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Frankfurt – An Emerging International Financial Centre

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1 Introduction

1.1 A first glance at the financial centre Frankfurt

Characterised as “the mighty capital of the eurozone” (Sassen 1999, 83), Frankfurt is said to be a rising world city primarily due to its financial centre. This is reflected in the use of such common catchphrases as „Bankfurt“ and „Mainhattan“ for the city, as well as its reference in scientific publications. As Ronneberger and Keil (1995, 305) state, for instance, „a service economy [...] mastered by the finance sector forms the basis for the continuing integration of Frankfurt into the international market.“

Frankfurt is the most important German as well as European financial centres. Thirteen of the 30 largest German banks and about two thirds of Germany’s foreign banks are seated here. Frankfurt’s stock exchange (ranked 4th in the world) is by far the biggest in Germany with a turnover-share of more than 80%. Its derivatives exchange (Eurex) aims to become the biggest in the world. As the host city for the European Central Bank, it is also the centre of European monetary policy.

As a major node in the global financial network today, Frankfurt’s specific functions within this network will be investigated in this paper. Unlike most other predominant national financial centres, Frankfurt has not continuously held this position in Germany’s since the middle ages: It re-gained it’s position from Berlin only after World War II. In contrast to the static “phenomenon” financial centre – which is well covered in the literature – “emergence and development” of financial centres is not as well understood. The study of the development of the financial centre Frankfurt after World War II gives insights into the dynamics of the self-reinforcing mechanisms within financial centres; the second topic covered in the paper.

The paper is organised as follows: the remainder of this chapter looks at the method used in this study and the theory of financial centres with an emphasis on the basic approaches to the emergence of financial centres. After that it is asked whether Frankfurt meets the basic requirements for the concept of path dependence, i.e. that there are self-reinforcing mechanisms. After a positive answer to that, the development of Frankfurt as a financial centre is discussed as well as its role as a node in the world (financial) system today in chapter two. Chapter three provides some more or less speculative remarks about Frankfurt’s future; the last chapter briefly summarises the findings of the paper.

1.2 Method

In order to get a thorough picture of the development of the financial centre Frankfurt, the relocation of financial institutions (mainly banks, both foreign and domestic) to Frankfurt since World War II are surveyed. The „nucleus“ of the financial centre Frankfurt is made up of the major German banks: Literature published in recent years on German financial institutions gives a picture of their motives for placing their headquarters in Frankfurt during the 1950s. However, for the international relevance of Frankfurt, fluctuation in the number of foreign banks is the main indicator. Additionally, foreign banks are not restricted in their choice of location as are some domestic banks (e.g. savings banks), so they give a good picture of the relative importance of domestic financial centres, too. Bundesbank data (the – nowadays – yearly published register of banks, “Verzeichnis der Kreditinstitute”) is used to construct a database in which entry date, location, moves and exit of every foreign bank – by country of origin and form of presence – in Germany since World War II is recorded. The database consists of representative offices, branches and subsidiaries of foreign, fully licensed banks. Excluded are financial institutes that are not fully licensed, such as mortgage banks, building and loan associations and investment trusts. In spite of some data shortcomings, part of these institutions shows a somewhat different location behaviour that is investigated below. Every fully licensed foreign bank that had (or still has) a presence in Germany since World War II is recorded by name, nationality, form of presence, location and number of offices (when available) for every year.

A bank that has different forms of presence in Germany has a separate entry for each form. Each bank – no matter which form of presence – can have several (up to hundreds) offices. These are excluded and only the head offices are recorded as separate banks, mainly due to the lack of data. Different banks that are represented by one representative office in Germany are listed as different banks, whereas “umbrella“-representative offices that cover many banks abroad (often co-operatives) are registered only as one bank.

Since the Bundesbank did not register foreign subsidiaries as foreign banks before 1996, various other sources had to be used in addition. However, none of these surveys were conducted regularly, so there are small deviations in the number of recorded foreign banks in the different sources (also within different sources of the Bundesbank) – most likely due to varying definitions of what a foreign bank is – which does not affect the overall trend.

However, the recording of movements to Frankfurt does not reveal the motivation of banks to come to Frankfurt. Therefore, in-depth-interviews with a variety of board members of foreign banks in Frankfurt have been used to investigate strategies as well, with stress upon the decision making processes concerning the location of foreign banks.

37 interviews were conducted with foreign banks located in Frankfurt in spring 1998. These interviews represent 44 of the 242 banks resident in Frankfurt in 1998, since on the one hand some foreign banks have several establishments, often in personal union (for example one subsidiary and a representative office) and on the other hand, sometimes several banks are represented by one representative office. The interviewees were top executives of the respective establishments in Frankfurt – mostly board members – and have been interviewed on the basis of conversation guidelines.

The sample of interviewed banks should reflect as representatively as possible the totality of foreign financial institutes resident in Frankfurt, namely according to geographic origin, size, business fields and form of the establishment. Information on the sample of interviewed banks is given in Grote 1998.

Some clarifications on the different forms of banking establishments are in order: *Subsidiaries*, according to German law, are banks in which 50% or more of the capital belongs to foreign owners. *Branches* of foreign banks are legally dependant establishments of foreign banks. The foreign banks – both branches and subsidiaries – partially maintain several offices in Germany. *Representation offices* of foreign banks in Germany are not authorised to do any banking business. These usually small units (with a staff of three to twenty persons) are mainly used for contacts between German clients or other banks resident in Frankfurt and their respective headquarters. Representative offices focus on private customers, for example procuring funds or helping with international transfers.

The actual business-conducting establishments are the branches and the subsidiaries of foreign banks. They will not be handled in a separate manner since the legal form hardly has effects on their kind of business. In order to bypass the relatively severe German equity capital rules some banks have branches parallel to their subsidiaries. Nevertheless two establishments of the same bank are counted as two entries since they can be located in different cities. As described in the literature, the business conducting establishments of foreign banks will be used as a main indicator for the importance of a financial centre in this paper as well.

1.3 Financial centres in theory

Financial centres are among the most visible agglomerations of firms. Since the financial sector does not need natural resources for the production process, these concentrations of activity in certain places is a puzzle which has to be explained. Airports, train stations and other infrastructure which are often considered to be important location factors seldom trigger the existence of financial centres but rather grow with their importance.

In general, economies of scale – both internal and external – are seen as the main driving force for the emergence and maintenance of financial centres. Internal economies of scale mean that individual firms gain from concentrating their activities in one place, whereas external economies of scale (introduced by Marshall as early as in 1890) make it profitable for financial firms to locate their activities at the same place as other banks do. Most theoretical articles on financial centres examine the factors that favour the agglomeration of players in the financial industry; some recent literature is briefly reviewed below.

While this literature is good at explaining the phenomenon, i.e. why there are financial centres at all, two questions are left open: First, how financial centres emerge in specific locations and second, how certain financial centres become pre-dominant over time. After Kindleberger 's leading paper (1974), very few articles have been written on the development of financial centres, just recently Porteous (1999) has introduced the notion of "path dependence" in financial centre literature. This strand will be examined in more detail.

1.3.1 Phenomenon[1]

Financial centres, like other agglomerations, are considered to be the outcome of both centripetal and centrifugal forces (see Krugman 1998). Looking at the ongoing centralisation of financial activities (Sassen 1999), centrifugal forces seem to be of minor importance. Gehrig (1995) even states that the commonly asked question of why economic activity is concentrated only in a few places actually has to be asked in reverse in financial literature: why is not all activity concentrated in one place?

However, localised knowledge about customers that is not accessible in a central financial centre is considered to be the main centrifugal force in the financial sector.

[1] This part draws in part on Grote/Harrschar-Ehrnborg/Lo 1999.

Ter Hart and Piersma (1990) focus on the determinants for physical, or spatial proximity in the financial sector with respect to the requirements of financial transactions: intensity of face-to-face-contacts, importance of rapidity or intensity of contact, scale of the transaction and acquaintance with the other party. They also give a list of banking transactions ranked by their sensitivity to spatial proximity. The more complex and the closer to the customer the transactions are, the more spatial proximity to the – presumably dispersed – customers is needed and the less concentrated financial activities will be.

Clark and O'Connor (1997) chose a similar approach with a more exhaustive terminology. They divide financial products into three categories, i.e. transparent, translucent and opaque, mainly by looking at the kind and specificity of information that is required to trade these products. The more localised (tacit) knowledge that is needed for the handling of the product, the less concentrated financial activities will be. Opaque products will be traded in sub-national centres, translucent products mostly in national centres and transparent products in the global financial centres.

From a dynamic point of view this leads to the conclusion that – ceteris paribus – the more independent products become of specific localised knowledge, i.e. the more they are standardised, the more concentration of financial activity can occur.

The underlying assumption in these statements is that there are external economies of scale in the financial sector, which are indeed subjects of many papers on financial centres. By extending the classical Marshallian externalities and adopting them to financial centres, Porteous (1999) provides a fairly exhaustive list of external economies. He mentions labour market externalities, intermediate services, technological spillovers, informational spillovers and socio-institutional and cultural factors as specific agglomeration economies in the financial sector.

The advent of new information and communication technology as a main force in the financial sector has ambiguous effects on financial centres: It allows for concentration of activities and also for their increasing mobility (O'Brien 1992; Grote/Harrschar-Ehrnborg/Lo 1999). Standardised transactions – that need only very little interaction between financial actors, e.g. transaction processing – can be concentrated in one place and then shifted to any location. Often these activities yield only small revenues so that they look for peripheral places (Walter 1998, see also Lee/Schmidt-Marwede 1993). Another recent example is stock exchange trading which is examined in more detail below.

