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Foreign banks' attraction to the financial centre Frankfurt – a 'u'-shaped relationship

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Abstract

This paper traces the location of foreign banks in Germany from 1949 to 2006. As suggested by new economic geography models we find a ‘u’-shaped concentration of foreign banks in Germany. Only after a competition between several cities, Frankfurt has emerged as the pre-eminent financial centre, triggered by the ‘historical event’ of setting up the German central bank in Frankfurt. After a strong increase, Frankfurt’s share in the location of foreign banks in Germany decreases slowly but significantly since the mid 1980’s. We conclude that there will be a lesser role in Europe for second-tier financial centres in the future.

Keywords: financial centres, ‘u’-shape, foreign banks, Frankfurt

JEL-Codes: R11, N94

1 Introduction

The paper traces the location of foreign banks in Germany from 1949 to 2006 with special emphasis on the evolution of the financial centre Frankfurt. Frankfurt's development is a special case: It is not, as many other major financial centres, the predominant centre in its country since ages. Instead, it gained this position in Germany after a competition between Dusseldorf, Hamburg, Frankfurt and others in the 1950's and 1960's – starting virtually from a level playing field after World War II. Berlin has been the leading financial centre before but could not continue that role. These circumstances create a unique opportunity for a thorough examination of the process of financial centre formation and for testing theoretical predictions regarding the emergence and development of financial centres. We find that an 'historical accident' – the set up of the predecessor of the Bundesbank close to the American military headquarters – triggered Frankfurt's development as the predominant financial centre in Germany. Subsequently, the largest German privately owned banks and most foreign banks settled in Frankfurt. Since the mid 1980's, however, Frankfurt's share in foreign banks' location in Germany declines – much in line with the 'u'-shaped development of industry agglomerations suggested by the New Economic Geography literature. This trend is not due to banks settling in Berlin after the German reunification but rather to a general dispersion throughout Germany. The case of foreign banks in Germany is one of the rare opportunities where a 'u'-shaped locational pattern of industry development can be observed. Due to a simultaneous concentration process of investment banking business on a European scale, Frankfurt is losing banks and business also to London.

So far, each nation in Europe has developed a financial centre in which the majority of financial action takes place, e.g. London – one of the leading international financial centres and by far the biggest in Europe – Amsterdam, Frankfurt, Milan, Paris and Zurich. With Europe becoming more and more unified economically and politically, a common currency, far-reaching common regulatory harmonization and the advent of ever more sophisticated information and communication technologies, the question of further development for Frankfurt and other European financial centres emerges. McKinsey, a consultancy, even raised the question whether there will be a financial centre in Germany at all (McKinsey 2003). A concentration process within the European Union similar to that observed in different countries in the past would mean a severe loss in significance for most European national financial centres.

Against this background the paper addresses the specific questions: Which factors are relevant for the emergence of Frankfurt to the predominant financial centre in Germany after World War II? How did Frankfurt's attractiveness for foreign banks develop over time? And, what are the forces that shape the development of Frankfurt and other financial centres in the future? So far, theoretical approaches about the dynamic formation – or demise – of financial centres are not very well elaborated; the paper tries to fill this gap. It is organized as follows: After a short survey of the existing – mostly static – literature on financial centres in chapter 2, we derive hypotheses for the development of financial centres from the new economic geography approach and from evolutionary economics in chapter 3. The data and methods used are described in chapter 4; chapter 5 then analyses the development of Frankfurt with regard to the hypotheses. Chapter 6 concludes.

2 Literature on financial centres

Financial centres are among the most visible industry agglomerations. Due to the fact that they do not need natural resources for their production process, these concentrations of activity in specific locations are enigmas which need to be explained. While the emergence and development of financial centres is rarely the subject of analysis, the static phenomenon of financial centres – i.e., why and where financial centres do exist – has been discussed in two distinct research strands (see Tschoegl 2000 for an extensive survey): On the one hand the agglomeration forces that draw actors together are examined on a micro-level and on the other hand the factors that lead to the emergence of financial centres in specific countries are analyzed from a macro-economic perspective.

On a micro level, financial centres, like other agglomerations, are considered to be the result of both centripetal and centrifugal forces. Centrifugal forces appear to be of minor importance given the ongoing centralization of financial activities (Sassen 1999). Gehrig (1995) actually asserts that financial literature should rather ask why all economic activity is *not* concentrated only in one single location. By extending classical Marshallian externalities and adapting them to financial centres, Porteous (1999) provides a fairly exhaustive list of external economies, i.e. centripetal forces. He cites labour market externalities, intermediate services, technological and informational spillovers, and socio-institutional and cultural factors as specific agglomeration economies within the financial sector. Thrift (1994) argues that, despite new communication technologies, physical proximity to other firms remains crucially important within the financial sector. The 'need for information, for the expertise that allows that information to be interpreted and for the social contacts that generate trust, information, interpretive schemes – and business – is paramount' (Thrift 1994, 334). Accordingly, social and cultural structures within the financial community ('social embeddedness') determine the economic success of financial centres.

Knowledge about the needs of spatially dispersed clients are generally regarded as the main centrifugal factor: '[...] physical proximity to the customer is important for three consecutive stages of establishing a position in a foreign market, viz. (1) obtaining knowledge of the local market, (2) establishing personal contact with clients; and (3) supporting existing relations' (Ter Hart and Piersma 1990, 85). Ter Hart and Piersma focus on the determinants for physical, or spatial, proximity in financial sectors with respect to the requirements of financial transactions: the intensity of face-to-face-contact, the importance of contact rapidity and intensity, the scale of transaction, and acquaintance with the other party. They also provide a list of banking transactions, ranked according to their sensitivity to spatial proximity. The more complex and individual the transaction, the more spatial proximity to customers is needed and the less concentrated financial activities are (Ter Hart and Piersma, 1990; see Lee and Schmidt-Marwede 1993). Clark and O'Connor (1997) divide financial products into three categories - transparent, translucent and opaque, based primarily on the information type and specificity required in order to trade in each product. The more localized (or tacit) knowledge is necessary for handling a product, the less concentrated financial activities will be. They suggest that opaque products tend to be traded in sub-national centres, translucent products mainly in national centres and transparent products in global financial centres. From a dynamic point of view, this leads to the conclusion that – *ceteris paribus* – the more products are independent of specific localized knowledge (or the more they are standardized), the more concentrated financial activity becomes.

The advent of new information and communication technology as a major force in the financial sector has had ambiguous effects on financial centres by allowing for the concentration of activities on the one hand and by increasing mobility on the other (O'Brien 1992). Standardized transactions requiring minimal interaction between financial actors (transaction processing, for example) can be concentrated in one place, and then shifted to any location. These activities often do not rely on specific skill sets and therefore easily migrate towards peripheral locations (Walter 1998; Grote and Täube 2006). While information and communication technologies can be used to split up production processes and thus increase mobility, proximity – not only spatial, but also cultural, organizational and professional – remains essential for the financial industry (Grote et al. 2002).

