, R. (2005): Decentralized versus Centralised Financial Systems: Is there a Case for Local Capital Markets, Journal of Economic Geography, 5(4), 387–421.

Koch, J. (2008): Strategic paths and media management — a path dependency analysis of the German newspaper branch of high quality journalism, Schmalenbach Business Review, 60, 50–73.

Kotz, H.-H. and Schmidt, R.-H. (2007): Financial Locations: Frankfurt's place and perspectives, Revue d'économie financière, 90, Oct. 2007.

KPMG (2010): Mutual Funds in Europe, KPMG Ireland, Dublin.

Krugman, P. (1991a): Increasing Returns and Economic Geography, Journal of Political Economy, 99(3), 483–499.

Krugman, P. (1991b): Geography and trade, MIT Press, Cambridge (MA).

Krugman, P. and Venables, A.J. (1995): Globalization and the Inequality of Nations, Quarterly Journal of Economics, 110 (4), 857–880.

Kuhnen, C. M. (2009): Business Networks, Corporate Governance, and Contracting in the Mutual Fund Industry, Journal of Finance, 64(5), 2185–2220.

Kulik, C. T., Bainbridge, H. T. J. and Cregan, C. (2008): Known by the Company We Keep: Stigma-By-Association Effects in the Workplace, Academy of Management Review, 33(1), 216-230.

Lamberg, J.-A. and Tikkanen, H. (2006): Changing sources of competitive advantage: Cognition and path dependence in the Finnish retail industry 1945–1995, Industrial and Corporate Change, 15, 811–846.

Lang, G. and Köhler, M. (2011): How Does the Domiciliation Decision Affect Mutual Fund Fees?, ZEW Discussion Paper, 11-085, Mannheim.

Lang, G. (2009): Special question: Significance and future of bank secrecy, Financial Market Report Switzerland: International Finance Market Data: Assessments and Expectations, (4), 1-4, ZEW/Mannheim, Credit Suisse/Zurich.

Lannoo, K. (2007): The Future of Europe's Financial Centers, ECMI Policy, Brief No. 10.

Latzko, D. (1999): Economies of scale in mutual fund administration, Journal of Financial Research, 22(3), 331-339.

Latzko, D. (2003): Mutual Fund Expenses, Working Paper, Pennsylvania State University.

Laulajainen, R. (1998): Financial Geography, Goteborg University Press, Goteborg.

Launhardt, W. (1885): Mathematische Begründung der Volkswirtschaftslehre, Teubner Verlag, Leipzig.

Leibenstein, H. (1950): Bandwagon, snob, and Veblen effects in the theory of consumers' demand, Quarterly Journal of Economics, 64(2), 183-207.

Lins, K. V., Servaes, H. and Tufano, P. (2010): What drives corporate liquidity? An international survey of cash holdings and lines of credit, Journal of Financial Economics, 98(1), 160-176.

Lipper (2010a): European Fund Market Data Digest 2010, Lipper Thomson Reuters, London.

Lipper (2010b): Database on mutual funds, Fundfile, Lipper Thomson Reuters, London.

Loheide, J. (2008): Finanzmarkt ohne Grenzen? Regionalpolitik und Finanzplätze in der Globalisierung, Regionalisierung in Europa, Vol. 6, VS Verlag für Sozialwissenschaften.

London Economics (2002): Quantification of the Macro-Economic Impact of Integration of EU Financial Markets, Executive Summary of the Final Report to The European Commission - Directorate-General for the Internal Market.

Lösch, A. (1940): Die Räumliche Ordnung der Wirtschaft, Fischer Verlag, Jena.

Malkiel, B.-G. (1995): Returns from investing in equity mutual funds 1971–1991, Journal of Finance, 50, 549–572.

Malmberg, A. and Maskell, P. (2002): The elusive concept of localization economies: towards a knowledge-based theory of spatial clustering, Environment and Planning A, 34, 429-449.

Marshall, A. (1890): Principles of economics, Macmillan, London.

Marshall, A. (1921): Industry and trade, Macmillan, London.

Martin, R. L. and Sunley, P. (2006): Path dependence and regional economic evolution, Journal of Economic Geography, 6(4), 395-437.

Martin, R. L. (2011): The local geographies of the financial crisis: from the housing bubble to recession and beyond, Journal of Economic Geography, 11, 587–618.

Martin, R. L. (Ed.) (1999): Money and the Space Economy, John Wiley, Chichester.