In his summarising paper Thrift (1994) forcefully stresses the argument that in spite of new communication technologies physical proximity to other firms is of crucial importance in 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.

The interplay between centrifugal and centripetal forces leads to the observed hierarchy of financial centres, both on a domestic as well as an international level (Gehrig 1998, see also Krugman 1996 for a general discussion on this pattern). However, neither the development path of this pattern nor the evolution of the respective pre-dominant national financial centres is sufficiently explained by the above-mentioned literature.

1.3.2 Emergence and Development

To get a comprehensive picture of the emergence and development of financial centres an understanding of the dynamic interplay between external economies of scale and centrifugal forces is necessary. Not much research has been done in that direction. Some studies – pioneered by Reed (1981) – isolate the macroeconomic factors that determine the country of origin of an international financial centre. For instance, Goldberg/Helsley/Levi (1988, 86) found "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" to be important variables that influence the emergence of an international financial centre.

However, while these studies help in understanding which country will have an internationally important financial centre, they do not tell much about the dynamics of the development. Also, the question of how a specific city becomes the leading financial centre in a country is merely touched upon by the literature, notwithstanding the studies dealing with the development of a specific city over time, such as Smith (1984) and Economists Advisory Group (1984).

It is Kindleberger's (1974) often cited „The Formation of Financial Centers: A Study in Comparative Economic History", that addresses this question. He describes the development of the leading financial centres in several countries, thereby stressing the gradual movements of banks into these centres. These are creating – in "an evolutionary and time-consuming process" (Kindleberger 1974, 67) – economies of scale, that very strongly hold banks and other financial institutions in a chosen location.

External economies of scale are self-reinforcing: The more financial actors are located in one place, the more attractive this place becomes for other financial actors. In the literature, diseconomies of scale, such as increased competition, higher wages, congestion, etc. are considered to be of minor importance in the financial sector. So, increasing returns to scale plays a major role in the development of financial centres.

This dynamic process, dubbed “cumulative causation” by Davis (1990), is widely accepted in financial centre theory but rarely analysed with respect to competition between financial centres. First in 1999 was the notion of “path dependence” introduced by Porteous as a key concept for the process described by Kindleberger in the financial centre discussion, namely to handle increasing returns to scale. Porteous refers to the work of Paul David and Brian Arthur who invented and elaborated on that concept. “Processes that are [...] unable to shake free of their history, are said to yield path dependent outcomes” (David 1997, 13).

Arthur (1994) delivers a path dependence model that shows how a specific location could become superior to others if external (or agglomeration) economies prevail. Transferred to the business of interest here, it shows: Financial centres that have a small advantage for financial business of a specific kind are attracting more banks to do that specific type of business there, which makes it even more attractive for other banks, and so forth. These increasing returns to scale favour a geographic “lock-in”, i.e. making one location superior to the others. In this model, only new firms come in and are not allowed to move once they have chosen their location.

With increasing returns, the point of departure of this process is of crucial importance: Not always the location that best suits the needs of the firms“naturally” becomes the leading financial centre. If the agglomeration economies outweigh the “natural” location factors (which could be clients, infrastructure, etc.), any location that just happened to attract relatively more banks at the beginning could end as the pre-dominant financial centre.

The small advantages in the beginning of that process are sometimes generated by “small historical accidents”, which means that they are not necessarily recognisable as advantages at that time. In order to find out which circumstances have triggered the emergence of a pre-dominant financial centre, a close look at the early history of its development is essential.

This is one of the basic differences between the approach used in the paper and the “Krugman-style” approach to agglomerations, i.e. the “New Economic Geography”. Instead of taking the small historical accidents as given, this paper puts some stress on the circumstances of Frankfurt's emergence after World War II. New Economic Geography models so far have some other features that make them unsuitable for applying them without modification of the financial industry. First, these are general equilibrium models that are an important tool in explaining urbanisation effects, but are too rough to explain low-scale localisation effects (see Ottaviano/Puga 1998). Also, this strand of literature relies heavily on the variation of transport costs to explain the emergence of agglomerations and is far more formalised (see Fujita/Krugman/Venables 1999 for an excellent overview). Formalisation would require looking at a very limited range of variables and watching them over time.

Yet, financial centres are very dynamic and difficult to define objects: First, it is not clear what a financial centre actually is. Most authors have their own definition which is often nicely as "you know one when you see one". Second, the definition clearly changes over time. The importance of stock exchanges has increased dramatically in the last decades, derivatives exchanges came into being, currencies faded away, etc. Therefore, third, it is likely that the reasons why financial actors cluster together change over time as well, which is what this paper is about and which is not a common feature of New Economic Geography models. Nevertheless, the basic concept of the New Economic Geography – i.e., positive feedback or increasing returns to scale – is used in this paper.

The dynamics of the low-scale localisation effects that take place in the financial sector have to be revealed by a case study: Only by analysing the development – and the respective competitive situation – of a financial centre over time can the changing agglomeration effects and their interactions be examined. This could give some insight on the mechanisms behind financial centre formation and also clues concerning further developments in the financial sector.

For several reasons, the financial centre Frankfurt is a good place to consider. It was not the pre-dominant financial centre in Germany since the "beginning of history", as it is the case in other countries. Before World War II, Berlin had had this position, and afterwards it was by no means clear which city would become its successor. Frankfurt is one of the rare opportunities that allows for the testing of the predictions of the theory on emergence and development of financial centres. Though data availability on financial centres is anything but sufficient, there are at least some reliable Bundesbank data for the last decades.

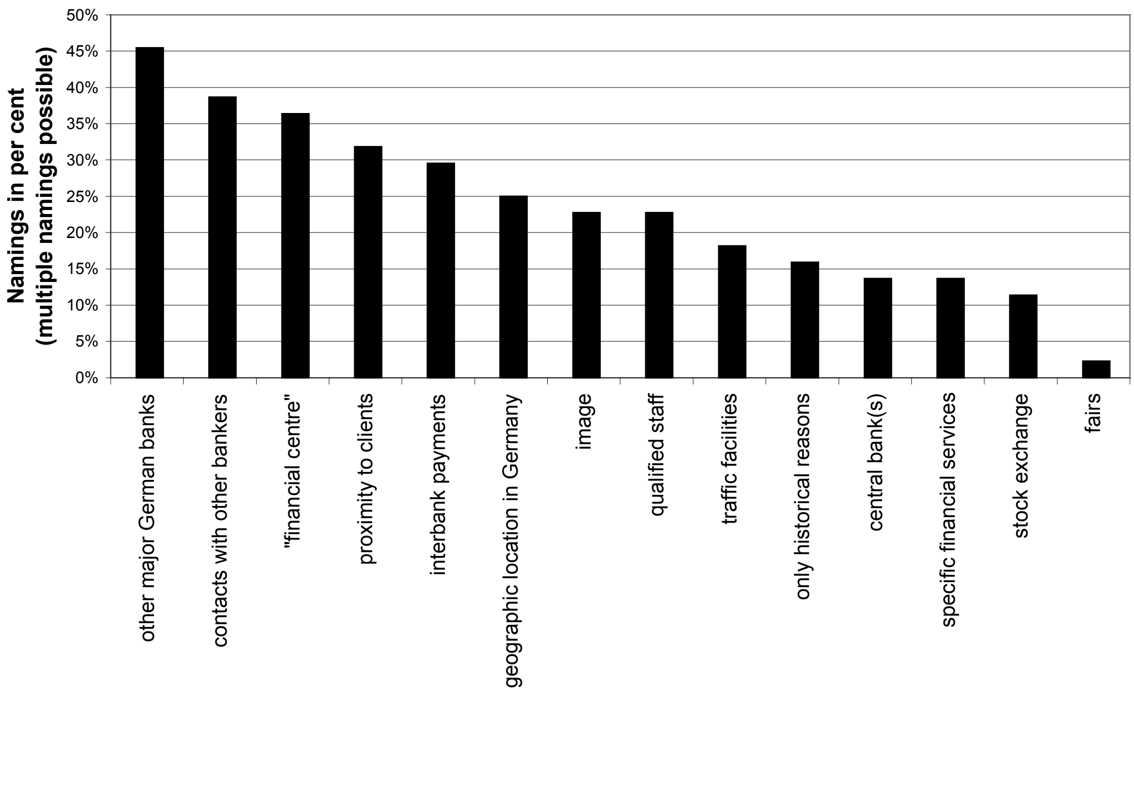
Also, the situation in Germany after World War II in a way resembles the situation in Europe today, i.e. different financial centres, different stock exchanges, a single currency, unified regulations, etc. By analysing the development of Frankfurt in

Germany and looking at its functions as a node in the global financial network today, some predictions about the future of the European financial centre system can be made.