Many macro-oriented studies have been triggered by Reed's (1981) pioneering work. The factors that determine the location of a financial centre are analyzed by cross-country regressions of national characteristics. Reed looks at 40 'home nation variables' to explain the presence of a financial centre in a country; the most important variable is the number of telegrams to and from that country. The main macro-economic variable is the cumulative net-investments and other capital exports, however '[t]he impact of being a net exporter of capital on centre status is not exactly clear' (Reed 1981, 51 and 43-48). Goldberg, Helsley and Levi (1988, 86) found the following variables to be influential in the emergence of an international financial centre: '1) the level of overall economic development; 2) the level of international trade; 3) the extent of financial intermediation; and 4) the stringency of financial regulation.' Contrary to that, Fattouh (2000) finds that, when controlling for offshore centres, differences in regulation and tax regimes do not explain the locational choices of banks in financial centres. In three consecutive studies (1986, 1996 and 2002), Choi, Tschoegl and Yu examine the determinants of interpenetration of financial centres by banks, mainly by looking at the offices of banks in other financial centres. Over the years, the explaining variables do not change much: They reach the conclusion that '[t]he attractiveness of a centre is clearly related to the size of the economy it represents, and perhaps to the amount of international financial activity there' (Choi/Tschoegl/Yu 1986, 61). However, these studies regress mostly on financial data for the whole country instead of indicators on a city level – thus explaining the size of the financial sector but not the size of a specific centre (e.g., Fattouh 2000, Choi/Tschoegl/Yu 1986; Choi/Park/Tschoegl 1996). A major measure of the attractiveness of a centre is the number of banks already located in the country (Choi/Park/Tschoegl 2002, see also Jeger/Haegler/Theiss 1992). A related strand set up by Reed analyzes the hierarchical structure of the international financial centre network (Poon 2003; Poon/Eldredge/Yeung 2004) much in the spirit of the world city research (Friedmann 1995) as well as the links between those centres (the 'Loughborough School', Beaverstock et al. 2006; Faulconbridge 2004; Beaverstock et al. 2001).

While such studies have helped to understand which countries might develop financial centres of international importance and the links between them, they have not told us very much about the dynamics of this development. The fact that there are so little common macro variables that explain the emergence of an international financial centre hints to some hidden, dynamic mechanisms behind the macro-economic facts. Furthermore, the literature merely touches on the issue of how a specific city becomes a country's leading financial centre; this is also true for studies dealing with the development of a specific city over time, like those of Reed (1980), Smith (1984) and the Economists Advisory Group (1984).

3 Dynamic approaches and hypotheses

Two basic theories offer themselves to cope with dynamic developments of agglomerations: The new economic geography, brought forward by Paul Krugman and others, and the 'path dependence' concept taken from evolutionary economics. So far, these concepts are not applied in empirical research on financial centres; an early study by Kindleberger (1974) being the exception. He describes the development of the leading financial centres in several countries and stresses the gradual movement of banks into these centres. This dynamics creates – in 'an evolutionary and time-consuming process' (Kindleberger 1974, 67) – external economies of scale that firmly bind banks and other financial institutions to a chosen location. The new evolutionary concepts and new economic geography models are regarded as a valuable tool in research on locations (Boschma and Lambooy 1999, Lambooy and Boschma 2001, Porteous 1999). We take an eclectic mix of both paradigms to frame the changing locations of foreign banks in Germany. While there is no formal modelling and an emphasis on the evolution of the institutional settings over time – clearly within the evolutionary framework – hypotheses about the decline of Frankfurt as the most important location for foreign banks in Germany are taken from the new economic geography (henceforth NEG). This approach is similar to Boschma and Frenken (2006) who recently argued in favour of an 'Evolutionary Economic Geography' that tries to incorporate much of both strands.

Financial centres, like other agglomerations, are considered to be the result of both centripetal and centrifugal forces within the new economic geography approach.

> 'Will the financial services sector maintain its current polycentricity, or will it concentrate in London (or Frankfurt)? These are questions about industrial clustering; and they are questions that can, we believe, usefully be addressed using our basic approach to economic geography' (Fujita/Krugman/ Venables 1999, 283).

Generally, for the centripetal forces the classic Marshallian sources of external economies of scale are used, i.e. a liquid labour market, linkages and pure technological spillovers. For the centrifugal forces there are immobile factors, increasing rents and negative technological effects. However, for analytical work, usually the models focus on one centrifugal and one centripetal force and on the tension between them (Krugman 1998). Both, models of the NEG and the concept of path dependence display a dynamic process, which David (1997) terms 'cumulative causation'. After a small inequality is introduced between formerly identical locations – by an 'historical accident' that is outside the explanatory scope of any model – one location gets more attractive than the other and displays self-reinforcing features in attracting business.

The emergence of Frankfurt as an international financial centre may be effectively analyzed within any dynamic framework only if the process was, in fact, a process based on cumulative causation. Frankfurt could also have evolved as a major financial centre due to other, simpler reasons: its central location in Germany (and in Europe), its large international airport, the presence of the Bundesbank and today the ECB, its surrounding industries and wealthy individuals, etc. All this could have made Frankfurt attractive enough to draw a large number of financial firms. Therefore the first hypothesis is:

> **Hypothesis 1:** The development of financial centres is largely influenced by external effects to scale.

Arthur (1994) offers an evolutionary path dependence model that shows how a specific location can rise above others if external (or agglomeration) economies prevail. In terms of the discussion here, Arthur shows that a financial centre with a small, ‘accidental’ or historical advantage for a specific type of financial business attracts more banks to do that specific type of business, and this, in turn, makes the location even more attractive for other banks. Such increasing returns to scale favour a geographic ‘lock-in’, or making one location superior to others. With increasing returns, the starting point of this process is of crucial importance: The location that ‘naturally’ best suits the needs of companies is not necessarily the one that will become the leading financial centre. If the agglomeration economies outweigh the ‘natural’ location factors (clients, infrastructure, etc.), any location that just happens to initially attract more banks can end up as the predominant financial centre. Also in NEG models historical events are necessary to start any agglomeration or concentration process. In order to determine which circumstances actually triggered the emergence of a predominant financial centre, it is necessary to closely examine the early history of its development:

> **Hypothesis 2:** Small historical events after World War II determine the development of competing financial centres in Germany.

One major outcome is featured by most of the NEG models (Neary 2001), the ‘u-curve’ or ‘inverted u-curve’. The basic setting is as follows: There are two identical countries, each with two sectors, usually termed manufacturing and agriculture. In the case of high transportation costs – understood here in the broad sense communication costs (see Fujita/Krugman/Venables 1998, 98) – production of manufactured goods is divided equally between the two countries (right side of figure 1 below). Production has to stay close to the customers due to high transportation costs; no industrial concentration occurs. Thus, the figure is to be read from the right to the left. The gradual reduction of transportation costs leads to agglomeration: Since manufacturing firms use their output as each other’s input, it now pays off to be close to each other. However, wages rise in the region where the industry is located. As transport costs decline further, the wage effect becomes relatively more important and industry again is dispersing (see, e.g., Fujita/ Krugman/ Venables 1999, 256-259).