Maskell, P. (2001): Towards a knowledge-based theory of the geographical cluster, Industrial and Corporate Change, 10, 921-943.

Mcgahey, R., Malloy, M., Kazanas, K. and Jacobs, M. P. (1990): Financial services, financial centers: Public policy and the competition for markets, firms and jobs, Westview Press, Boulder CO.

Mcguire, P (2004): A shift in London's eurodollar market, BIS Quarterly Review, September 2004.

Mckelvey, R. and Zavoina, W. (1975): A Statistical Model for the Analysis of Ordinal Level Dependent Variables, Journal of Mathematical Sociology, 4, 103-120.

Menkhoff, L. and Schmidt, U. (2005): The Use of Trading Strategies by Fund Managers: Some First Survey Evidence, Applied Economics, 37, 1719–1730.

Merki, C. (2005): Europas Finanzzentren: Geschichte und Bedeutung im 20. Jahrhundert, Campus Verlag, Frankfurt/Main.

Middelfart-Knarvig, K. H., Overman, H. G., Redding, S. J. and Venables, A. J. (2000): The Location of European Industry, Report prepared to the Directorate General for Economic and Financial Affairs, European Commission, Economic Papers 142, ECFIN/318/00-EN.

Mitchell, J. C. (1969): The concept and use of social networks, in: J. C. MITCHELL (Ed.), Social networks in urban situations, England: University of Manchester Press, Manchester.

Moisson, E. (2009): Profiting from Proliferation?, Lipper Thomson Reuters, FMI White Paper.

Morgan, K. (1997): The learning region: Institutions, innovation and regional renewal, Regional Studies, 31 (5), 491-503.

Morningstar (2010): Database on mutual funds, Morningstar Direct, Chicago.

Murphy, L. (1998): Financial engine or glorified back office? Dublin's International Financial Services Centre going global, Area, 30, 157-165.

Nanda, V., Narayanan, M. P. and Warther, V. A. (2000): Liquidity, Investment Ability, and Mutual Fund Structure, Journal of Financial Economics, 57(3), 417-443.

Niessen, C., Swarowsky, C. and Leiz, M. (2010): Age and Adaptation to Changes in the Workplace, Journal of Managerial Psychology, 25(4), 356 – 383.

North, D.-C. (1990): Institutions, Institutional Change, and Economic Performance, Cambridge University Press, New York.

O'Brien, R. (1992): Global Financial Integration: The End of Geography, Council of Foreign Relations Press, New York.

OECD (2010): Statistics on International Trade in Services, Volume I, Detailed Tables by Service Category, 2000-2008, 2010 Edition.

Osmundsen, P., Hagen, K. P. and Schjelderup, G. (1998): Internationally Mobile Firms and Tax Policy, Journal of International Economics, 45, 97–113.

Otten, R., and Bams, D. (2002): European mutual fund performance, European Financial Management, 8, 75-101.

Otten, R., and Bams, D. (2011): Does Industry Size Matter? Revisiting European Mutual Fund Performance, Working Paper, Maastricht University.

Page, S. E. (2006): Path dependence, Quarterly Journal of Political Science, 1, 87–115.

Paladino, G. (2007): Location of Italian Banks: Drivers of Expansion into Emerging and Transition Economies, LLEE Working Document, 51, Rom.

Peter, G. von (2007): International banking centres: a network perspective, BIS Quarterly Review, 33 – 45.

Picard, J. J. (2009): Luxembourg for Finance, Conference presentation.

Piore, M. J. and Sabel, C. F. (1984): Second industrial divide: Possibilities for prosperity, Basic Books, New York.

Poon, J. P. H., Eldredge, D. and Yeung, D. (2004): Rank Size Distribution of International Financial Centres, International Regional Science Review, 27(4), 411-430.

Porteous, D. J. (1995): The Geography of Finance: Spatial Dimensions of Intermediary Behaviour, Avebury, Aldershot.

Porteous, D. J. (1999): The Development of Financial Centres: Location, Information, Externalities and Path Dependence, in: R. MARTIN (Ed.), Money and the Space Economy, 95-114, Wiley, Chichester.

Porter, M. E. (1980): Competitive Strategy, The Free Press, New York.

Porter, M. E. (1985): Competitive Advantage: Creating and Sustaining Superior Performance, The Free Press, New York.

Porter, M. E. (1990): The Competitive Advantage of Nations, The Free Press, New York.