1.4 Frankfurt – a case for theory?

The development of the financial centre Frankfurt can be analysed meaningfully within the presented framework only if the emergence of Frankfurt as an international financial centre is a path-dependent process. Frankfurt could also be a major financial centre due to other, more simple, reasons: its central location in Germany (and in Europe), its large international airport, the presence of the Bundesbank (and now the European Central Bank) or its surrounding industries and wealthy individuals. All this could have made Frankfurt a location attractive enough to draw a large amount of financial firms. However, this is how foreign banks answered the question of why they are located in Frankfurt:

Figure 1: Location factors in Frankfurt from the viewpoint of foreign banks in Frankfurt

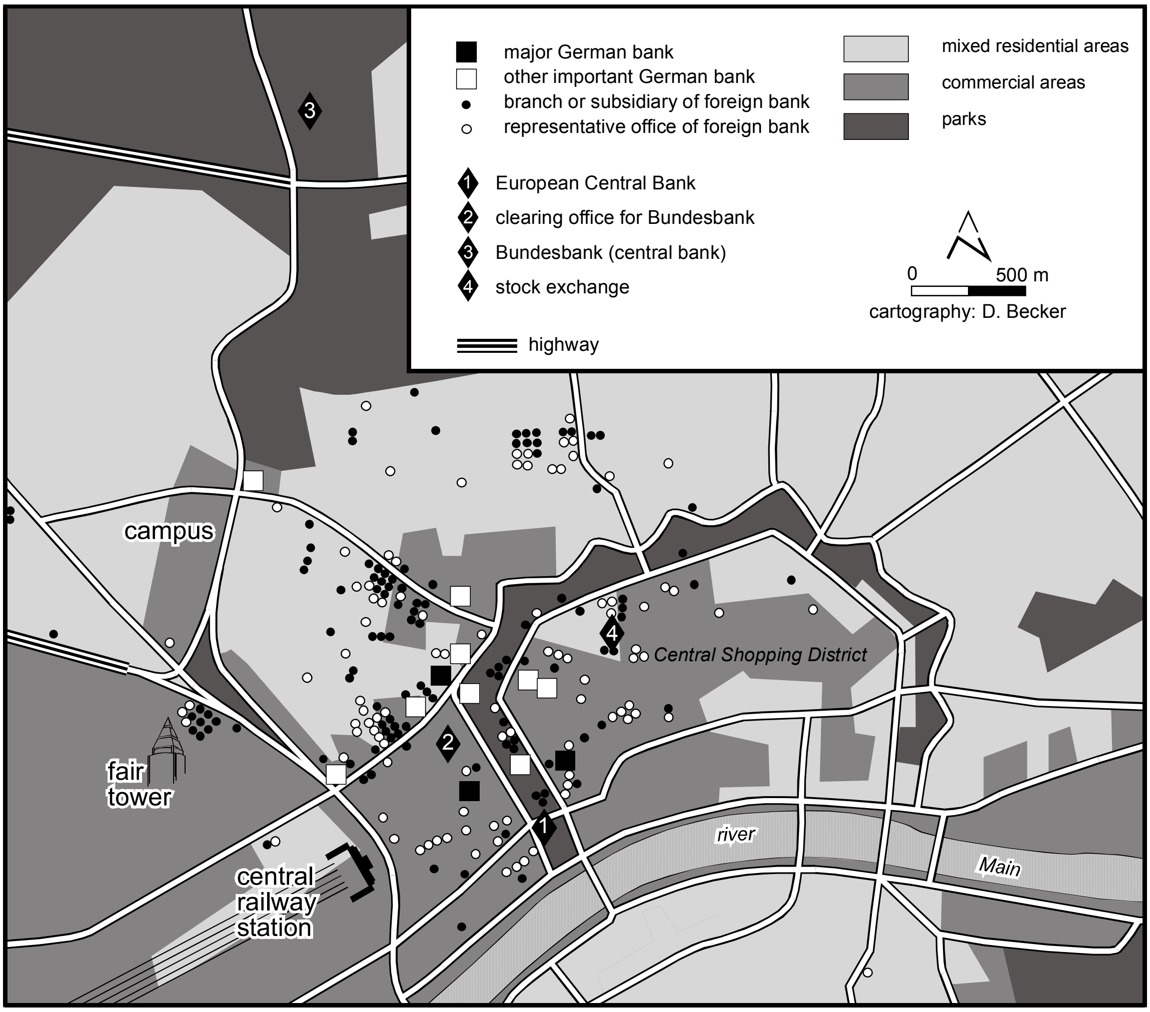


Source: Grote (1998, 12-13)

The first three location factors mentioned – not based on any default answers – are associated directly with the size of the financial centre. Often, the interviewees were astonished about the question at all and answered: "Frankfurt is just the financial centre in Germany". The following factor "proximity to clients" reflects two components: production and commercial enterprises in the Rhine-Main area as well as other banks. The factors "interbank payments", "image", "qualified staff", "specific financial services" and "stock exchange" are again solely connected with the size of the financial centre. In short: banks are in Frankfurt because the other banks are in Frankfurt, too (Grote 1998). This is exactly what a path dependent process with underlying increasing returns to scale should show as a result.

This conclusion is supported by the high degree of spatial proximity between banks in Frankfurt's financial district:

Figure 2: Spatial pattern of financial institutions in Frankfurt



Source: own survey

Banks are not located next to the Bundesbank's office, but close to each other. Banks' spatial proximity to the stock exchange does not object against increasing returns to scale: The stock exchange itself is not a gravitation point but gains attraction only through many participants which in turn are attracting more participants, and so on.

The conclusion of this chapter is that assuming external economies of scale in the financial centre, Frankfurt is a good point to start further analysis.

2 Frankfurt‘s development

2.1 Preliminaries

Three components are necessary to follow Frankfurt's development to Germany's pre-dominant international financial centre after World War II: First, indicators for Frankfurt's position and relevance, both national and international; second, the reasons for the clustering of financial actors and third, the nature and special characteristics of Frankfurt's path dependent development.

2.1.1 Indicators

The task to build a bundle of indicators that show Frankfurt's significance over decades is not an easy one. Since it is by no means clear which elements constitute a financial centre, different indicators could result in different pictures of the development of Frankfurt. Also, the international functions of financial centres have changed – after World War II there was not much international business at all – and, additionally, some actors become less relevant over time and others emerge.

However, Porteous (1999) lists the indicators as i) employment in finance, ii) employment in finance relative to the total labour force, iii) head-offices in financial centre, iv) value of national assets controlled by banks in financial centre, v) amount of payments settled in the financial centre, vi) stock exchange turnover (shares, bonds, currencies and derivatives) and vii) foreign bank presence. These indicators should be interpreted – whenever possible – in relative terms, i.e. with regard to other financial centres.

There are some other figures that could be of interest. Looking at the process of internationalisation of a financial centre, not only the strategy of foreign banks coming in but also of domestic banks going abroad could offer some insight. Additionally, the settlement of investment trusts or other bank-substitutes have to be considered. Firms that provide services for the financial sector (such as specialised lawyers, consulting firms, auditors, etc.) have been gaining importance over the last decade. As they were mentioned as a locational factor in the interviews, they are also indicators for the relevance of a financial centre. Only a few studies exist that cover these firms which make up the supporting firms of the "financial cluster" (see for example Lo 1999).

Since the availability of consistent long-term data is very low, not all desired indicators can be used in the following analysis of the emergence of Frankfurt. Still, there is some anecdotal evidence from the literature, which will be used as a proxy. Furthermore, valuable information is derived from interviews conducted within the financial community of Frankfurt and other European financial centres (Grote 1998 and Grote/Harrschar-Ehrnborg/Lo 1999).

2.1.2 Agglomeration effects

The actual reasons for financial actors to settle in Frankfurt are, again, not easy to draw out of some indicators. Interviews with decision-makers of the financial community are a far better means of obtaining this information. However, this method has the drawback that only the agglomeration effects that the interviewees currently perceive are covered.

As Chick and Dow (1988) point out, there are several stages in the development of the banking system, even since World War II. In every stage, the capital market has had a different function for the financial system and the banking system has been integrated differently. On a financial centre level, this leads to the conclusion that each stage has different agglomeration effects. Combined with the development of (financial) technology, the agglomeration effects are indeed very likely to change over time: it is quite implausible that the reasons for financial actors coming to Frankfurt today are the same as they were decades ago. Heterogeneous and changing actors (domestic banks, foreign banks, financial services, asset managers, etc.) have different and time-dependent reasons to come to Frankfurt.

Since these former reasons are impossible to be explored by interviews, only careful reasoning and research will reveal previous agglomeration effects. Specific historical circumstances regarding regulation, economic development, banking sector etc. both nationally and internationally are taken into account, always bearing in mind the danger of rationalising locational decisions in retrospect. Historical and other sources are considered, but the availability of data is low.

2.1.3 Path dependence

Since a path dependent process takes place in many small steps but can only be presented in discrete steps or stages, these stages have to be constructed. Each stage then is integral to the development (i.e. in terms of growth of Frankfurt as a financial centre. But these stages are not easily divided: a qualitative change can be signalled by a quantitative difference, and it is hard to say which amount of quantitative change is satisfactory to justify the switch to another stage (Chick 1988). This problem gives way to some arbitrariness separating the stages of which one should be aware of; also there is again some possibility of rationalising actions in retrospective.

The criteria for the separation of the different stages in the development of Frankfurt are either qualitative changes (such as the permission to re-unite the major German banks in 1958) or steep incline of important indicators in a distinct time-span. These stages could be similar but are not necessarily identical with the stages set up by Chick and Dow. However, one should be aware that the emergence of Frankfurt as an international financial centre is a continuing process.

Of special interest concerning the international position of Frankfurt is the question whether the national pre-dominance of Frankfurt was crucial for the international importance it achieved. This will be examined in more detail.

2.2 Several stages

In the following chapter, three rather roughly demarcated stages in the development of the financial centre Frankfurt will be identified. Since there is only little consistent data available, the analysis relies to some extent on anecdotal evidence and the description of the different stages. Indicators are placed in the stages where they are most dynamic. As the development path is determined by “small historical accidents” that cannot be reflected by any indicators, a closer look at the early historical circumstances is valuable.