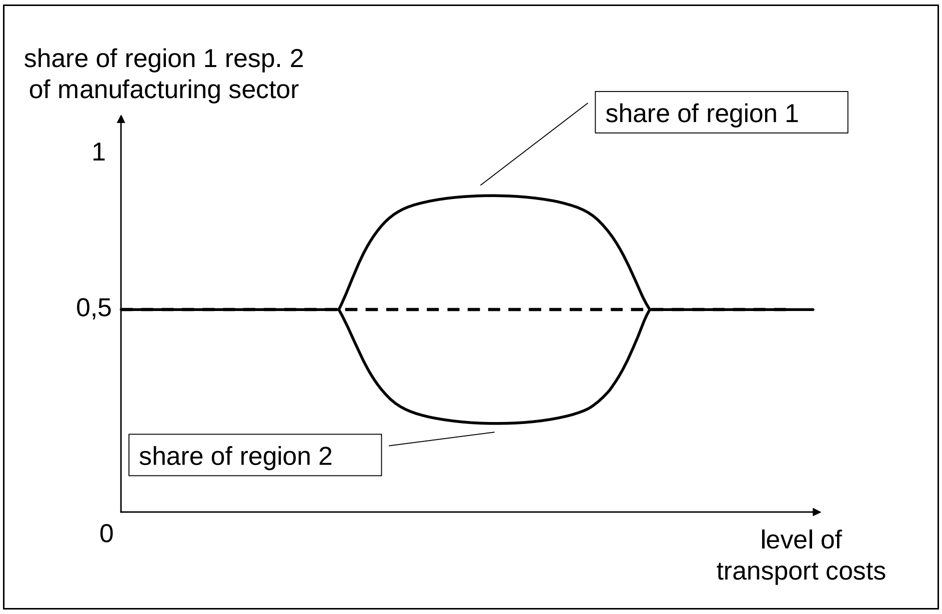

Figure 1: share of manufacturing sector in both regions depending on the level of transport costs
Source: Fujita / Krugman / Venables 1999, 257

This 'u'-shaped respectively inversed 'u'-shaped relationship between the level of agglomeration and transport costs is a fairly general phenomenon of the NEG (see Tabuchi and Thisse 2001, Tabuchi 1998, Puga 1999, Brülhart 1998, Junius 1996) and forms the basis for the third hypothesis. There will be, however, no formal estimation of the model's parameters as, e.g., in Brakman et al. (2006) or Pires (2006) for estimating the 'free-ness of trade' and the wage structure, respectively. The NEG model, or rather this class of models, does not lend itself easily to empirical tests for single industries: In the setting here there are more than just two opposing financial centres but only one industry; long-term data about wages are not available on a regional basis, and the 'transportation' costs are hard to translate into different financial products (see McCann 2005 for a discussion of the assumed 'iceberg'-transportation costs in NEG models). Therefore, we rather use the NEG to formulate an 'appreciative hypothesis' (see Nelson 1994) as guidance for research rather than to test any model specifications:

> **Hypothesis 3:** The concentration of financial actors exhibits an inverted ‘u’-shaped pattern in time, i.e. first an increasing concentration in one financial centre and than a dispersion of actors in space.

The NEG has received much criticism that is not replicated here (Martin and Sunley 1996; Martin 1999; see Boschma and Frenken 2006 for a recent overview). NEG models use linkages between firms as agglomeration factor – and not spillovers, as most of the literature on financial centres does – and ignore all others, mostly because the former are easy to model (Fujita et al. 1999, 5; see Ottaviano and Puga 1998; Martin 1999 and Neary 2001 for critique). Nevertheless a ‘u’-shape concentration is a testable hypothesis about the decline of financial centres – or any agglomeration – over time. Evolutionary approaches do not have a similar unambiguous prediction about the possible decline of a once successful agglomeration. To infer, however, from the finding of a ‘u’-shaped development that the mechanisms postulated by proponents of the New Economic Geography determine the developments of financial centres might be a wrong deductive conclusion. Instead we discuss the possibly changing nature of the agglomeration- and disagglomeration effects below.

4 Data

The presence of many banks at one place itself is not a confirmation of self-reinforcing mechanisms or path dependence. A path dependent process can be assumed when the locational choice of a bank depends on the presence of other banks. Hypothesis 1 is tested with interviews – taken from former research projects – with bankers in Frankfurt who were asked for their reasons to be located in the city. To analyze whether Frankfurt’s emergence as the pre-eminent location for foreign banks is determined by ‘small historical accidents’ that are almost per se not reflected in any indicators, we examine the historical context of Frankfurt’s development to test for hypothesis 2. This is done by reviewing recent literature on the German financial system, banks’ history as well as historical sources.

The main focus of this paper is on the ‘u’-shaped concentration pattern of foreign banks in Germany, so a closer look on this indicator is in order. The German financial system has since long been – and to a large extent still is – a bank-based system. Firm financing depends to large portion on loans from banks rather than on capital markets (Schmidt and Tyrell 2004). 60 percent of all banks belong to the co-operative sector (12 percent of domestic bank assets) and about 20 percent of the number of banks belongs to the savings banks sector (accounting for 35 percent of domestic bank assets). The private banking sector, of which foreign banks are a sub-group, consists of a mere 12 percent of all banks in Germany and holds about 30 percent of all domestic assets, the others being specialized banking institutions (Hackethal 2004). Legal and statutory restraints in the case of savings and co-operative banks and comparatively high sunk costs restrict the locational decisions of domestic banks in such a way that they are not likely to move. Therefore, the presence of foreign bank headquarters is regarded in most studies on the location of financial activity as one of the most reliable indicator. Of course, financial centres cannot be adequately captured with only one measure (see Porteous 1999 for an extensive list of potential indicators). Many other indicators, however, turned to be of less relevance with the advent of the new telecommunication technologies. For instance, the turnover of Deutsche Börse, the Frankfurt based main German stock exchange, is driven to more than 50 percent by participants from outside Germany via remote access. Most of them are located in London; it is at least questionable whether one can attribute this turnover to the financial centre Frankfurt. We acknowledge that our approach does not fully capture the development of different financial centres. Nevertheless, the focus here is on the location of foreign banks as such and the use of their location gives insight into the spatial evolution of Germany's financial system.