Porter, M. E. (1998): Clusters and competition: New agendas for companies, governments, and institutions, in: M. PORTER (Ed.), On competition (197-287), Harvard Business School Press, Boston, MA.

Porter, M. E. (2000): Location, Competition, and Economic Development: Local Clusters in a Global Economy, Economic Development Quarterly, 14(1), 15-34.

Porter, M. E. (2008): On Competition, Harvard Business Review, October 2008, Mcgraw-Hill Professional.

Rajan, R. and Zingales, L. (1998): Financial dependence and growth, American Economic Review, 88, 559-586.

Ratti, R. (1992): Innovation technologique et développement regional, Meta-Éditions, Lausanne.

RBC Dexia (2011): What is the state of play?, RBC Dexia Investor Services.
Reed, H. C. (1983): Financial center hegemony, interest rates, and the global political economy, in: PARK, Y. and M. ESSAYYAD (Ed.): International Banking and Financial Centers, Boston, Dordrecht, London, 247 – 268.
Reed, H. C. (1981): The preeminence of international financial centers, Praeger, London.
Reszat, B. (2004): Evolution, Spatial Self-Organisation and Path Dependence: Tokyo's Role as an International Financial Center, PASCHA, W. (Ed.): Systemic Changes in the Japanese and German Economics, New York.
Roberts, R. (2008): The City, A Guide to London's Global Financial Centre, The Economist, Profile Books, London.
Roos, M. (2002): Ökonomische Agglomerationstheorien. Die Neue Ökonomische Geographie im Kontext, Josef Eul Verlag, Lohmar, Cologne.
Rose, A. K. and Spiegel, M. M. (2005): Offshore financial centers: parasites or symbionts?, Working Paper, Series 2005-05, Federal Reserve Bank of San Francisco.
Rosenthal, S. S. and Strange, W. C. (2004): Evidence on the Nature and Sources of Agglomeration Economies, J.V. HENDERSON and THISSE, J.-F. (Eds.): Handbook of Urban and Regional Economics, 2119-2171.
Ross, J. and Staw, B. M. (1993): Organizational escalation and exit: Lessons from the Shorehand nuclear power plant, Academy of Management Journal, 36(4), 701-732.
Rouwenhorst, K. (2004): The Origins of Mutual Funds, Yale School of Management Working Papers , Yale School of Management.
Ruenzi, S. (2006): Optimale Gestaltung von Fondsfamilien, Deutscher Universitäts-Verlag, Wiesbaden.
Sassen, S. (1999): Global Financial Centers, Foreign Affairs, 78(1), 75-86.
Saxenian, A. (1994): Regional Advantage: Culture and Competition in Silicon Valley and Route 128, Harvard University, Cambridge.
Schäfer, H. (1983): Internationale Kapitalströme, Eurogeldmarkt und nationaler Geldmarkt – Eine theoretische und empirische Analyse für die Bundesrepublik Deutschland, Peter Lang, Frankfurt/Main.
Schäfer, H. (1995): Information und Kooperation im Absatz von Bankdienstleistungen, Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung, 47, 531-544.
Schäfer, H. (1999): Vertrauen und Loyalität im Marketing von Finanzdienstleistungen mit Kontraktguteigenschaften, Zeitschrift für Betriebswirtschaft, 1, 1-23.
Schäfer, H. (2000): Kundenbindung in der Versicherungswirtschaft – neo-institutionenökonomische Analyse und marketingpolitische Ansatzpunkte, Zeitschrift für die gesamte Versicherungswirtschaft, 1, 89-120.
Schaeffer, N. C. and Presser, S. (2003): The Science of Asking Questions, Annual Review of Sociology, 29, 65-88.
Schmidt, R. and Grote, M. (2006): Was ist und was braucht ein bedeutender Finanzplatz?, Bankhistorisches Archiv, 45, 11 – 27.
Schmidt, S. and Nautz, D. (2012): Central Bank Communication and the Perception of Monetary Policy by Financial Market Experts, Journal of Money, Credit, and Banking, 44, 323-340.
Schmitz, H. and Nadvi, K. (1999): Clustering and industrialization: Introduction, World Development, 27, 1503-1514.
Schröder M., Jaroszek, L., Lang, G. and Riedler, J. (2011): Cumulative Effects of Measures for the Banking Sector - Impact Assessment of the Various Regulatory Initiatives

