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Financial Locations: Frankfurt's place and perspectives

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Abstract

The introduction of a common currency as well as the harmonization of rules and regulations in Europe has significantly reduced distance in all its guises. With shrunken costs of overcoming space, this emphasizes centripetal forces and it should foster consolidation of financial activity. In a national context, as a rule, comparable developments have led to the emergence of one financial center. Hence, Europeanization of financial and monetary affairs could foretell the relegation of some European financial hubs such as Frankfurt and Paris to third-rank status. Frankfurt's financial history is interesting insofar as it has lost (in the 1870s) and regained (mainly in the 1980s) its preeminent place in the German context. However, because Europe is still characterized by local pockets of information-sensitive assets as well as a demand for variety, the national analogy probably does not hold. There is room in Europe for a number of financial hubs of an international dimension, including Frankfurt.

I. In lieu of an introduction: A bit of history

A generation ago, Charles Kindleberger was struck by the "curious fact that the formation of financial centers is no longer studied in economics", and he surmised that the topic had fallen "between two stools", becoming somehow location-less between urban economics and financial economics. Taking one's clue in particular from finance, one could come away with the impression "that the money and capital market was spread evenly throughout a given country" (Kindleberger 1974, p. 1) – which it is most evidently not. By starting from first principles, one could easily add to the confusion, according to which "(a) market is infinitesimally close geographically, but infinitely remote personally" (Leamer 2007, p. 99). Leamer's proposition should be particularly descriptive of financial markets, leading to a straightforward conclusion: Finance should simply have no spatial dimension, no natural place. With borders becoming ever less important, this should ultimately hold true for the world at large, at a minimum for the three time zones.[1]

This leaves us with a real aporia since financial activity is obviously neither a single-point-of-delivery issue nor indiscriminately dispersed. While in Europe distances have been effectively reduced through the introduction of a common currency and political (*Financial Services Action Plan*) as well as technological innovations, there are nevertheless still numerous and very much distinctive financial hubs. And one of those financial entrepôts is Frankfurt, being by a wide margin the leading financial center in Germany, one of the most important financial locations on the European continent, and also a financial hub of a certain international importance.

Frankfurt's financial history has been particularly interesting because it had not always been what it is now. For centuries, starting with the fairs of the late Middle Ages, Frankfurt had been a focal point for trade in staples and a place for exchanging financial assets. However, after Germany's unification in 1871, it lost its role as a leading financial place to Berlin, the capital of the newly established Empire. Interestingly, "the emergence of a single financial center … has taken place twice, on both occasions in connection with a war: first in the rise to dominance of Berlin

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[1] In a 7/7 world, even this would be open to doubt.

over Cologne, Frankfurt, Darmstadt … and, second, in the gradual emergence of Frankfurt as the financial capital of West Germany…" (Kindleberger 1974, p. 24).[2] Thus, Frankfurt only won back its former position in the late-1950s, and this was largely due to a historical twist of fate – if one would like to file political deliberations under such a heading. At that time, the relevant competitors in the nationally defined sphere were Hamburg, with its dominating port facilities, and Düsseldorf, mainly serving Western Germany's powerhouse, the Ruhr industrial district. For obvious political reasons, Berlin was not a candidate for this role.

So, what is unique from today's perspective is that Frankfurt has re-gained its present position in Germany only relatively recently, joining a select group of global cities that have been financial centers for a significantly longer period of time. Therefore, in order to gauge whether Europe (or "Euroland" only) is possibly up for the emergence of a single financial center – a question already raised and answered in the affirmative by Charles Kindleberger in 1974 – Germany could be an interesting case study.

This paper is dedicated to the questions of what the current status of Frankfurt as a financial center is, on which strengths it rests and what its perspectives are to defend its position. We start out in Section II by discussing the nature and the functions of financial centers. Then, in Section III, we analyze financial center competition in general, briefly alluding to the recent redesign of the financial landscape in Europe in particular. Section IV is dedicated to the current place of Frankfurt within the system of national and international financial centers, and Section V concludes with a view on what the perspectives of Frankfurt as a financial hub may be.

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[2] Darmstadt, 30 km south of Frankfurt, became an attractive financial location for private bankers since it was just beyond the restrictive reach of Prussian financial market regulations (see Adolf Weber 1902).

II. Functions of financial centers

Financial centers are locations with a considerable concentration of financial activity, of institutions specialized in performing these activities, and of people that work in these institutions. How much financial activity can be concentrated and how important such concentration can be becomes obvious once one thinks of the City of London, New York's financial district – or downtown Frankfurt for that matter.