We use a hand collected database that builds on data from the Deutsche Bundesbank, especially the 'Verzeichnis der Kreditinstitute' (list of credit institutions), a register of banks that has been published every couple of years in the past and is now published regularly. The database includes the date of entry, location and exit of every foreign bank that has operated in Germany since World War II, according to country of origin and form of presence. The data starts in 1949 for subsidiaries and branches and in 1955 for the representative offices. The latest figures are available for 2006. Observations are made roughly every four years until the mid-1980's, and more frequent since then. The Bundesbank did not register foreign subsidiaries as foreign banks prior to 1996; therefore a number of other sources had to be consulted as well. These consist of sporadic surveys in the 'Zeitschrift für das gesamte Kreditwesen' (the journal for all credit institutions), reports from different banks' associations, other Bundesbank reports, and newspaper articles. There are minor deviations in the number of foreign banks listed by different sources (as well as by different Bundesbank sources) for a given year, most likely due to differing definitions of the term 'foreign bank'. These deviations are concentrated in the years before the 1980's and do not affect the results qualitatively. Financial institutions that are not fully licensed, such as mortgage banks, building and loan associations and investment trusts have been excluded, although the Bundesbank lists them as foreign 'financial institutions' since recently. Some clarifications regarding different forms of foreign banking establishments are in order. The database lists representative offices, branches and subsidiaries of fully licensed foreign banks. ‘Subsidiaries’, according to German law, are banks in which at least 50 percent of the capital belongs to foreign owners. ‘Branches’ of foreign banks are establishments that are legally dependant on foreign banks. Both are treated equally in the analysis. ‘Representative offices’ of foreign banks in Germany are not authorized to do any banking business. These predominantly small units (usually with a headcount of three to ten) serve primarily to facilitate contact between German clients and other banks resident in Frankfurt on the one hand and their respective headquarters on the other. Different legal establishments of the same bank are recorded as two entries, since they may be located in different cities. For instance, Citigroup today is located in Dusseldorf with its private clients operations and in Frankfurt with its investment banking business in two different legal entities and is therefore recorded twice. Each bank – regardless of the form of its presence – may have up to hundreds of offices which are not recorded.

5 Results

Traditionally there have been several significant financial centres in Germany, each with its own stock exchange, significant regional banks and other financial institutions (Klagge and Martin 2005). Frankfurt is the pre-eminent financial centre ranked as a ‘tier 2’ international financial centre after London and New York (Poon 2003). Today, 12 of the 30 largest German banks measured by balance sheet volume have their head offices in Frankfurt, another two are headquartered in Mainz and Wiesbaden, respectively. The Rhein-Main-region, therefore, has the highest concentration of major banks in Germany, with a share of more than 55 percent of the 30 largest banks’ balance sheet total. When only privately owned banks are taken into account – these do not have any locational restrictions – that share increases to 68 percent (source: Association of German Banks 2005, own calculations). Moreover, Frankfurt has the highest concentration of resident capital investment companies in Germany, with more than 52 percent of the reported companies. Foreign banks, although relatively small in terms of balance sheet volume, enjoy a general advantage with respect to activities that had previously been heavily regulated or underdeveloped in Germany. For instance, foreign banks’ market share in mergers and acquisitions advisory is consistently above 75 percent in the last years.

Agglomeration effects

The agglomeration of banks in Frankfurt could be brought about by external increasing returns to scale in financial centre development or by external advantages of Frankfurt. The latter could be its central location, the location of the Bundesbank, the airport, etc. Increasing returns to scale, however, would reflect in the other banks being the major location factor for banks. Grote (2002) reports the results of in-depth interviews conducted with top executives of Frankfurt's foreign banks. The bankers were asked why they are located in Frankfurt. The most important locational factors cited were directly associated with the size of the financial centre, namely the location of big German banks and the contacts to other bankers. Five additional factors cited – 'interbank payments', 'image', 'qualified staff', 'specific financial services' and 'the stock exchange' – are also related to the size of the financial centre. In short, banks are located in Frankfurt because other banks are too. This is exactly what a path dependent process with underlying increasing returns to scale would reflect. The high degree of spatial proximity among banks in Frankfurt's financial district lends additional support to the conclusion. Banks are not located next to the Bundesbank office but rather close to one another, despite that fact that Frankfurt's inner city rents are the highest in Germany (figure 2). Note that the European Central Bank is about to move out of the city centre, almost as far away as the Bundesbank once did, but in another direction.

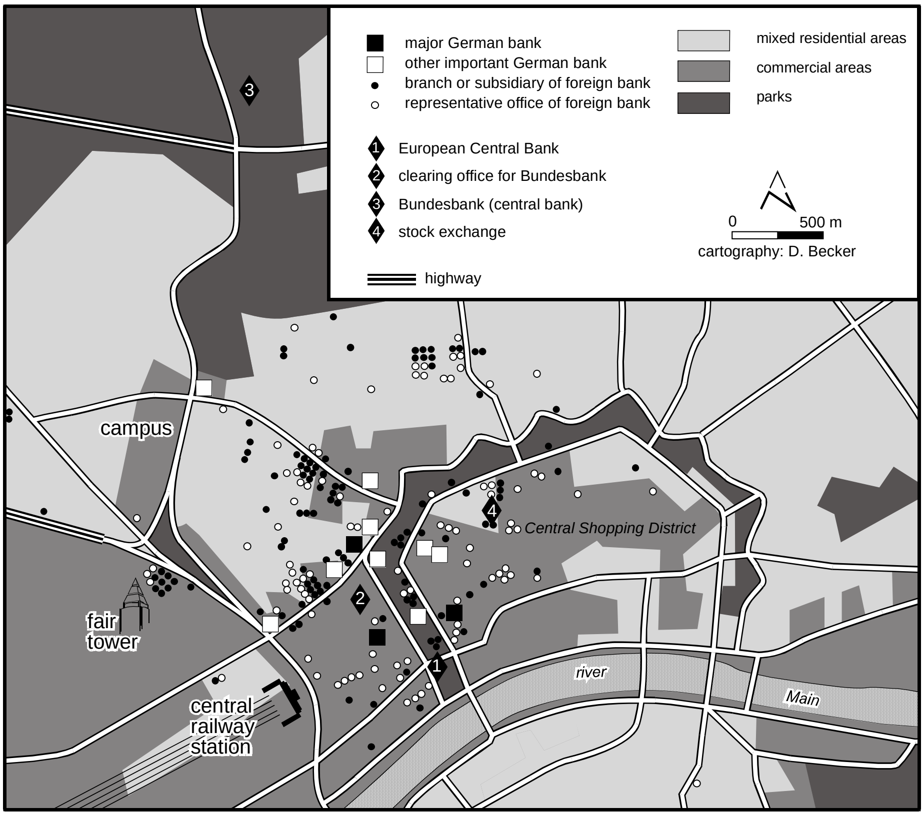

Figure 2: The spatial pattern of financial institutions in Frankfurt
Source: Grote (2002)

Banks' spatial proximity to the trading floor of the stock exchange does not hinder the increasing returns to scale argument as the stock exchange is not a gravitation point in and of itself. Rather its attraction is based on the many people doing business on the exchange, which in turn attract more traders, and so on. Furthermore, the trading floor is much less important than before; a couple of years ago Deutsche Börse has moved its headquarters to a suburb (not depicted on the map). In short, banks locate close to each other. The location of banks is in line with hypothesis that Frankfurt's position today is based on a path-dependent development.