2.2.1 After World War II (1945-1958)

After Berlin had taken the leading position from Frankfurt in the 1870’s, it had been the dominating German financial centre up to World War II. Mainly due to different Soviet politics and the threat of a Soviet invasion it was not able to fulfil this function after the end of the War. Therefore, American and British military governments decided to settle the “Bank deutscher Länder”, the predecessor of the Bundesbank, in the western part of Germany. Promising candidates were Hamburg and Frankfurt, to a lesser degree also Cologne and Duesseldorf. Many facts after the war were in favour of Hamburg: compared to other cities it has been destroyed less during the war, had enough office space available for banks; many banks had their largest office outside Berlin in Hamburg (one major German bank – the Commerzbank – even its head office); the turnover volume of its stock exchange was bigger than that of all the other stock exchanges taken together; most foreign payments were cleared in Hamburg, etc. Nevertheless, in 1948 Frankfurt with its central location in West Germany, its big airport and – above all – with the headquarter of the American military government was chosen as the location for the German central bank (Holtfrerich 1999).

Other special state-owned banks moved to Frankfurt after 1948, among them banks for financing agriculture and housing. Most important was the bank for reconstruction and development (“Kreditanstalt für Wiederaufbau”) that distributed the funds of the Marshall plan. These – mostly political – decisions were the “historical accidents” that paved the way for Frankfurt’s development as the pre-dominant financial centre in Germany today.

However, in the beginning of the 1950’s, this development was not clear at all: Hamburg was still the major centre while Duesseldorf ,with its large industrial hinterland (“Ruhrgebiet”), had the major share in domestic credit activities (Wolf 1998a). Furthermore, the three major German banks – Deutsche Bank, Dresdner Bank, and Commerzbank – had been separated into ten separate banks, one in every state (“Land”) in 1948. In 1950, the part of Deutsche Bank located in Duesseldorf, for instance, had a share of almost 40% of the balance-sheet total of all Deutsche Bank Group, compared to a mere 9% of the Frankfurt part (Holtfrerich 1995). The parent organisation of the credit unions and some other private banks from Berlin relocated to Frankfurt in the following years, while the parent organisation of the savings banks settled in Duesseldorf in 1950 but moved to Frankfurt in 1965 (Holtfrerich 1999).

In 1952 the major banks were allowed to combine their ten parts into three banks, and in 1957 a total recentralisation was possible. Dresdner and Deutsche Bank immediately located most of their headquarter functions in Frankfurt, while Commerzbank – with its headquarters in Hamburg (!) – moved to Duesseldorf in 1958, but gradually shifted headquarters functions to Frankfurt starting in the 1970’s. Also the union-owned bank (“Bank für Gemeinwirtschaft”) relocated in Frankfurt in 1958 (Holtfrerich 1999).

The main reason for banks coming to Frankfurt was the central bank. Banks that refunded themselves on the money market had to be close to the institution that had the power to alter the conditions on the market and to provide liquidity. Written messages from the banks to the central bank – and vice versa – had to be transported by messengers. Also, the payment system relied heavily on paper exchange. All that made a location of the headquarters of the major banks in Frankfurt inevitable (Holtfrerich 1999). This explanation is supported by the fact that institutions that do not need daily contact with the money market – i.e. mainly mortgage banks – did not concentrate in Frankfurt: only one of the 15 biggest mortgage banks was located in Frankfurt in 1958 (Wolf 1998b).

2.2.2 National pre-eminence (1958-1973)

1958 was a remarkable year in regulatory terms: the European Economic Community, the predecessor of the EU, was founded, the German Mark became fully convertible and the Bundesbank had replaced the Bank deutscher Länder a year before (Wolf 1998b). At the end of the 1950’s the German capital market had begun to internationalise. The first foreign bonds were traded in Frankfurt in 1956, the first foreign shares in 1958. In 1957 the first foreign currency bond was initially offered in Frankfurt and in 1959 the first foreign Deutsche Mark-bond was placed (Ambrosius 1998, Holtfrerich 1999). In quantitative terms, however, these activities were only of minor importance.

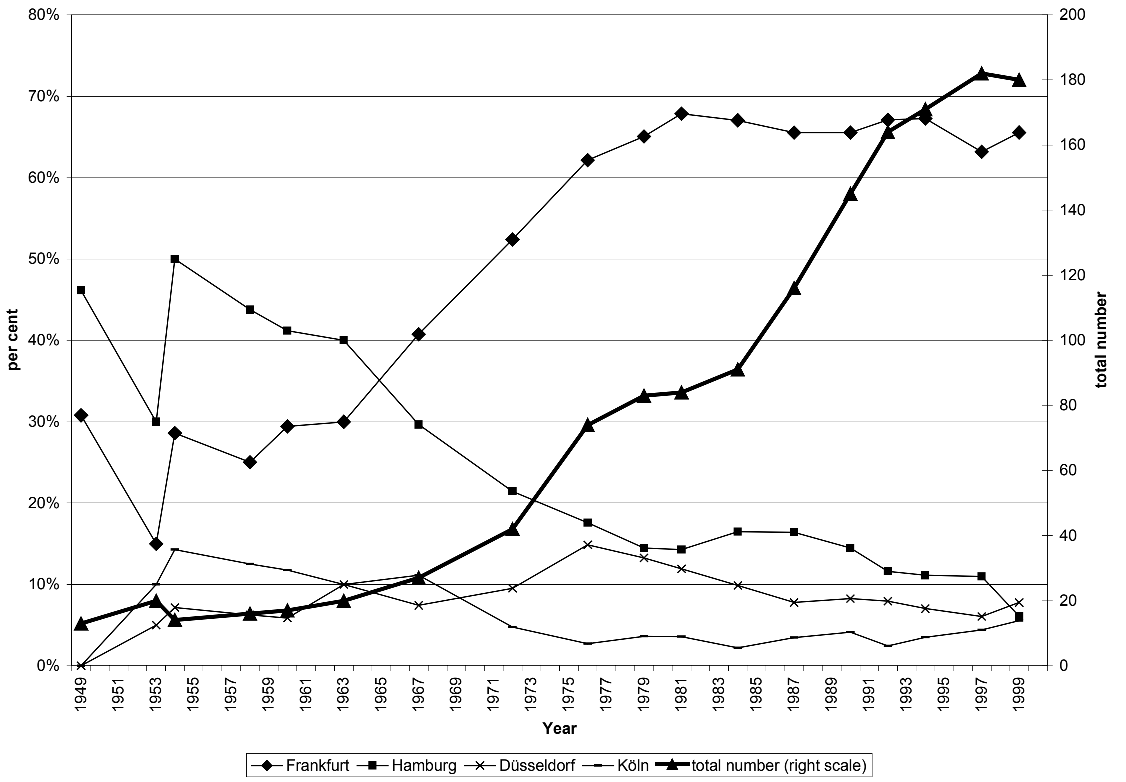
More important were the domestic shifts in the banking system. The major banks began their retail activities in the 60s, particularly with small standardised loans and checking accounts. This added to the available funds of the major banks and also strengthened the money market in Frankfurt, where the liquidity was balanced. At the same time, capital markets began to gain importance in Germany, e.g. investment funds were made available for the public in 1957. Since head office functions of the major banks were for the most part located in Frankfurt, it was the Frankfurt stock exchange that profited most from this shift. The beginning pre-dominance of Frankfurt is indicated by DWS (today Europe's largest investment company), which was founded in Hamburg in 1956 but moved to Frankfurt in 1957 (Holtfrerich 1999).

In 1953 foreign exchange markets were established in Frankfurt and four other German financial centres (Berlin, Duesseldorf, Hamburg, Munich). Because of the ongoing internationalisation of the German economy and Bundesbank's strong focus on stability, the Deutsche Mark started playing an important role for international investors during the sixties. In 1972, it was noted as an international reserve currency for the first time. The Bretton Woods system with its fixed exchange rates experienced difficulties at the end of the sixties, with the German Mark constantly showing revaluation tendencies. The Bundesbank's interventions in the currency markets took place only in Frankfurt, further improving the attractive power of the Frankfurt as a financial centre (Holtfrerich 1999).

Since the end of the 1960's, the majority of the foreign banks that came to Germany settled in Frankfurt, after being treated almost as domestic banks with the implementation of the banking law ("Kreditwesengesetz") in 1962. Market share of foreign banks in Germany rose fourfold from 1960 to 1971 to about 4 per cent. The then 15 biggest banks of the world – about 60% of these were American – had establishments in Germany. In those days, the main reason to establish a presence in Germany was to accompany the respective domestic firms on their way abroad (Pohl/Jachmich 1998, see also Kindleberger 1983 and Schmidt 1963).

The locational choice of foreign banks is a particularly good indicator to trace the importance of a financial centre. Law (in the case of savings banks) or comparatively large sunk costs often restrict domestic banks' locational decisions, so that they are not likely to move. Also, many banks just establish offices – which are not consistently recorded in Bundesbank data – to be present in a financial centre. Therefore, presence of headquarters of foreign banks is a reliable and fast indicator of the importance of a financial centre.