Such concentration is not unfamiliar. In fact, within the reach of their relevant markets, industries are frequently locally highly concentrated. This is a fact of which urban economics never tires of reminding us (see for example McDonald 1997). The underlying rational of these clusters are the advantages of different activities being conducted within proximity. Bunching together lines of business produces mutually reinforcing effects. Such economies of localization have already been observed and convincingly analyzed by Alfred Marshall: "When an industry has thus chosen a locality for itself, it is likely to stay there long: so great are the advantages which people following the same skilled trade get from near neighborhood to one another" (Marshall 1920, p. 225).

Positive spillovers from "near-neighborhood" effects – what we today call agglomeration economies – are therefore of the essence in the formation of local clusters. They foster information exchange. They allow for competition. And they are conducive to innovation. Near-neighborhood effects stand in particular for economies external to a particular firm. They are arising from and dependent on the size of a local industry. Especially pertinent are inter-industry linkages. They allow for sharing specialized labor and intermediate inputs while at the same time attracting the suppliers of those specialized capabilities. And they are, as Michael Piore and Charles Sabel (1984) have shown with the help of impressive case studies, the decisive factors to understand the competitiveness of regions.

Following Michael Porter (1990), those agglomerative externalities produce home bases thriving on (as well as being defined by) the availability of input factors as well as, in the output dimension, the access to clients, in particular the regional dispersion of customers. All of this produces a comparative advantage for firms be-

longing to such a cluster (Krugman 1991): these firms can rely on a pool of specialized labor, they have access to high-quality intermediate inputs and, most importantly, they do profit from knowledge spillovers – the capacity to transmit and process information effectively. The latter point appears to be specifically pertinent for knowledge industries, to which the financial sector obviously belongs. Agglomeration fosters the creation, mobility and applicability of ideas. This is the "mysteries in the air"-argument of Marshall who wrote: "…the mysteries of trade…. are as it were in the air". The distinction between input- vs. markets- or client-oriented activities adds a further instructive dimension to localization: With costs of communication decreasing, the availability and quality of inputs becomes more important in location decisions. And localization economies, being external to firms, eventually generate clusters.

These "Marshallian externalities" translate into economies of scale and scope. They are the upshot of an interaction of increasing returns (fixed costs spread over a larger production base), a reduction of the costs of transportation or communication (of overcoming distance in its various guises), and a sophisticated as well as challenging demand. All of this ultimately leads to geographical concentration deriving its overall advantage on the back of critical-mass effects (Krugman 1991, p. 15, 28). When users' benefits are increasing with the number of other users, as is for example obviously the case with the liquidity provided by exchange platforms (the so-called order-flow externality), then network effects, positive feedback, reinforce possible centripetal tendencies.

As concerns the geography of financial places, there is an inherent arbitrariness in their location. Natural endowments, while having been of some relevance in former times, have nonetheless never been decisive. The medieval fairs, for example, were located at geographically favorable places. But they mainly owed their attractiveness, in a very literal sense of the word, to being regulated more lightly (Braudel 1979, pp. 79-96). In other words, political decisions always clinched the case. Moreover, localization has been frequently the consequence of historical accidents of sorts. Frankfurt, as already mentioned, regained its former prominence as a result of a redesigning of the German financial landscape after WWII. This was "financial statecraft" as understood by Benn Steil and Robert Litan (2006), namely a

restructuring of the German economy along the federalist lines of the U.S. Keeping the financial capital separated from the political one meant that Frankfurt, not least because of the location of the German central bank, the Bundesbank and its predecessor institution, had for sure a certain advantage (in particular in the money markets). Nonetheless, ever since the 1980s, Frankfurt's dynamic relative to its German competitors was largely driven by its attractiveness – from a client perspective – in terms of costs and innovativeness.

Therefore, though not always avowed openly, politics is part and parcel of the competitive positioning of financial places (see for a more general view on the state's un-acknowledged role Pastré 2006, see as well Tyson 1994). The "Corporation of London" probably qualifies for the very "happy protectionists" which Olivier Pastré describes so convincingly (ibid., p. 77). Rules and regulations, the provision of a reliable infrastructure, the availability of a competent pool of human resources did and do make a critical difference. And the public sector, obviously, plays a defining role in this. The institutional environment, as delivered by the political system, hence can be conducive as well hindering to the development of financial places.