When it all started: Small historical events

Before 1870, Frankfurt was the predominant German financial centre, but lost this position to Berlin for a variety of reasons (Harrschar-Ehrnborg 2000). Berlin served as Germany's main financial centre from the time it succeeded Frankfurt in this capacity until World War II. After the war, however, Berlin was unable to retain this role, due primarily to Soviet politics and the threat of Soviet invasion. In this context, the American and British governments decided to base the 'Bank deutscher Länder', which preceded the Bundesbank, in western Germany. Hamburg and Frankfurt were promising candidates, as were, to a lesser degree, Cologne and Dusseldorf. After the war, much was in favour of Hamburg: the largest non-Berlin offices of many banks were located in Hamburg (one major German bank – the Commerzbank – even had its head office in Hamburg); parts of the Reichsbank have been moved to Hamburg before; the turnover volume of its stock exchange was greater than that of all other German stock exchanges combined; most foreign payments were cleared in Hamburg and on top it had suffered relatively less destruction than other cities during the war and so could provide office space necessary for banking (Holtfrerich 1999; see Brakman/Garretsen/Schramm 2004).

At the same time Dusseldorf, with its large industrial hinterland ('Ruhrgebiet'), controlled a major share in domestic credit activities (Wolf 1998a). In 1948 the three major German banks – Deutsche Bank, Dresdner Bank and Commerzbank – had been split into ten separate banks, one in each state ('Land'). In 1950 the Dusseldorf division of Deutsche Bank controlled almost 40 percent of the balance-sheet total of all Deutsche Bank Group, in contrast to the mere 9 percent controlled by the Frankfurt division. For the balance sheets of the split-banks of the three big German banks that were located in the competing centres, the following picture emerges:

	Dusseldorf	Hamburg	Frankfurt	Sum of all split-banks of each group
Deutsche Bank	891	206	213	2274
Dresdner Bank	449	208	249	1357
Commerzbank	450	134	68	892
Sum	1790	548	530	4523

Table 1: Balance sheets of split-up banks of former German large banks at 31st May 1950 (in million DM)
Source: Wolf 1998a

Dusseldorf occupied a similar predominant position in the savings banks' sector (Wolf 1998b). However, due to special interests of the allied forces in the industrial area Ruhrgebiet, it was put under special administration (the so-called 'Ruhrstatut'). The allied forces were still debating whether the mighty steel industry should be moved out of Germany; this debilitated Dusseldorf, the financial centre of the Ruhrgebiet, to a great extent (see Hansmeyer 1998). Frankfurt, with its central location in West Germany, its large airport and – most significantly – the headquarters of the American military government, was chosen as the location for the German Central Bank in 1948. The decision was taken against the British and French suggestion, Hamburg. The final motives remain unclear (Holtfrerich 1999), but it seems reasonable to assume that the US forces wanted to have the central bank in close vicinity in their sovereign territory. Other special state-owned banks were set up in Frankfurt after 1948 as well, including banks for agricultural and housing financing. Of these, the most important was the Bank for Reconstruction and Development ('Kreditanstalt für Wiederaufbau'), which distributed the funds of the Marshall plan. These primarily political decisions were the 'historical accidents' that paved the way for Frankfurt's evolution as Germany's predominant financial centre.

In subsequent years, the parent organization of Germany's credit unions, and some other private banks from Berlin relocated to Frankfurt, while the parent organization of Germany's savings banks based itself in Dusseldorf in 1950, only to relocate to Frankfurt in 1965 (Holtfrerich 1999). In 1952, the three major banks were allowed to combine their ten divisions into three banks, and in 1957 a total recentralization was permitted. Dresdner and Deutsche Bank immediately located most of their headquarter functions in Frankfurt, while

Commerzbank – with its headquarters in Hamburg (!) – moved to Dusseldorf in 1958. Beginning in the 1970's, however, Commerzbank gradually shifted its headquarter functions to Frankfurt. The Union-owned Bank ('Bank für Gemeinwirtschaft') also moved to Frankfurt in 1958. The primary attraction in Frankfurt at that time was the Central Bank. Banks that refunded themselves with funds from the money market had to be close to the institution with the power to alter market conditions and provide liquidity. Written messages from banks to the Central Bank – and vice versa – had to be transported by messenger, and the payment system relied heavily on paper exchange. These factors all made it inevitable that major German banks would headquarter themselves in Frankfurt (Holtfrerich 1999). This explanation is supported by the fact that institutions that did not need daily contact with the money market (primarily mortgage banks) did not relocate to Frankfurt. In fact, only one of the 15 largest mortgage banks was located in Frankfurt in 1958 (Wolf 1998b).

Concentration of foreign banks

Figure 4 below displays the pre-dominance of the financial centre Hamburg after World War II, with up to 50 percent of foreign banks located there (although on a low total level). For the sake of clarity, only the most important locations are displayed in the following graphs, i.e. Hamburg, Frankfurt, Dusseldorf and Cologne. The share of the total number of foreign banks in Germany per city is shown on the left ordinate. Additionally, the number of business-conducting foreign banks (i.e., branches and subsidiaries, but no representative offices) in Germany is measured on the right vertical axis (figure 3).

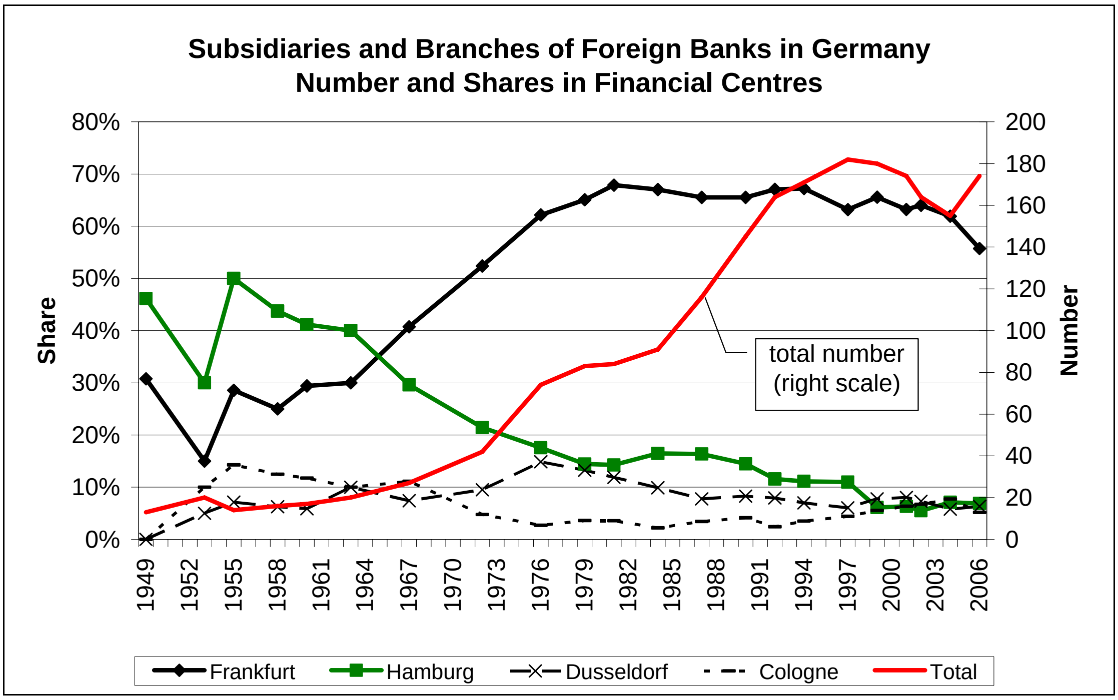

Figure 3: Branches and subsidiaries of foreign banks in Germany
(shares per financial centre and total number)
Source: own database