Affecting the EU Banking Sector, IP/A/ECON/ST/2010-21 of the European Parliament, Brussels, Strasbourg.
Schweizerischer Bundesrat (2005): Botschaft zum Bundesgesetz über die kollektiven Kapitalanlagen, Bern.
Schweizerischer Bundesrat (2011): Verordnung über die kollektiven Kapitalanlagen, Bern.
Scott, A. J. (1988): New industrial spaces: Flexible production, organization and regional development in North America and Western Europe, Pion, London.
Scott, A. J. (2000): Economic geography: the great half-century, Cambridge Journal of Economics, 24(4), 483-504.
Scott, W. R. (2001): Institutions and organizations, Second Edition, Thousand Oaks, Sage, California.
Sigurdsson, K. (2007): Asymmetric performance fees in European mutual funds, Working Paper, London Business School.
Sokol, M. (2007): Space of Flows, Uneven Regional Development, and the Geography of Financial Services in Ireland, Growth and Change, 38(2), 224-259.
Sorenson, O. and Audia, P. G. (2000): The social structure of entrepreneurial activity: Geographic concentration of footwear production in the United States, 1940–1989, American Journal of Sociology, 106(2), 424–462.
Stabell, C. B. and Fjeldstad, Ø. D. (1998): Configuring Value for Competitive Advantage: On Chains, Shops, and Networks, Strategic Management Journal, 19, 413–437.
Stieglitz, N. and Heine, K. (2007): Innovations and the role of complementarities in a strategic theory of the firm, Strategic Management Journal, 28, 1-15.
Sydow, J., Schreyögg, G. and Koch, J. (2009): Organizational path dependence: Opening the black box, Academy of Management Review, 34(4), 689-709.
Teece, D. J., Pisano, G. and Shuen, A. (1997): Dynamic capabilities and strategic management, Strategic Management Journal, 18, 509–535.
The Economist (2011a): Tax havens – Trouble island, October 15, 2011.
The Economist (2011b): London as a financial centre – Banged about, October 29, 2011.
The Economist (2012): Save the City, January 7, 2012.
Thrift, N. and Leyshon, A. (1997): Money/Space, Routledge, London.
Thünen, J. H. von (1875): Der isolierte Staat in Beziehung auf Landwirtschaft und Nationalökonomie, drei Teile, H. SCHUMACHER (Ed.), Berlin.
Tolbert, P. S. and Zucker, L. (1996): The institutionalization of institutional theory, in: Clegg, S. R., Hardy, C. and North, C. E. (Eds.), Handbook of organizational studies, Sage, London, 175-190.
Van Der Sar, N. L. (2004): Behavioral finance: how matters stand, Journal of Economic Psychology, 25, 425–444.
Van Horen, N. (2007): Foreign banks entry in developing countries: origin matters, Emerging Markets Review, 8, 81-105.
Venables, A. (1996): Equilibrium Locations of Vertically Linked Industries, International Economic Review, 37(2), 341–359.
Vergne J. P. and Durand, R. (2011): The Path of Most Persistence: An Evolutionary Perspective on Path Dependence and Dynamic Capabilities, Organization Studies, 32(3), 365-382.
Wahal, S. and Wang, Y.-A. (2011): Competition among Mutual Funds, Journal of Financial Economics, 99(1), 40-59.
Walker, G., Kogut, B. and Shan, W. (1997): Social capital, structural holes and the formation of an industry network, Organization Science, 8, 109-125.

Weber, A. (1909): Über den Standort der Industrien, 1. Teil: Reine Theorie des Standorts, Mohr JCB, Tübingen.

Weick, K. E., Sutcliffe, K. M. and Obstfeld, D. (2005): Organizing and the Process of Sensemaking, Organization Science, 16(4), 409-421.

Wilcox, R.-T. (2003): Bargain hunting or star gazing? How consumers choose mutual Funds, Journal of Business, 76(4), 645–665.

Williamson, O. E. (1985): The Economic Institutions of Capitalism, Free Press, New York.

Zaheer, A. and Bell, G. G. (2005): Benefiting from network position: Firm capabilities, structural holes, and performance, Strategic Management Journal, 26(9), 809-825.

ZEW and OEE (2006): Current trends in the European Asset Management Industry, Lot 1 of report to the European Commission Directorate General for Internal Market and Services.

Zhao, X. (2005): Exit decisions in the U.S. mutual fund industry, Journal of Business, 66, 371-403.

Zott, C (2003): Dynamic capabilities and the emergence of intraindustry differential firm performance: insights from a simulation study, Strategic Management Journal, 24(2), 97–125.