Financial centers are, obviously, host to multiple lines of business activities – ranging from bank intermediation to trading in all sorts of instruments, including the supporting infrastructures. Their distinctiveness arises from the gestalt they give to these pursuits. Most fundamentally, financial centers are communication hubs, providing for the cost efficient processing of information. Stock exchanges historically developed literally as places of exchange, as devices to reduce costs of transacting (see in particular Braudel 1979 or Weber 1999/1896). And with advances in communication technologies the average costs of conceiving and operating systems has been ever more declining. This entails spreading fixed costs, it fosters centripetal forces and it explains much of the market consolidation going on (Harris, 2003, p. 159). With information processing becoming cheaper, the flow of information is increasing, which allows for more trading activity to take place (Kotz 2004). Technology therefore has a strong cost- and thus distance-reducing effect. Moreover, technological advances do impact on the complete value chain, they enhance the efficiency of clearing and settlement systems as well as those of all ancillary services.

With the ratio of variable to fixed costs declining, this implies that scale or size translates into a competitive advantage; it fosters consolidation.

Thus two factors have traditionally been essential for the emergence and the lasting importance of a given financial center: (1) proximity or economics of agglomeration, and (2) size or economics of scale and scope. The interplay of these factors and their importance are best illustrated for the case of stock exchanges as they used to be and how they operate today. Agglomeration was important because dealing on a trading floor simply required physical presence, which in turn suggested locating financial institutions that did exchange-related business close to the stock exchange, and vice-versa.

The value of an exchange for its users depends on how liquid this market is, and liquidity depends on the number of traders and the volume of transactions they bring to the market, which gives rise to network externalities as well as economies of scale. Therefore the success of a stock exchange, which was, and still is, a core element of any financial center, used to depend on how many finance professionals worked close to the exchange. Finally, the concentration of trading activity and traders in one location also suggested to have related activities such as clearing and settlement performed near by in order to limit transport and further costs of transacting.

Interestingly, this example also illustrates that traditional reasons for having a concentration of activities, institutions and persons in one place may no longer be valid. Being present at the trading floor is ceases to be necessary in the time of remote access to trading systems such as XETRA. Moreover, it is now largely irrelevant where core computer facilities, providing the backbone of any electronic trading system, are located. Lastly, since documents are not literally transported any more for clearing and settlement purposes, the proximity between an exchange and the C&S facility is also no longer relevant. Some observers take this example as characteristic, arguing that proximity, agglomeration and thus, more generally, location is not a relevant factor any more. O'Brien (1992) has characterized this phenomenon by the term "the end of geography". This trend seems to be particularly relevant

for the apparently footloose financial activities, and it raises the question of whether financial centers might retain any importance at all.

All of this, evidently, provokes the question how far, building on its cluster characteristics, the geographical reach of these highly localized services is. What is, in other words, the geography of finance or what produces distance and thus allows for a multitude of regional centers? How does distance in its various dimensions impact on financial location?

III. Europe's financial landscape in the process of redesigning

Distance generating effects do not only result from transportations costs (Frankel 2000, Leamer 2007). Distance – and thus a geography of markets – can be created by numerous sorts of barriers to communication and exchange such as language, culture, laws and legal institutions. In addition, even with similar laws and regulations, different ways of implementation produce gaps to be bridged by intermediaries: "Among many possible proofs that distance broadly understood is still important, one of the simplest is the observed tendency toward geographical agglomerations of industries … evidence both of costs to transportation and communication and of increasing returns to scale …" (Frankel 2000, p. 12-13).

In European financial markets, we have, as already briefly mentioned, recently experienced two important distance-reducing institutional innovations – the introduction of a common currency and the re-configuration of European capital markets through the very encompassing process of the so-called *Financial Services Action Plan*, being itself a part of the Lisbon Process. Both institutional innovations imply that some defining characteristics of national markets, national currencies and national rules, have been substituted for by their European equivalents. With less need to customize financial flavors to special local preferences one might wonder what the reason of existence for local centers of finance in (continental) Europe is today.

From the viewpoint of regional financial centers like Frankfurt, Paris or Amsterdam, positioning concerns strategic decisions to be taken with regard to the arenas,

the products, and the clients to which those centers would like to cater (Saunders and Walter 1994, pp. 20-22). Ultimately, clients do not buy products but services. And users of a financial center are attracted by those special features of a financial hub differentiating it from its potential substitutes. This is very much akin to monopolistic competition which allows for variety, the location of a model in the product space (see for a very concise overview Frank 1994). In our case, it means that the number and attractiveness of financial places will be the result of a trade-off between economies and diseconomies of scale, reflecting the inherent tension between centripetal and centrifugal forces. And, as Frankel (1996) holds, given the near-indeterminacy of the location of trading, even relatively small costs can have a big effect on the possible consolidation of many small trading centers into a few large ones. But then again, one has to put the benefits and costs of consolidation against the benefits and costs of diversity. Market consolidation is, as a rule, the upshot of the growing capacity to serve local markets or clients cost effectively from a distance.