The break in recorded foreign banking presence in the largest German centres in 1953 resulted from the rise of ‘other locations’ at the time. Bank deutscher Länder’s statistics from that year classify the numerous, dispersed special banks of the American military as foreign banks as well. In the early 1960’s then many banks with headquarters throughout Germany either established offices in Frankfurt or acquired Frankfurt-based privately owned banks, primarily in order to do business with Frankfurt’s stock exchange (Der Volkswirt 1968). In this way, Frankfurt established itself as the most attractive financial centre for domestic banks; subsequently, it also attracted the majority of foreign banks entering Germany. Since the end of the 1960’s, the majority of foreign banks entering Germany have based themselves in Frankfurt, after receiving treatment similar to domestic banks with the implementation of the Banking Law (‘Kreditwesengesetz’) in 1962. Between 1960 and 1971, the market share of foreign banks in Germany rose fourfold, to about 4 percent, and, by the end of this period, the world’s 15 largest banks (60 percent of which were American) had offices in Germany. In those days, the primary reason for establishing a presence in Germany was to advise different domestic firms as they went abroad (Kindleberger 1983).

International liquidity (the ‘petrodollars’) began to rise sharply in the 1970’s; many foreign banks came to Frankfurt in part because it had the best access to the German payment settlement system, but also in order to do business on Frankfurt's stock exchange. By the end of this period, Frankfurt had become the home of about two-thirds of all the foreign bank branches and subsidiaries in Germany. This pattern has been remarkably stable: while the number of business-conducting units of foreign banks rose from approximately 40 to 180 between 1973 and 2000, Frankfurt's market share has remained more or less unchanged (Figure 4). The graph displays the fact that Dusseldorf did not play a role as a location for foreign banks after WWII. Only in the 1970's the city with its large Japanese community gained prominence for Japanese banks, but is not relevant in terms of foreign banks' presence today. Starting in the mid-1990's and accelerating since 2003, however, Frankfurt's share in the number of subsidiaries and branches of foreign banks in Germany is declining. In 2006 the share drops below 60 percent for the first time since 1973 – although the total number of foreign banks in Germany is rising again. This is not matched by any gain of Hamburg, Cologne, Dusseldorf or any other centre not depicted above.

The representative offices show a different picture. The emerging importance of Frankfurt is displayed early by the location behaviour of representative offices – which are indeed used in the literature as an early indicator (figure 4). Since the recording of Bundesbank started in 1955 almost three quarters of representative offices are located in Frankfurt – also very constant up to the late eighties, even when the total number changes dramatically.

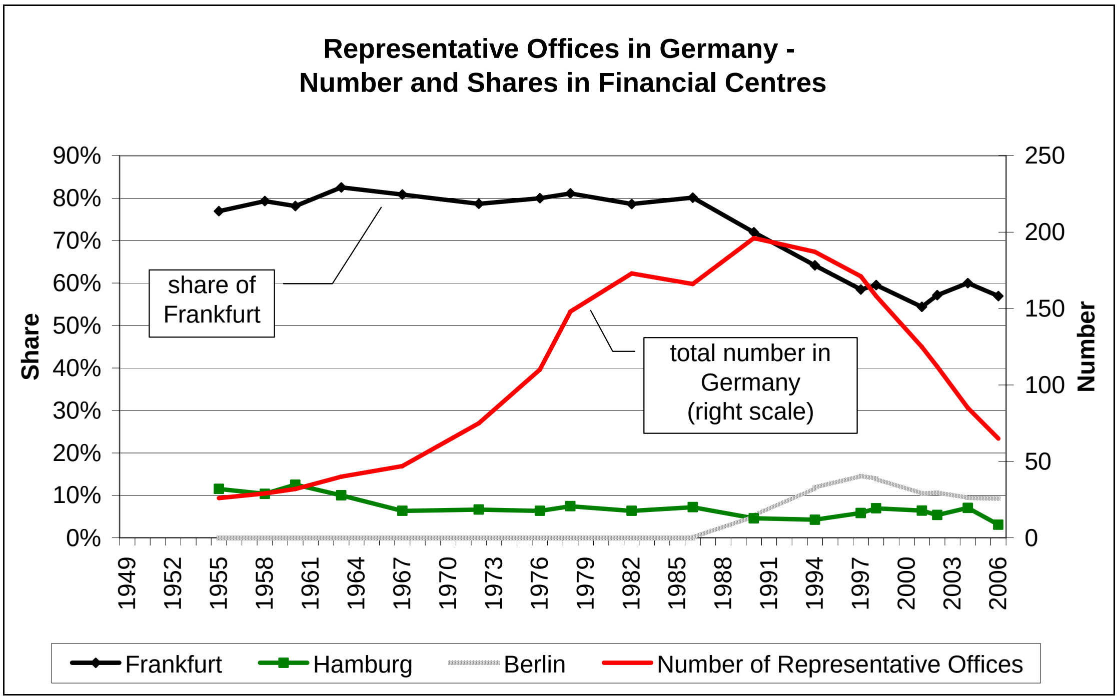

Figure 4: Representative offices
Source: own database

In contrast to the development in branches and subsidiaries, Frankfurt's share of German representative offices declined markedly during the 1990's. At that time it was primarily due to the new relevance of Berlin: The noticeable amount of representative offices – up to 25 in the mid nineties – have been the legacy of East Berlin as the former capital of the German Democratic Republic. Most of these offices are from Eastern European countries, especially from Russia. This actually raised some fears in Frankfurt at that time about Berlin as a coming rival, but a switch of banks' locations did not materialize. Today Berlin does not play a role at all as a location for foreign branches and subsidiaries, and the number of representative offices came down to six. Nevertheless, Frankfurt's share in representative offices is declining further, mostly due to the fact that Frankfurt lost relatively more than other locations in the downsizing of the representative offices' presence in Germany.

To examine whether Frankfurt's attractiveness for foreign banks in Germany follows a 'u'-shape we construct an index to incorporate the different forms of foreign banks' presence in Germany into one graph (figure 5). In this index, each representative office is weighted with one and each branch and each subsidiary is weighted with three. This weighting reflects their different functions, headcount and economic weight. Our results are robust with regard to other weightings.