Figure 3: Branches and subsidiaries of foreign banks in Germany (share per financial centre and total number)



Source: own database

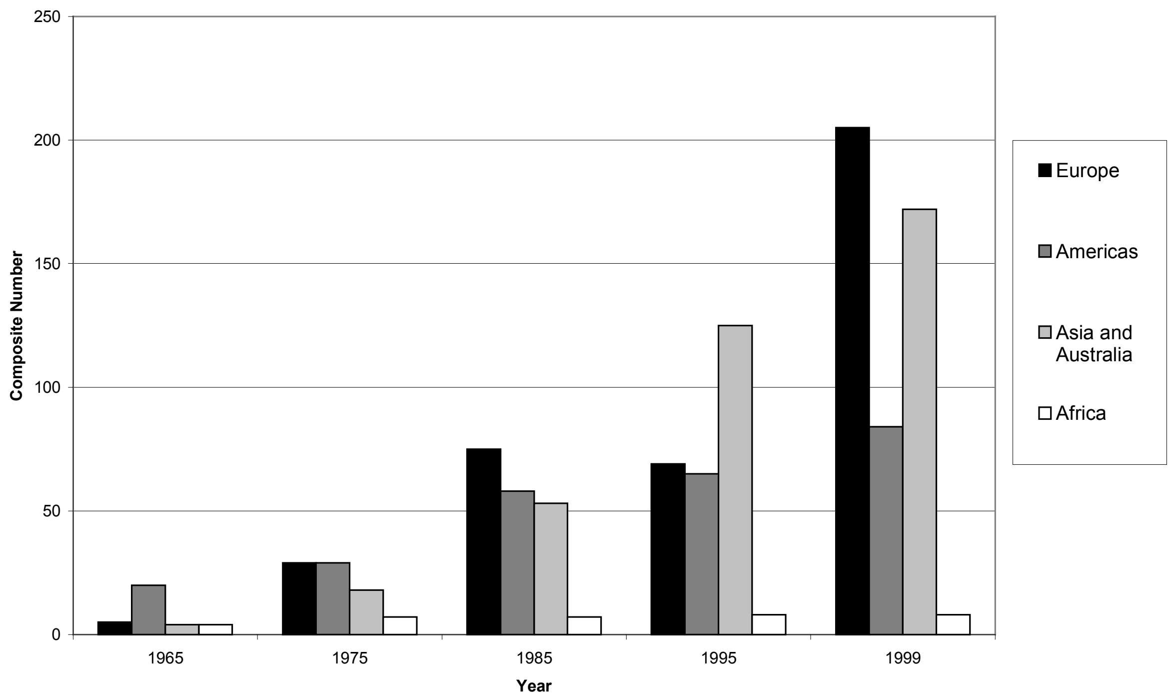
The breach in the recorded share of foreign banking presence in the largest German centres in 1953 is due to the rise of the “other locations” in that year: The Bank deutscher Länder’s statistics in 1953 count the numerous and dispersed special banks for the American military as foreign banks.

At the beginning of the 1960’s, many banks with headquarters anywhere in Germany established offices in Frankfurt or bought Frankfurt-based privately owned banks, mainly to take part in the Frankfurt stock exchange (Der Volkswirt 1968). Frankfurt had established itself as the most attractive financial centre for domestic banks. Afterwards, it also attracted the majority of foreign banks coming to Germany.

2.2.3 Internationalisation (1973-1998)

After some turbulence, the Bretton Woods agreement collapsed in the wake of the oil price crisis in 1973. After that, the recycling of the “petro-dollars” led to an unprecedented growth of internationally mobile money that fostered the spread of internationally active banks. German banks – that long relied on co-operation with foreign correspondence banks – increased their foreign presence comparatively late (Stephan 1998; Wolf 1994).

Figure 4: foreign presence of major Frankfurt-based banks



Source: Stephan (1998), Petermann (2000), own calculation

The recent increase in foreign presence[2] of Frankfurt’s major banks is mainly due to an extension of banking activity in Eastern Europe’s emerging markets.

About the same time as Frankfurt’s banks were going abroad, Frankfurt’s economy was specialising more and more in the financial sector. Although there is a general trend in the financial sector which is becoming more important for the mentioned

[2] These graphs are composited out of the foreign presence of the three Frankfurt-based major banks. In order to obtain a single figure representing foreign banking presence, branches and subsidiaries are weighted with 3 and representative offices (which allow no banking business) with 1. Offices of different kinds are counted separately. Several offices of the same kind of one bank in one country are counted as one office.

cities (Holtfrerich 1999), Frankfurt's share in employment in the financial sector is rising more than any other city's in Germany, reaching an outstanding 12% in 1999 after a mere 2% in 1950. Also, Frankfurt's share of employees of all German financial centres rose from 1950 to 1987, indicating its gain in importance relative to other centres (Holtfrerich 1999). Other sources (e.g. Landeszentralbank 2000a) illustrate that these trends were very likely to continue after 1987. However, more recent consistent data is not available.

As capital markets are becoming more important to the German financial system – which at least up to the eighties relied very much on banking – stock exchanges are becoming more important in judging the relevance of a financial centre (Schamp 1999). Frankfurt's stock exchange had no advantage after World War II, Frankfurt just happened to become the location of the central bank, which in turn attracted major private banks. Duesseldorf's – Germanys second biggest stock exchange – market share plummeted from 35 per cent in 1973 to 15 per cent in 1988 (Rudolph 1992) and to only 6% per cent in 1997 (Schamp 1999), while Frankfurt's stock exchange today has a market share of about 80%. This development is due to the circumstances discussed above, and again to a kind of path dependence in stock exchange development: the more liquid a market is, the more advantageous it becomes to trade in that market – which in turn provides even more liquidity, and so on (see Dietl/Pauli/Royer 1999).

Starting at the beginning of the 1970‘s, international liquidity has inclined sharply („petro-dollars“) and many foreign banks were coming to Frankfurt in part because it had the best access to the German payment settlement system, but also due to the possibility to participate in the Frankfurt stock exchange. At that time, Frankfurt gained a share of about two-thirds of the branches and subsidiaries of foreign banks in Germany. This pattern is remarkably stable: Though the number of foreign banks' business conducting units has risen from about 40 to about 180 from 1973 to 2000, Frankfurt's market share has remained almost constant (see figure 3). In contrast to that, representative offices had been concentrated in Frankfurt for a considerable amount of time, but the share of presence in Frankfurt declined in the 90‘s, mostly due to the new relevance of Berlin as capital of re-united Germany (own database).

2.3 Frankfurt today: an international financial centre

2.3.1 German banks

Today, thirteen out of the 30 largest German banks have their head offices in Frankfurt, and an additional two are located in Mainz and Wiesbaden. This shows that the Rhine Main-region has by far the highest concentration of major banks in Germany, with a share of more than 50% of the balance sheet total of the 30 largest banks (Die Bank 1999, own calculations).

In total, 211 German and foreign credit institutes with business activity have their head office in Frankfurt, another 72 institutes with head offices in the remaining federal territory have offices in Frankfurt (Landeszentralbank 2000b). Moreover, the Rhine Main region has the highest concentration of the capital investment companies resident in Germany, with more than 60% of the reported companies.

The German banks of the Rhine Main region are noteworthy in international terms as well. Six of the 50 largest banks in Europe and even 4 of the 50 largest banks of the world, measured by the balance-sheet total, reside here. However, the latest large mergers have not yet been included (The Banker 1999a and 1999b). Measured by the number of top 500 banks in each European financial centre, Frankfurt takes second place (*Fig. 5*).

In general, German banks do not belong to the most internationalised group of banks: The journal “The Banker” issues a list of the 50 “global banks” by means of the share of the business volumes abroad. The three major Frankfurt-based banks are ranked on places 10 (Deutsche Bank), 41 (Commerzbank) and 50 (Dresdner Bank; The Banker 2000a). The business volume abroad of German banks reaches 30% of their domestic business volume, up from 15% 1984. However, the majority of the international activity is concentrated in Luxembourg (Deutsche Bundesbank, several years; Rudolph 1998).

A look at the German financial system gives some insight into the aforementioned patterns of internationalisation of the financial centre Frankfurt. In Germany, there is no commercial / investment bank separation, so most banks are permitted to engage in a wide range of financial activities, also including insurance and securities („universal banks“). Three major banking groups exist beside the mortgage banks and banks for special purposes: commercial banks, public savings banks and private co-operative banks. Business of both savings banks (forming the largest group with a market share of 37%) and co-operative banks (15% market share) is regionally constricted, so that there is no competition within the respective groups. The highly visible major banks have a share of 10%, other more regionally oriented commercial banks have an additional 15% market share (Deutsche Bundesbank 1998). Even though the three banking groups have different roots that are still visible in their business bias, they are similarly organised in a three-tier way (Deeg 1996). On the primary level are the offices, which are more or less spread throughout the whole country. The secondary level, which is of minor importance for the commercial banks, consists of regional headquarters, roughly one in each German state („Land“). While the head offices – forming the third and final level – of all organisations are located in Frankfurt,[3] some of the regional headquarters, especially of the savings organisation, belong to the biggest banks in Germany.

Figure 5: European national financial centres ranked by the number of Top 500 banks

City	**Number of Top 500 Banks**
London	201
Frankfurt	107
Paris	90
Milan	77
Madrid	75
Luxembourg	67
Brussels	63
Zurich	53
Amsterdam	40
Geneva	40
Vienna	32
Warsaw	31
Lisbon	26
Prague	25
Athens	24
Stockholm	22
Copenhagen	20
Dublin	19
Oslo	14
Helsinki	11

Source: The Banker’s Almanac (1998), Institutional Investor (1998), Grote/Harrschar-Ehrnborg/Lo (1999)

[3] The only exception is a recently formed major bank in Munich (HypoVereinsbank) which came into being after a merger of two regional commercial banks.