Here we would like to go a bit more into details and add a comment on the current debate about the suitable organization of the securities transaction industry: Markets should allow for the cost-effective exchange of financial claims and thus contribute to an adequate determination of prices. The underlying demand-to-buy and offer-to-sell financial claims generate an order flow, the handling of which depends on the procedures, rules etc. of the respective market. Trading comes at a cost, that is, it is impeded by commissions and fees which basically work like a transaction tax, thereby reducing the volume of trades. An optimal market allows for trading in a liquid and transparent environment, endogenously generating accurate prices at low costs. Moreover, the ability to buy and sell quickly into a market without moving the price, that is: liquidity, is an attribute of a good market. As a corollary, prices should not move much between trades adjacent in time – that is, good markets are characterized by price continuity which to some degree is synonymous with liquidity. This requires some market depth or, to put it differently, numerous buyers or sellers being prepared to trade above and below current market prices. Finally, and, from a functional perspective most importantly, markets should be informationally efficient, thus reflect pertinent knowledge about the expected trajectory of the asset traded.

In a costless trading environment all these feats would be achieved without any trade-offs. Location would be of no concern whatsoever. In reality, however, different market designs cater to the different attributes of tradable securities and the needs of different investors using these markets – be they retail or institutional investors. The places were trading and interaction takes place become relevant in view of participants' preferences. Moreover, real world markets, even financial ones, are not about "countless faceless buyers meet[ing] countless sellers, and carry[ing] out exactly the same transaction" (Leamer 2007, p. 99). Rather, real world markets have always performed a number of important functions beyond pure match-making. The real raison d'être why numerous market places do exist – locally as well as virtually – is that exchanges cannot be reduced to price discovery only.

A similar argument can be use to explain the co-existence of different business models for the stock exchange industry. Some exchanges offer only the core functions of an exchange, namely contract-making and price determination, while others bundle these functions together with related activities including pre-settlement information-gathering, trade information processing, the distribution of trade-related information, clearing and settlement and, finally, custodial services. The vertical integration seems to be a logical corollary from the economies of scope (as well as scale) being inherent in such a bundle of intertwined functions.

As is well known, this traditional argument for lumping together different exchange-related functions has recently come under substantial pressure. However, the position advanced in favor of unbundling has so far not been substantiated with genuine economic arguments but is, instead, merely supported by invoking management metaphors like "core competencies". In any case, under a pro-market presumption the optimal design of the exchange industry would result from the interplay of demand and supply. Clients would be left to decide whether a "slicing-up" of the traditional value chain of the exchange industry is in their interest. Those who advocate political involvement as a way of determining what might be the more efficient business model should at least provide some arguments explaining why they know better than market participants. It seems to us that there are good reasons for having various trading venues available for clients, and this does support the coexistence of several financial centers offering different trading venues.

As an upshot of the substantial reductions in the costs of overcoming distance (that is, in particular the progress in IC-technologies), financial centers seem to be threatened by *dé-localisation*, becoming mere "virtual places". The evidence, however, is unambiguous: Financial hubs are still very much real places, not at all dissolving into the immaterial. On the contrary, central functions have been concentrated; the anchoring in the real space has even been gaining in importance. The City of London, Wall Street and the central business district of Frankfurt are highly visible centers in a very material meaning of the word, and to this very day are the parts of the respective cities where office rents are highest. How is this possible? The economist Thomas Gehrig (2000) has concisely characterized centripetal (economies of scale, information spillover, thick-market externalities) and centrifugal forces (market access costs, localized information and informational complexity) for the case of financial centers. Economic geographers have come up with a fairly similar list of explanatory factors. One among these is the advantage for employers as well as employees (with specialized demand or skills) of having a locally concentrated labor market, allowing for better matches. Another one is the availability of location-specific elements of the infrastructure such as a high-quality and in particular robust data network (as in the inner city of Frankfurt) and a conveniently located major airport. The concentration of financial institutions in turn attracts specialized providers of finance-related services like those of law firms, IT providers, consultants and accounting firms.

However, the most important factor responsible for the continuing existence of financial centers is that the concentration of financial institutions and people offers ample opportunities for personal and business related contacts of both a formal and an informal nature. It is a most effective device to deal with "information sensitive" (Thomas Gehrig) or information-compact financial assets. This is also what Saskia Sassen (2002) refers to when she explains the advantages of "social connectivity". Face-to face contact is important. Some types of information such as prices, interest rates and transaction data lend themselves to commoditization: that is to being digitized and then communicated electronically. More complex information, however, is significantly less amenable to being processed automatically. Algorithms that would appropriately capture implicit knowledge are unavailable. Moreover, in many cases, information is confidential and ambiguous, that is, difficult to put a

judgment on. And it is about a two-way communicative: In order to determine whether the information is accepted and understood by a potential receiver it is necessary for a sender to be able to assess the reaction of the person to whom it is addressed. It is important to observe the person who speaks as well as the one who is supposed to listen. Moreover, there must be the opportunity for a listener to send weak signals indicating that she or he would like to interrupt the speaker and to ask questions, and the transmitter of the information must be able to react to questions and even the appearance of doubts or unwillingness to be addressed. To be brief: Interactivity is of the essence. Finance is a field in which this kind of complex information transfer is of special importance (see Lo 2003 for the case of the M&A business in Frankfurt).