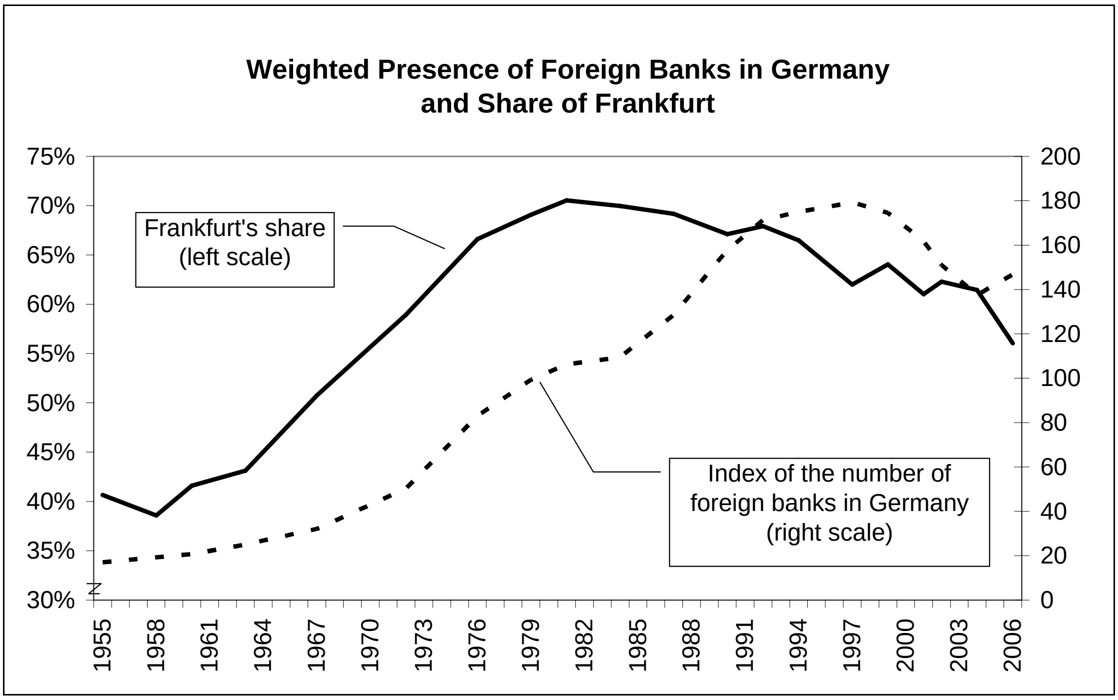

Figure 5: Weighted presence of foreign banks
Source: own database

The bold line describes the development of Frankfurt’s share of foreign banks in Germany. Indeed, there is an increasing concentration on Frankfurt up to the beginning of the 1980’s and after that a – more or less – steady decline. The concentration of foreign banks in Frankfurt follows an inverted ‘u’-shape, as predicted by NEG models. Remarkably, this is not directly correlated with the decreasing number of foreign banks – also weighted – in Germany (dotted line). The set up of the European Central Bank in Frankfurt was enthusiastically greeted by many local politicians for giving a new impetus to the future growth of the financial centre. Apart from a small blip though, nothing has happened in terms of locations of foreign banks. In retrospect, this is no surprise: The most important European central bank by far has long been in Frankfurt anyway – the Deutsche Bundesbank. Banks that want to be close to where European monetary policy is decided had to be in Frankfurt long since.

As a robustness check and to clarify whether the decrease in concentration in Frankfurt is due to a concentration of activities in another financial centre in Germany or to a general spatial dispersion of foreign banks’ activities, a ‘Locational Herfindahl Index (LHI)’ is constructed. The LHI measures the sum of the squared shares of all foreign banks’ locations in Germany:

$$LHI_j = \sum_{i=1}^{n} s_{i,j}^2$$

with $\boldsymbol{s_{i,j}}$ as location $\boldsymbol{i}$’s share of foreign banks’ total presence in Germany in year $\boldsymbol{j}$. The LHI can take any value from 0 (no concentration) to 1 (all banks in one place). The ‘other’ locations have been disaggregated for this analysis. Three time series are displayed: The LHI for representative offices, the LHI for branches and subsidiaries and the LHI composite index that is constructed as before. The development of foreign banks’ LHI displays a similar picture as the development of the shares of Frankfurt (figure 6).

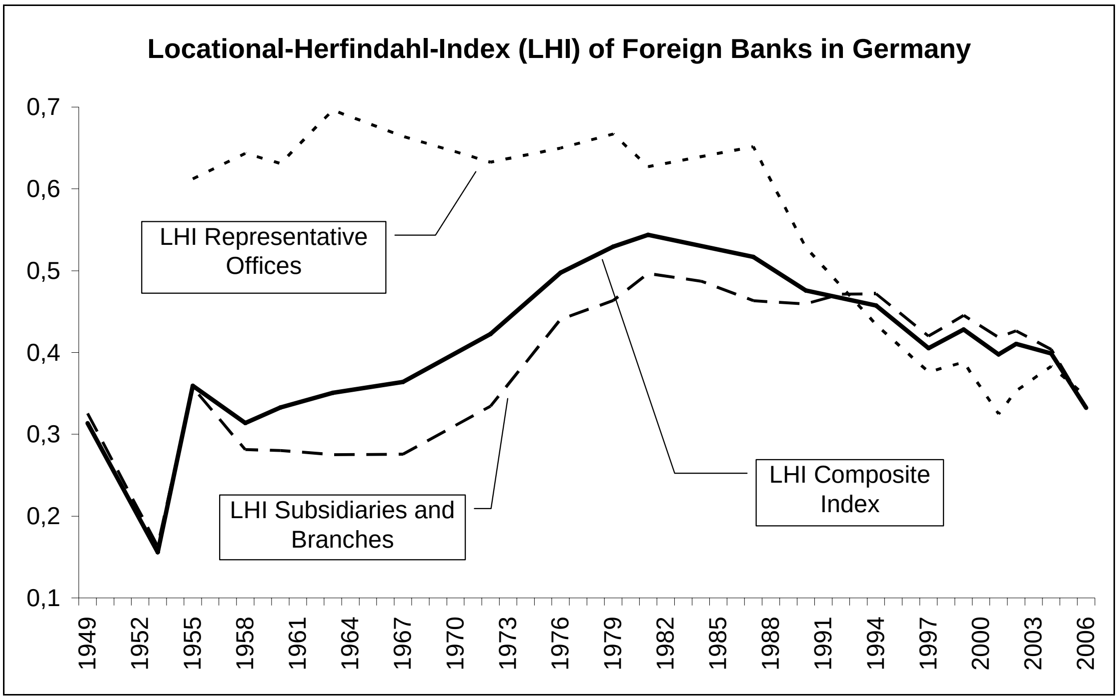

Figure 6: Locational Herfindahl Index of foreign banks
Source: own calculations

Again, there is a manifest ‘u’-shape of the concentration in time, as predicted by the New Economic Geography. As all indicators display roughly the same development, the weights associated with the different forms of foreign banks’ presence do not influence the overall result. Frankfurt’s historically low share of foreign banks today cannot be explained by the raise of one other centre, but is indeed due to a dispersion of activities within Germany. Starting in the 1950’s, foreign banks first tended to gather more and more in one place, i.e. Frankfurt. That development peaked in the beginning of the 80’s. As suggested, representative offices are an early indicator for the decreasing concentration in Frankfurt; subsidiaries and branches of foreign banks started to spread out more evenly across Germany later in the 1980’s.