Previously, major banks had focused on financing large German firms but since the 70‘s have aimed equally at SMEs (the famous German „Mittelstand“) and private households, thereby competing with the savings banks and co-operatives (see Edwards/Fischer 1994). These, in turn, have tried to get their share of wholesale financing through their regional and general head offices. Nevertheless, the rise of international capital markets – notably the Euromarket – which provided large firms with alternative possibilities to finance their investments, effected the major banks most (Deeg 1999).

Changes in international capital markets also influenced the national German financial system. The breakdown of the Bretton Woods-system of fixed exchange rates followed by high volatility on currency markets led to an extended demand of international financial products. Parallel to that, the „petrodollar“-recycling fuelled the markets with liquidity. The advent of information technology and international propensity to deregulate financial markets helped industry and banks to finance their operations internationally. Due to heavy regulation in Germany the major German banks lost considerable business in that process to competitors abroad. In a rare alliance, the domestic banks together with foreign banks – seeking entry into the German financial market – and the government that wanted to finance its own debt pressed for liberalisation of financial markets. Starting in the 1980‘s Germany turned from a bank-based financial system into a more capital market based financial system. Still, this process is not finished. Since 1990 the stimulation of financial markets was the explicit aim of the federal government, evident in the passing of a series of so-called “financial market promotion laws” (Deeg 1999).

The comparatively late internationalisation of the German major banks which was previously mentioned can be explained in part by the regulation in Germany. As long as the major banks‘ main customers – the large industrial firms – were not able to finance themselves more inexpensively in international markets, there was little need to internationalise. Only after a rise of international financial markets which cut into their business did German banks follow their customers (or at least their customers’ financing) abroad.[4]

Nevertheless, German banks were less experienced in capital market transactions than their foreign competitors, especially from countries where there is (or was) a separation between commercial and investment banking. In 1989, major German banks started purchasing British and American investment banks to close this

[4] See Kindleberger (1983) for an in-depth discussion of this topic.

knowledge gap (Deeg 1999). Still, foreign investment banks carry out the major part of the German investment banking business.

2.3.2 Foreign banks in Frankfurt

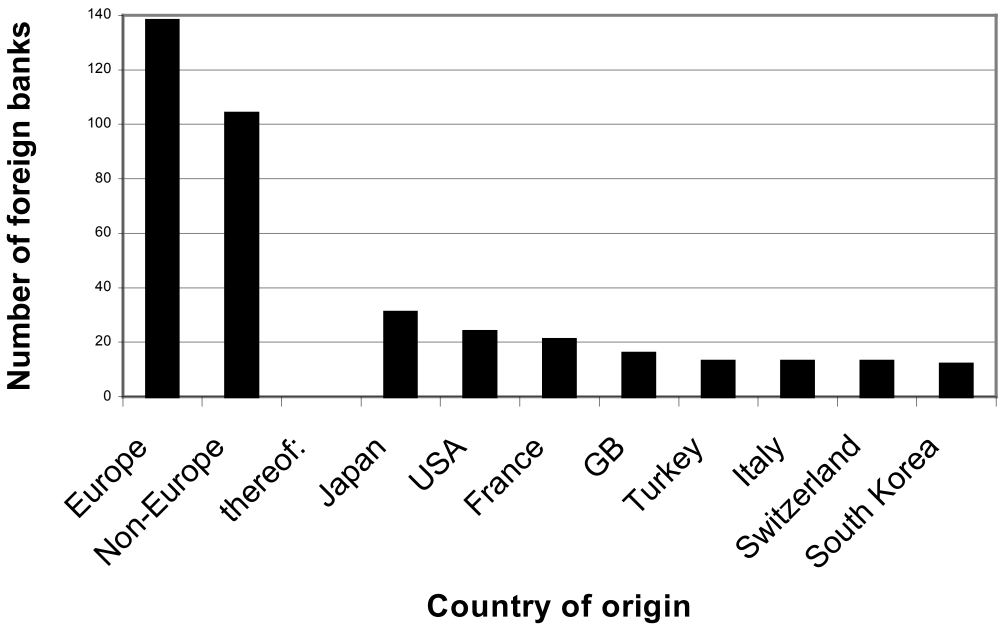
Foreign banks still hold, as it was ten years before, only a small share of the traditional bank activities in the German market, approximately 5% of the total balance sheet business (Verband 2000). However, foreign banks in Frankfurt have a 10.7 percent market share of total Frankfurt-based banks (Landeszentralbank 2000a). Not considered in these figures are transactions like money and foreign exchange operations and many other investment-bank activities, so they do not give a fair indication of the importance of foreign banks for the German banking system (Deutsche Bundesbank 1998). The issue of DM-bonds is a further major field of activities. In the first half of 1999, foreign banks were the syndicate manager for 63% of the issued volume.[5] Looking at the Germany-related M&A (Mergers and Acquisitions) deals, foreign banks are clearly leading: In the first half-year in 1999 they had a 78% market share in volume of transactions and a 75% share in number of the mandates. The only serious competitors are again the investment bank subsidiaries of the German banks (Verband 2000).

In 2000, there were 337 establishments of foreign financial institutes in Germany, whether in the form of a foreign bank branch, of a German bank in foreign possession or as a representative office. Of those, 60.5 percent have their head office in Frankfurt; therefore the city is by far the most important location for the foreign banks (Deutsche Bundesbank 2000, own calculations). In comparison, 429 (in 1997) and 237 (in 1999) foreign bank establishments were situated in London and New York, respectively (without double counting, Blanden and Charvet 1997; Blanden 2000).

In Frankfurt, Japanese and US-American banks have the biggest share, followed by banks from different European states.

[5] These figures do not take into account government bonds or own account issues.

Figure 6: Origin of foreign banks in Frankfurt



Source: Grote (1998)

However, the financial centre Frankfurt rarely serves the foreign banks as a starting point for international operations. Rather, the presence in Frankfurt is predominantly connected with the German market, only Austria and – only in a limited manner – Switzerland are mentioned as further markets covered from Frankfurt more frequently. Notwithstanding the expansion of German banks to Eastern Europe, the foreign banks did not confirm the idea that Frankfurt could become a central gateway to the Eastern European markets. Either the banks are already represented there or else the business is handled directly from the headquarters (European banks) or from the London subsidiaries (Japanese and American banks). Only in few cases, in particular in connection with German production enterprises going to Eastern Europe, these businesses are being covered from Frankfurt.

As mentioned above, foreign banks have generally had an advantage in terms of know-how with respect to activities that have been heavily regulated in Germany until now, i.e. investment banking (see Verband 2000, Tonomura 1994). Foreign banks constitute 18% of the participants at the Frankfurt Stock Exchange where they make

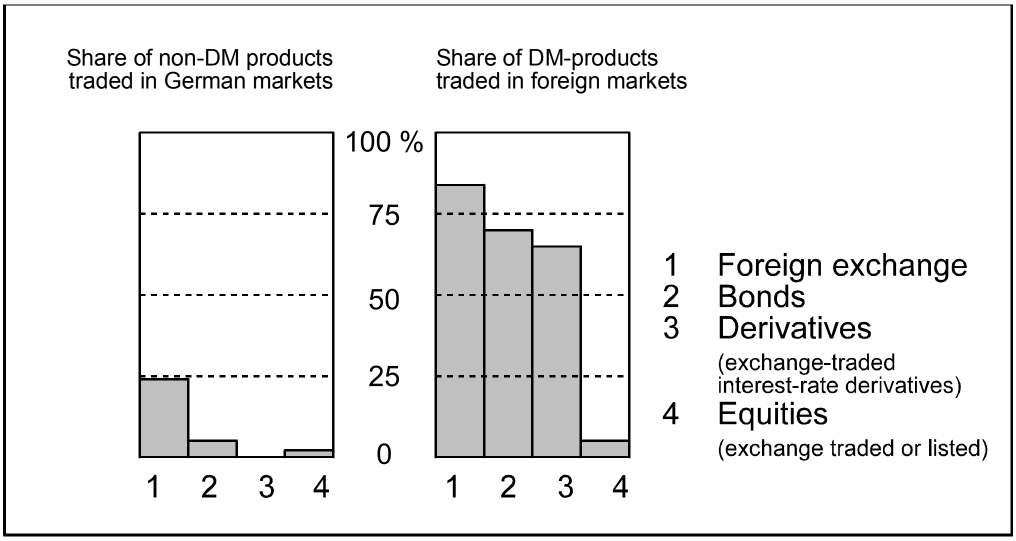
18% of sales. Their share in the Swiss-German Futures Stock Market EUREX turnover amounts up to 71%, with foreign banks constituting 70% of the participants. In this case, a special feature, which will be dealt with more precisely later on, is effective: EUREX provides the possibility of "remote access"; participation in the market from other countries via EUREX terminals set up there. In such a way, already 192 of 230 foreign market participants were "remote members" in mid 1999. In 1996 there were only 47 remote members out of 93 foreign participants (Verband 2000).

2.3.3 Stock exchange

Today, the Frankfurt stock exchange occupies by far the top position among the eight German stock exchanges with a market share of 80% of the German securities market turnover.

Mainly DM products are traded in Germany; the stock exchange focuses to a large extent on the national market as the left part of the following figure shows.

Figure 7: Trade in DM and not-DM denominated products.



Source: adapted from Seifert (1997)

The right diagram in figure 7 shows clearly that contrary to this a considerable part of DM denominated products is traded abroad.