An additional argument supporting the importance of proximity and thus also of agglomeration concerns the role of trust. Evidently, trust is very important in financial dealings, and it is all the more important the more complex and context-dependent the information is that is to be transmitted. Personal contacts are indispensable for developing trusting relationships.

Last but not least, knowledge that refers to innovations is often passed on in an informal way and on the occasion of casual, not-planned-for contacts. Thus proximity and the possibility of face-to-face communication remain essential features of financial hubs, and this is a major reason why financial centers such as Frankfurt are probably less threatened by the trend towards “virtualization” than some pundits currently claim.

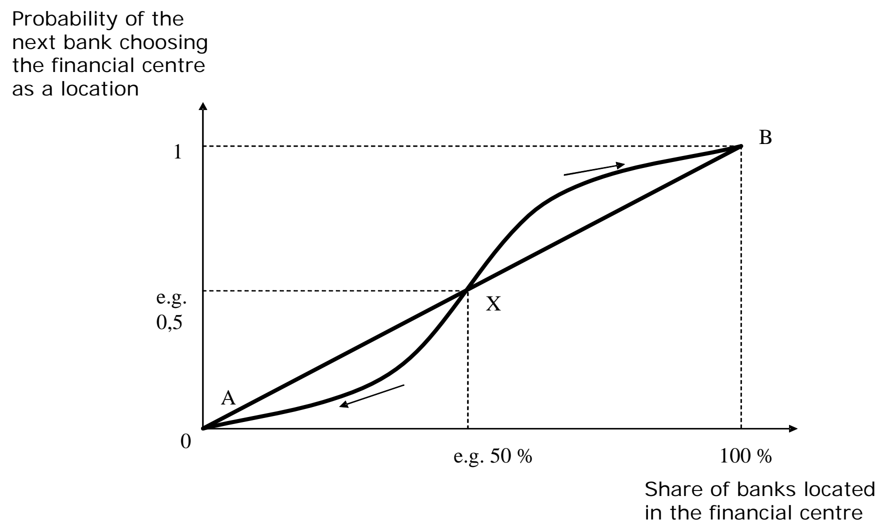
IV. Frankfurt’s place….

However, we are still short of an answer to the question of what is, and can be, the position of Frankfurt in the European system of financial centers. History appears to make forcefully the case that within the domain of a common currency only one financial place is likely to have a leading position. And Germany – as the Frankfurt history clearly shows – is a case in point. There may be a logic behind the emer-

gence of just one financial center, and this logic is concisely captured in a simple, yet highly intuitive model of location choice under the influence of economies of agglomeration.

The idea, being depicted in Figure 1 below, builds on the work of Brian Arthur (1994) on path-dependent developments. Assume that there are only two competing centers and that all that matters for banks' location choices are the presumed benefits of agglomeration. How many banks are already located in each of the two centers – the value on the horizontal axis – determines the agglomeration-based benefits from also being in this place, being shown on the vertical axis. Quite naturally, any bank that plans to establish itself in one of the two centers or that considers to relocate would under these circumstances prefer the larger center promising a higher level of agglomeration benefits.

Figure 1: Market share determining probablility of locational choice



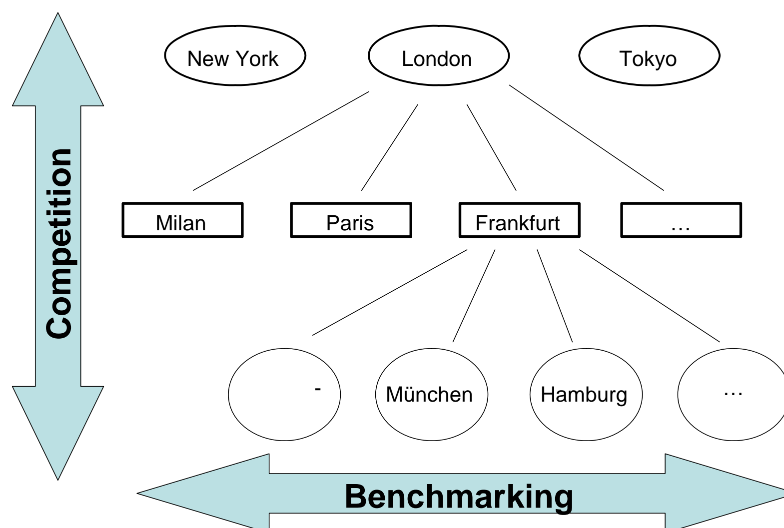
Any intersection of the straight line and the curve in Figure 1 shows an equilibrium position. At point X (which may be 50%, but does not have to be at this market share) the race is open since the realized and the desired market shares of the two competing locations are equal. But point X is an unstable equilibrium. Any starting point to the left or right to point X leads to a self-reinforcing process that establishes one unique center and reduces the importance of the competing location, largely as it has once occurred to Frankfurt as the winner and Hamburg as the loser.