The locational pattern of foreign banks in Germany has been influenced by three broad developments: First, the absolute number of internationally active banks decreased worldwide, especially in the nineties. Mergers between banks (especially between US-banks) lead to a reduction of the number of banks in Frankfurt. That does not, however, decrease the importance of Frankfurt as a financial centre. But some Japanese banks, which had been located in Frankfurt, cancelled their international business altogether in the aftermath of the Japanese financial crisis; the same holds true for Korean banks later on. Also many banks, again Japanese and Korean ones but also others, did concentrate their

European business to a large extent in London. These developments have hit Frankfurt more than other German financial centres.

Second, the dispersion of foreign banks within Germany today is driven by regional business which is a symptom of stronger economic integration in Europe: Today, out of the eighteen banks from Austria thirteen are located in the southern part of Germany and five in Frankfurt. Eight Dutch banks are located in the western part of Germany, as are three out of six Belgian banks; Danish banks are exclusively located in the northern part of Germany, mostly in Hamburg, where also the only Norwegian bank resides. So, in parallel to the declining share of Frankfurt there is at least anecdotal evidence for regionalization of banking activities within Germany. This is in line with Wojcik (2002), who finds similar pattern for foreign shareholdings of German companies:

> 'The Dutch, Belgian and Swedish holders controlled companies located mainly in the north, including Berlin. The French, Austrian and Swiss entities held control mostly in the south, with Switzerland as the major source of foreign control in Baden-Württemberg, and Austria playing a similar role in Bavaria' (Wojcik 2002, 887).

The strong manifestations of regional cross-country links are mirrored by the location of foreign banks: Spatial proximity seems again to be important.

Third, these trends are to a large part contingent on the development of sophisticated information and telecommunication technologies. With the installation of computer-based trading, settlement and payment systems with remote access banks have been freed from the need to be present close to the major stock exchange, i.e. in Frankfurt (see Lo and Grote 2002). The benefits of a large market, liquidity and low cost of infrastructure, do not require an on-site presence any more. The market can be accessed from any location anywhere in the world; the same holds true for access to most Euro payment systems within Europe. Thus, technology has decreased the need for on-site presence in many businesses, and with that a couple of benefits of being located in Frankfurt. That means that other places become relatively more beneficial for banks. They could, e.g. concentrate their business in London, or migrate closer towards their customers, as exemplified by the recent regional distribution of foreign banks in Germany. Grote (2002) reports that Japanese banks actually mention these technologies as enabling their concentration of activities in London. While clearly relocation to London is not driven by the search for lower wages or rents – as suggested by the New Economic Geography – the new technologies in banking make it possible to interact from a distance and can be interpreted as a lowering of 'transportation' costs.

Alonso-Villar (2005) shows that transportation costs that decline asymmetrically between upstream and downstream firms on the one hand and between customers and firms on the other hand, can lead to the results described above:

> 'Thus, if transport costs are significant, proximity to final demand represents the factor that determines spatial configuration and, therefore, the corresponding dispersion of economic activity, brought about by the dispersion of the population itself. For intermediate transport costs, vertical linkages make up spatial distribution, leading to the concentration of production' (Alonso-Villar 2005).

Our observations about a concentration of banking activities in London and a dispersion of activities within Germany are in line with declining 'transportation' costs in inter-firm linkages such as participation in trading and payment systems on the one hand and relatively constant costs in face-to-face interactions on the other. These interactions take place between customers and banks – which leads to dispersion in Germany – and between employees of the same bank which leads to a concentration in one place. Since London as the by far largest financial centre in Europe has many other advantages, banks concentrate their business there.

6 Conclusion

Foreign banks' attraction to the financial centre Frankfurt within Germany varies over time. From 1949 to 2006 banks' spatial distribution in Germany went from relative dispersion to a high degree of concentration in Frankfurt and to dispersion again. Thus, the concentration of foreign banks in Germany displays a significant 'u'-shape development. This is in line with the prediction of new economic geography models that lower transportation costs lead to agglomeration first and to dispersion later. The paper is one of the first to document a 'u'-shaped locational development of a single industry. A small historical accident, the decision to locate the central bank in Frankfurt after World War II, influences the result of these processes to a great extent: Although a counterfactual speculation, it is probably fair to say that if Hamburg would have been chosen to host the central bank there would be no international financial centre Frankfurt today. Frankfurt gained its predominant position as a financial centre only in the 1960's after a competition between several cities in a path-dependent process. The locations of foreign banks in Germany are especially suited as an indicator for tracking financial centre development since most other German banks cannot move due to their status as local savings- or co-operative banks. Frankfurt's share in foreign banks' location is in decline since a couple of years. Two major trends are responsible for this: First, foreign banks have shifted offices to London and, second, more foreign banks do locate closer to their customers – shown by banks from southern countries that locate predominantly in southern Germany, banks from northern countries predominantly in the northern part of Germany, and so on. Berlin, which was gaining share in foreign banks' location only briefly after the reunification, is not a major driver of the declining importance of Frankfurt. Rather, foreign banks spread out to many other locations in Germany, as shown by the decrease in the Locational Herfindahl Index of bank concentration.

Although the result – an (inverted) 'u'-shape of foreign banks' concentration in Germany over time – is predicted by a wealth of NEG models, we cannot infer that the suggested mechanisms actually are responsible for that development. Rather, face-to-face contacts to customers and to other bankers seem to drive foreign banks' locational behaviour to a large extent. Over time, the reasons for locating in Frankfurt have changed. Many aspects of NEG models cannot be applied to single industry studies. Therefore we take the NEG hypothesis as a guideline for research rather than to trying to estimate the parameters of a specific model. Instead of high wages that drive banks out of the centre with further lowering transportation costs, it seems as if face-to-face contacts to clients matter more, as is shown by the concentration of banks in London and the localization of foreign banks close to their respective home countries in Germany.

Frankfurt, as other financial centres in Europe, is under attack from two trends: Foreign banks either concentrate business in London, or disperse into the country (see Engelen, forthcoming, for related findings in an analysis of Amsterdam's situation). For Frankfurt both developments spell a declining share of financial activities within Germany as well as within Europe. Note that this is not a statement on the development of any total number of banks on Frankfurt, which could very well increase despite these developments. A complete dispersion of activities in Germany is unlikely, since the traditional agglomeration factors infrastructure, labour market and spillovers still exist and not all business is able to be relocated to another country (Grote et al. 2002). Second tier European financial centres loose in relative importance for the provision of financial services. This does not spell the end of those centres, since there is a range of products for which local coordination between banks and within banks as well as local knowledge is key, as for national investment banking activities (see Wojcik 2005). But we might have seen the peak in the development of those second tier financial centres in Europe already.

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