In the last years, the Frankfurt stock exchange became more international as the listing of foreign equities quickly increased. However, this did not increase the share (as mentioned above) of foreign equities traded in Germany in the same way, since the turnover-volume of these shares remains comparatively small (Deutsche Börse 2000).

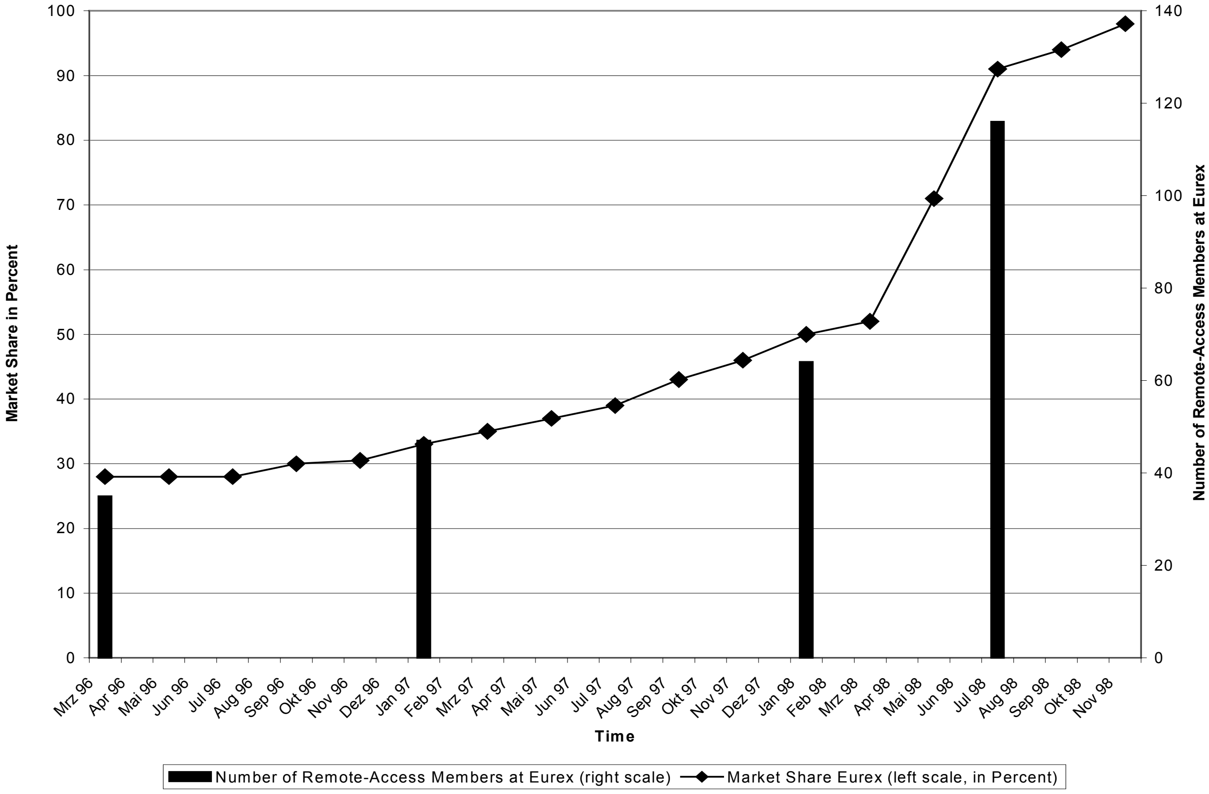
More remarkably, the German stock exchange internationalised in two other ways: On the one hand there are co-operations with other stock exchanges, e.g. Vienna where each member has full access to the respective other stock exchange, or Zurich, where a joint derivatives exchange (Eurex) was built up. The proposed merger with the London stock exchange in 2000 is the last in a series of attempts to form a pan-European stock exchange. On the other hand, the German stock exchange provides “remote access” for its derivatives exchange as well as for its spot trading system for shares, Xetra. Many foreign participants are using these systems (especially the older and therefore more established Eurex system) from abroad.

In the 1990’s the German stock exchange changed from a passive market place to an important actor in the financial markets and centres. This was made possible by a change in its legal form in 1992: The “Deutsche Börse AG” (German stock exchange) was created, which is now running the Frankfurt stock exchange and the derivatives exchange as well as some other related services. The most important stockholders of the German stock exchange are again the major German banks, pushing the stock exchange to become a more efficient institution, which can compete internationally (Breuer 1997).

One of the main features of Frankfurt’s stock exchange is the possibility for “remote access”, which opens up new ways of competition between stock exchanges and will have a big impact on financial centres. A particularly apt example for that is the ‘battle for the Bund-future’ between London’s Liffe and Frankfurt’s Eurex. The Bund-future is the most traded derivative in the world. As it is based on German federal bonds, it could be expected that it were traded in its ‘home-country’ Germany. However, as German regulation did not allow trading of derivatives until 1990, the market emerged at Liffe and the relevant expertise was concentrated in London. The efforts of the German Derivatives Exchange – after their formation in the early 90’s – to transfer Bund-future trading volume to Frankfurt were of little success despite their comparatively low trading costs. Due to prevailing lock-in effects (mostly concerning market liquidity), a large part of the trade still took place at London's Liffe. Only after Eurex terminals with remote-access facility were installed in “the City” ,and German banks shifted all their trading volume to Eurex, London traders began using the

Frankfurt-based system. Eurex' market-share in Bund-future trading now amounts to 99%. Figure 8 shows that Eurex' gain in the trading volume of the Bund-future coincides with an increase in the number of traders from abroad (Grote/Harrschar-Ehrnborg/Lo 1999).

Figure 8: Market share in Bund-Future trading and remote access members of Eurex



Source: Grote/Harrschar-Ehrnborg/Lo (1999)

Thus, the trading system is now the central marketplace for Bund futures, but most of the traders are using the system from foreign financial centres, mainly London. The proposed merger with the London stock exchange, which would form a common trading system for all shares, British and German, could have similar consequences. Probably more trading will take place on the joint stock exchange but fewer traders will be located in Frankfurt.

3 Some speculations: Frankfurt's future

The situation in Germany after World War II resembles in many ways the situation in Europe today, e.g. the existence of various financial centres and stock exchanges, a single currency, unified regulations, etc. Banking regulation is almost completely harmonised in today's Europe (Rudolph 1998). For instance, the introduction of the common market in Europe at the end of 1992 allowed banks to do business in the European Union with a single licence ("euro-passport"). The establishment of the Euro in 1999 has launched a new dimension of the integration of European capital markets. But still, inferences from the development of the German financial system are not applicable without further consideration towards Europe: national languages, tax systems and legal systems remain important barriers to a full integration of Europe's financial system.

The concept of path dependence that performed so well for Germany suggests that the biggest European financial centre will – over time – attract the lion's share of banks in Europe. The largest financial centre in Europe by far is London (see figure 5), so the analysis is complicated by the fact that Great Britain has not introduced the Euro so far. To get an idea of what the future European financial centre system could look like, the agglomerative forces that fostered the emergence of Frankfurt as the leading financial centre in Germany will be examined with respect to their applicability today. Thereby, the crucial impact of new financial technologies on the "traditional" agglomeration forces will be examined in more detail.

3.1 Traditional attracting forces

Central bank: Having been a main agglomeration force in Germany in the 1950's, the location of the European Central Bank was also subject to long political quarrel between European governments. Once the decision for Frankfurt was made, people in Frankfurt were quite enthusiastic about its as a European financial centre ("an additional 10,000 bankers are expected to come to Frankfurt" reads one headline – see FAZ 1998), but have so far been disappointed: The ECB is not attracting additional banks or bankers to come to Frankfurt so far (Grote 1998, Harrschar-Ehrnborg forthcoming). In contrast to former times, decisions of the central bank are instantly spread all over the world. Also, to get a feeling for what's going on inside the ECB, a small department is sufficient.

Money settlement system: With the introduction of the Euro and the introduction of new technology, the settlement of Euro payments is possible all over Europe at low costs via electronically linked national payment systems (e.g. „Target"). Since there are only very few different currencies left in Europe, the need for on-site presence in the foreign exchange business in the various states has diminished dramatically.

Stock exchange: Until now there has been no common European stock exchange, so not much has changed in that respect. However, since economies of scale (i.e. liquidity) play an important role in stock exchange competition, it is very likely that one pre-dominant stock exchange will prevail, the proposed London-Frankfurt stock exchange merger being the latest in a series of attempts to achieve this. Any future pan-European stock exchange will have remote access possibilities, so there is no longer any technical reason to be spatially close to any stock exchange.

Labour market and spillover effects: When asked why they are located in Frankfurt, „other banks" and the labour market where the most important answers (see figure 1 above). This clearly is a remaining and strong centralising force in the European financial centre system. For instance, traders like to be where other traders are (especially in order to get the news before it is officially distributed). With many other barriers removed, this could result in a further concentration of traders in just one city, which would be London with by far the biggest agglomeration of traders today.