Will a similar development relegate Frankfurt to the sidelines in the larger European context of a largely integrated European financial system?

The Arthur model is, however, incapable of explaining likely future developments in Europe and thus to appropriately capture the situation of Frankfurt as a competitor in the market for financial service locations. Its oversimplification consists in the assumption that the benefits of being close to other financial institutions are the only determinant of a bank's location choice. Numerous locationally relevant factors are however not taken account of. One aspect that is not acknowledged in this model is the importance of being close to clients – the relevance of the economic hinterland – and the ease with which client-related information is accessed or acquired.

Seen from a global angle, there appears to be a hierarchy of financial centers. The leading global centers are New York, London and Tokyo (or possibly Hong Kong, Shanghai or Singapore). On a second level, we have the national financial centers such as Frankfurt, Paris, Milan and Amsterdam in Europe, and below these, we find various sub-centers or third-rank financial nodes in each country. The competitive situation of Frankfurt – the "structure of the industry" – could be evaluated in the context of the hierarchy of financial centers, as being portrayed in Figure 2.

Figure 2: Competition vs. Benchmarking



From a German perspective, it may be nice to learn that Frankfurt has gained in importance and quality as a financial center in a direct "beauty contest" with Paris during the 1990s, as Sophia Harrschar-Ehrnborg has found out and described in a stimulating study from 2002; and from the same perspective it might be regrettable if an additional study performed in 2010 would come to the opposite conclusion. A direct comparison between Frankfurt and Paris may be useful for benchmarking purposes and can certainly provide useful advice to local policy makers on how they might try to buttress their financial place, but it is largely irrelevant under the aspect of competition. The reason is that there are probably very few banks that would ever consider to establish themselves in either Frankfurt *or* Paris or to relocate major activities between these two financial centers. Competition that is relevant for Frankfurt hardly occurs along the horizontal dimension.

For second-level financial centers, the relevant question is how much of their financial activity they lose to London as the dominant hub in Europe or to München and Hamburg or, in the case of Paris, to Lyon and Bordeaux as lower-level financial nodes in their respective countries, and how much activity they can gain back from the financial centers above and below. The relevant form of competition for second and third rank centers occurs along the vertical dimension. Agglomeration effects tend to pull business to the higher level centers, that is, away from Frankfurt (and Paris) and transfers it to London and from München (Lyon) etc. towards Frankfurt (and Paris), while a growing importance of local contacts and local information would strengthen Frankfurt (and Paris) relative to London and München and Hamburg (or Lyon and Bordeaux) relative to their respective national financial centers. In his extensive study of the development of Frankfurt as a financial center, Michael Grote (2004) has shown that after having gained on a national level for a long time, Frankfurt has started to lose business to German sub-centers recently, exacerbating the long-lasting tendency to lose business to London. However, the relative weight of the centripetal and centrifugal forces can change comparatively quickly. This relative position depends in particular on the corporate strategies of large financial services providers (banks, exchanges etc.) as well as on the respective customer base. Thus it may be that the trends identified by Grote only a few years ago, may by now no longer be in force.

Be that as it may, currently a large number of German banks are domiciled in Frankfurt, the Frankfurt stock exchange has emerged as the prime and most profitable stock exchange in Germany, and Frankfurt is home to two central banks, the European Central Bank and the Deutsche Bundesbank. In fact, the latter's creation in 1957 was probably the decisive factor that contributed to the present role of this city in the national arena. And the ECB's location is most probably supportive of Frankfurt's role and place as well. Major accounting and law firms have built up strong capacities; the IT industry (hard- as well as software) located close to one of its major customers, and Frankfurt's airport has developed into one of the major continental European transport hubs. Diseconomies of agglomeration are still rather low. Even more recently, the greater Frankfurt region has also become a productive center of academic research and teaching in finance-related fields.

Table 1: Financial centers -- a few facts

	Frankfurt	*Paris*	*London*	*New York*
Numbers of banks	280	200	340	---
Number of foreign banks	150	160	260	---
Bank assets	2.700	3.900	6.900	---
Equity market capitalisation	1.200.000	2.800.000	2.900.000	11.700.000
Listed companies	760	1.210	3.256	2.280
Share trading volume	2.100.000	2.900.000	5.700.000	16.500.000
Daily turnover (equities)	8.200	11.400	22.800	65.800
Value of bond trading	218.300	295.600	2.504.200	300
Derivatives trading volume	1.270	240	1.000	---
Volume of OTC derivatives	42	125	543	---
FX trading	100	55	626	384

Source: Deutsche Bundesbank

Nonetheless, on an international scale, Frankfurt's position is less significant. By any standards, London and New York are more important, and on the European Continent Paris has always been a formidable rival in the quest for the leading position. Thus, from an international angle, Frankfurt is only one among several secondary financial place in Europe. This is the driving motive behind political initiatives to support Frankfurt's capacity in keeping up pace in order not to lose relative to international financial centers, notably to London. The underlying concern – or policy-shaping motivation – is that advances in financial technology and information and communication tend to favor consolidation – and concurrently threaten to reduce the importance of all secondary financial centers.

The data in Table 1 suggests that over the last quarter of a century Frankfurt has developed into a major financial hub in continental Europe. Almost 300 banks are domiciled in Frankfurt, and nearly two-thirds of those institutions (excluding representative offices) are foreign owned. With a transaction volume of 2 billion US-$, Deutsche Börse is the sixth largest stock exchange in the world. 90 percent of all transactions in Germany go over the Frankfurt market. Particularly remarkable is the position of EUREX, the world's largest market for forwards and futures.

Table 2: Banks in Frankfurt

	Bank employees	*business volume*
1985	45.000	n.a.
1990	57.000	677,6 bn euro
1995	64.500	1.152,6 bn euro
2000	75.100	2.371,0 bn euro
2006	72.200	2.790,9 bn euro

Source: Deutsche Bundesbank

About 72.000 employees find their occupation in the banking sector. To this one should add some 20.000 employees in the insurance and asset management business and, of course, the large number of accountants, lawyers, consultants and PR people which serve the financial industry.

V. …and Frankfurt's perspectives

As we have argued, in contrast to many other industries, that of finance and banking apparently is not as strongly dependent on certain location factors. This would suggest that the role of being an important financial center could change frequently. But this is not what has happened in the past. Financial hubs have retained their position for decades and even centuries. History matters, leading to path-dependence (Braudel 1979 or North 1990). This brings us to a rather circular point: The single most important factor determining whether a given city is a financial center and will be a financial center in the future is whether this city has been a financial center up to now and whether decision makers expect it to maintain this status.

Frankfurt's franchise value mainly derived from the comparatively strong position of its banks as well as the robust demand emanating from its hinterland. Moreover, it developed a reputation for providing a cost-effective access to core inputs as well as a reliable and resilient infrastructure. In addition, Frankfurt-based institutions developed a strong expertise in a particular type of financial engineering, namely data processing, back office handling, as well as clearing and settlement.

In addition, over the last decade, Frankfurt has been developing a financial-market oriented profile in academia as well (see Schmidt and Grote 2006 for details). In the House of Finance, which will be inaugurated next summer, the Land of Hesse has invested some 50 million Euros, to provide for an environment conducive to high-quality research and education. The House of Finance will be the home to the finance-related departments of Frankfurt's Goethe University and a number of affiliated research institutes, in particular the Center of Financial Studies, the Institute of Law and Finance and the e-finance lab. In addition to the university, the Goethe Business School and the MathFinance Lab strive for a high-quality education with direct relevance for the financial industry. Moreover, the greater Frankfurt area is home to the renowned University of Mannheim and to two highly regarded private Business Schools that also specialize in the financial education. In fact, these four institutions jointly constitute an undisputed center for financial research and education in Germany, spanning the whole gamut of areas of importance in finance – from the back office, to financial engineering and to the customer interface.

To be short, Frankfurt did not shy away from being ambitious. From this perspires, to some degree, a change of attitude. Germany, enjoying largely deregulated capital markets (no foreign exchange or interest regulations since the mid 1960s), has been rather slow to accept "innovative" financial products until the mid 1990s, chiefly, because in a low-inflation, low-volatility environment, there was no urgent need for devices to deal with financial market uncertainty. This was a major reason behind the Bundesbank's traditional reluctance vis-à-vis new-fangled instruments. Moreover, a less innovative, however shock-resilient system facilitated money supply control. Financial sector stability was, after all, supportive of underwriting price stability as well. All in all, the attitude to things financial was therefore mainly conservative. But this has changed since the mid-1990s, and to a large degree as a result of

the Europeanization of financial rule making. This holds true for the regulatory environment in general.