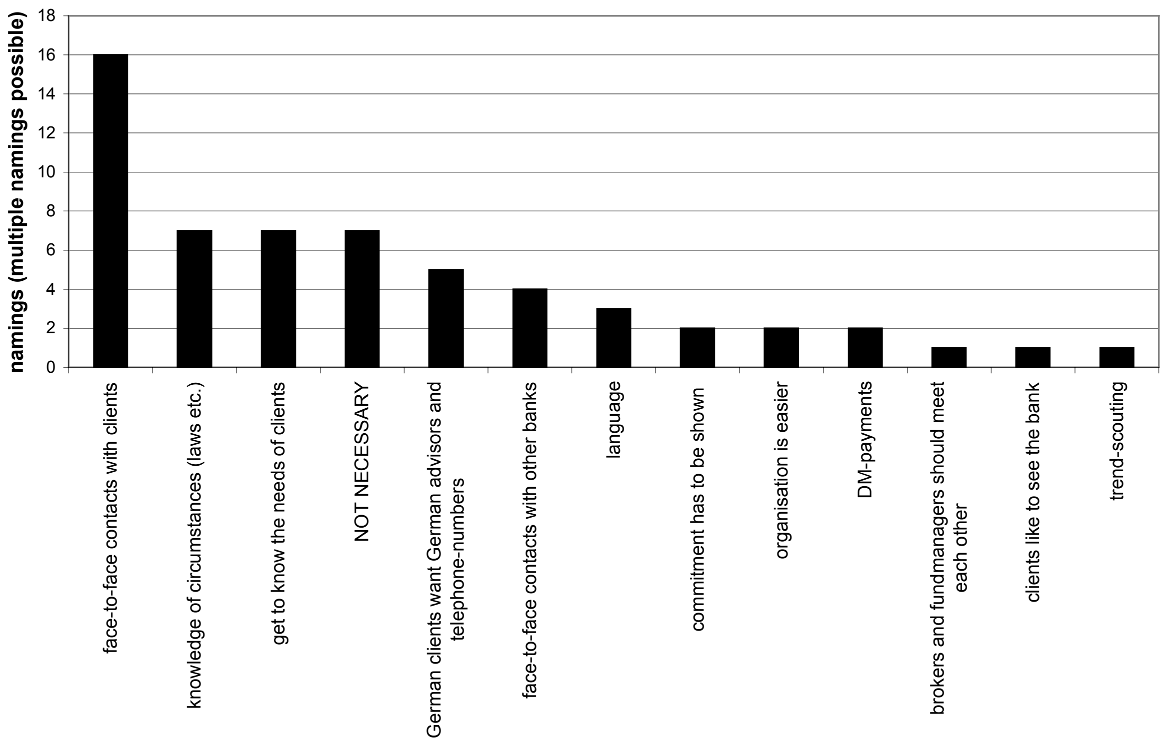
„Other banks" and specialised service firms: Investment banks that came to Frankfurt in the 90's did so because there they got easy access to other capital market actors and highly specialised lawyers and accountants, which in turn were in Frankfurt already because of the banking activities going on there. This as well can be interpreted as a positive feedback effect that points towards further agglomeration of the banking business in Europe in just one single financial centre.

3.2 The case for local presence

Some of the analysed agglomeration effects that brought banks to Frankfurt since World War II are not of much relevance today. Others lead to the conclusion that banks will move to where most other banks are located, i.e. London on a European scale. But there is the question of the local financial centres: Why are not all foreign banks in Germany located in Frankfurt? Or, on a European level: Why are all banking activities not concentrated in London?

Among the reasons to come to Germany, clients wanting a physically present contact person in Germany were mentioned most often by foreign banks in Frankfurt (Grote 1998, see also Pulm 1993). Knowledge about the changing regulatory framework (i.e. laws, etc.) and about the – changing – needs of potential clients also require a presence in the respective country.

Figure 9: foreign banks' reasons for physical presence in Germany



Source: own interviews

However, some bankers answered that presence in Germany is not necessary any more, other were still concerned with DM-payments up to the final introduction of the Euro. But the majority of the answers were concerned with close contact to clients. Language is still an important point, but not as relevant as could have been expected: In most cases it is not possible to serve German clients from a "German desk" even when Germans work there– this is the approach some banks were trying a few years ago. As one interviewee put it: "the connection to the domestic cultural milieu gets lost once you are located abroad" (own interviews, see Gehrig 1998 for a similar statement). In order to know the nation-specific customs of business ("usances"), to assess the situation of a firm and its loans, and to get access to the clients a permanent presence in the country where the business originates is absolutely necessary.

3.3 Results

So it is very unlikely that all banks will re-locate to London, even if Great Britain were to introduce the Euro as well. However, the deviating answers given by the interviewed bankers on their reasons why they are in Germany indicate that there will be some change in the European financial centre system in the next years. These changes will be hard to quantify by indicators like the number of banks or the headcount in the respective financial centres: Instead, a qualitative shift in the local presence of banks is likely. Financial businesses differ greatly by their need for proximity to clients, other banks, headquarters of the banks, etc., and predictions about the future of the European financial centre system have to take this into consideration (Grote/Harrschar-Ehrnborg/Lo 1999). In general, the less contact to clients needed, the more likely that business is mobile. Some examples of banking businesses‘ propensity to relocate are outlined below.

Back-office functions are becoming more mobile through technology advancements and harmonisation within the EU. A centralisation of back-office functions of the same kind on firm level is likely in order to exploit economies of scale (Breuer 1998). If a financial centre provides an infrastructure that is favourable for these specific kind of functions, business can easily concentrate there if external economies in close proximity to other specialists outweighs the economies of close proximity to other back-office departments of the same firm. For instance, Frankfurt has developed one of the most sophisticated settlement systems for the clearing of Deutsche Marks (EAF – "Elektronische Abrechnung Frankfurt"), which is now widely used as an Euro-Clearing system by foreign banks (today called EAF-2, i.e. "Euro Access Frankfurt"). Non-European banks have actually started concentrating their Euro-clearing in Frankfurt (Grote 1998).

While back-office functions are clearly the most mobile ones – since there is not much, if any, contact with clients – advice on mergers and acquisitions is an example for a very immobile business. „Thick communication“ is an essential part of the deal and requires extensive co-presence with the different actors as well as a deep knowledge of the respective markets of the involved firms (Lo 1999). Even with international transactions, firms are advised almost exclusively by investment bankers from the home and from the target market. Bankers doing M&A will move to the country where that business originates.

The last example covered here is that of stock trading. Liquidity is crucial in stock exchange competition – the more liquidity a stock market provides, the more traders become attracted. This has led in the past to numerous attempts to form alliances and mergers between European stock exchanges. However, liquidity alone will have no impact on the location of traders since new stock exchange technology features remote access possibilities which allows trading at any stock exchange. With the implementation of a pan-European stock exchange – possibly with the outcome of the Frankfurt-London merger „iX" at its nucleus – different forces will be at work influencing the location of traders: Headquarters prefer their trading departments to be within close range; first of all, trading departments profit from the presence of other, related departments and second, more personal control over the traders is made possible (which should serve to avoid any future catastrophic losses). Also local knowledge of firms whose shares are traded helps to be one step ahead of the others, i.e. to make profits (see Hau 1999). On the other hand, traders like to be where other traders are to get a feeling for the tacit „mood" in the market. This would lead to an agglomeration of traders in a single location. Altogether, the outcome of these tendencies is far from being clear – even for the banks which frequently shift the majority of their traders from their headquarters to London and back – and are worth some further research (see Grote 1998, Grote/Harrschar-Ehrnborg/Lo 1999).

4 Conclusions

As shown in the preceding chapter, external economies of scale will play a major role in shaping any future system of financial centres. National *financial centres* will continue to exist because of "low-range" centralising forces like labour market, infrastructure, face-to-face contact to other bankers and so on. Specialised staff remains the decisive factor in the settling down of the "footloose" financial industry, even with the advent of new communication technologies. The financial centres will be *national* because of the necessary "cultural proximity" between banks and clients as long as language, customs and laws remain national. Thus the findings by Ter Hart/Piersma (1990) and Clark/O'Connor (1997) are confirmed on a product level. The closer to the client the business is, the less concentration will occur. However, a classification of financial centres on a product level is not sufficient any more: Due to developments in technology and deregulation that allow the unbundling of business processes, economies of scale can be exploited on a scale smaller than a product.

What are the consequences for Frankfurt as a financial node in the global system? Apparently, the analysis of the functions of a “node” in the global financial network has to take into account the various stages of the value chain of the business conducted there. In general, not much business from abroad is done in Frankfurt, rather the business opportunities provided by the German economy attract foreign banks. But Frankfurt is providing an increasing range of functions for other – European – financial centres. Besides monetary politics through the ECB there is also the less visible Euro-clearing or stock exchange technology which Frankfurt is exporting to other financial centres. On the other side, Frankfurt also gives business away to London and other financial centres: back offices of foreign banks are migrating to their respective head offices, and stock exchange trading in German shares increasingly takes place in London and elsewhere.

So the nature of competition between financial centres is changing, from providing each service in every centre towards more division of labour and co-operation between the centres. A kind of “co-opetition” is forming in the European financial centre system. Sassen (1999) predicts that Frankfurt will be at the top of a “secondary network” behind London and New York.

Lastly, the analysis of Frankfurt’s development to the leading German financial centre and its application to today’s European financial centre system points out three important subjects. First, the agglomerations themselves differ depending on the exact point in time they are being considered: Even at a constant size, the underlying business of the agglomeration could be changing, with technology having a crucial impact. Therefore, it doesn’t seem particularly useful, secondly, to take non-shifting agglomeration forces that occur over a long time into consideration. There are *different* and *changing* forces that lead to the agglomeration in – at least – the financial industry. Third, the analysis made clear that path dependence and related concepts are a useful tool to describe trajectories of agglomerations that display economies of scale. However, as the first two points suggest, while “each successive stage reflects forces that are obvious in retrospect, attempts at prediction nearly always get it completely wrong” (Krugman 1999, 4).

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