Today, Frankfurt enjoys comparative advantages in particular with regard to its pool of specialized, highly competent human capital. Moreover, the technical infrastructure, being a decisive input in financial markets, is reliable and cost-efficient. From all of this follows that the financial industry has developed into a major element of the Frankfurt region's economic base. Thus, in light of the self-reinforcing spill-over effects as well as the consequences of path dependence, Frankfurt appears to be rather well positioned in keeping-up its place in the competition between financial places.

VI. References

Arthur, W. Brian (1994), *Increasing Returns and Path Dependence in the Economy*, Ann Arbor

Braudel, Fernand (1979): *Civilisation matérielle, économie et capitalisme, XVe – XVIIIe siècle. 2. Les enjeux de l'échange*, Paris: Arman Colin

Frank, Robert (1994, 2nd ed.): *Microeconomics and Behavior*, McGraw-Hill: New York

Frankel, Jeffrey (2000): Globalization of the Economy, NBER-WP 7858

Frankel, Jeffrey (1996): Exchange Rates and the Single Currency, in: Benn Steil (ed.): *The European Equity Markets. The State of the Union and an Agenda for the Millennium*, London: The Royal Institute

Gehrig, Thomas (2000): Cities and the Geography of Financial Centers, in: Jean-Marie Huriot and Jacques-Francois Thisse (eds.): *Economics of Cities: Theoretical Perspectives*, Cambridge: CUP, pp. 415-445.

Grote, Michael H. (2004): *Die Entwicklung des Finanzplatzes Frankfurt*, Berlin (Du & Humblot

Harris, Larry (2003): Trading and Exchanges. Market Microstructure for Practitioners, Oxford: OUP

Harrschar-Ehrnborg, Sofia (2002): *Finanzplatzstrukturen in Europa*, Frankfurt/M.: Lang Verlag

Holtfrerich, Carl-Ludwig. (1999), *Finanzplatz Frankfurt. Von der mittelalterlichen Messestadt zum europäischen Bankenzentrum*, München: Beck

Kindleberger, Charles (1974): *The Formation of Financial Centers*, Princeton Studies in International Finance, No. 36

Kotz, Hans-Helmut (2005): Public Policy Issues in Financial Data Processing, in: Volker Deville et al. (eds.): *Issues on Monetary Theory and Policy* (Festschrift for Wolfgang Gebauer), Frankfurt: Bankakademie Verlag, pp. 39-48

Krugman, Paul (1991): *Geography and Trade*, Cambridge: MIT

Leamer, Edward (2007): A Flat World, a Level Playing Field, a Small World After All, or None of the Above? A Review of Thomas L. Friedman's The World is Flat in: *Journal of Economic Literature*, Vol. XLV, pp. 83-126

Lo, Vivian. (2003): *Wissensbasierte Netzwerke im Finanzsektor*, Wiesbaden: DUV

Marshall, Alfred (1920): *Principles of Economics*, London: MacMillan

McDonald, John F. (1997), *Fundamentals of Urban Economics*, Upper Saddle River: Prentice Hall

North, D.C. (1990): *Institutions, Institutional Change, and Economic Performance,* Cambridge: CUP

O'Brien, R. (1992), *Global Financial Integration: The End of Geography*, London

Pastré, Olivier (2006): *La méthode Colbert*, Paris: Perrin

Piore, Michael, and Charles Sabel (1974): *The Second Industrial Divide*, New York: Alfred Knopf

Porter, Michael (1990): *The Competitive Advantage of Nations*, London: MacMillan

Sassen, Saskia (2002): Towards a Sociology of Information Technology, in: *Current Sociology*, Vol. 50, pp. 365-88

Saunders, Anthony, and Ingo Walter (1994), *Universal Banking in the United States*, New York: OUP

Schmidt, Reinhard H. and Michael H. Grote (2006): Was ist und was braucht ein „bedeutender Finanzplatz"?, Bankhistorisches Archiv, Special Issue *Europäische Finanzplätze im Wettbewerb*, Stuttgart, pp. 11-27

Steil, Benn and Robert Litan (2006): *Financial Statecraft*, New York and Washington D.C.: CFR and Brookings

Tyson, Laura (1993): *Who's Bashing Whom? Trade Conflict in High-Technology Industries*, Washington: Institute for International Economics

Weber, Adolf (1938, 1st ed. 1902): *Depositenbanken und Spekulationsbanken*, München und Leipzig: Duncker & Humblot

Weber, Max (1999, 1st ed. 1896): *La bourse*, Transition: Paris

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