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The Location of Financial Activities: The Impact of New Technologies and the Financial Crisis[◊]

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Abstract: The location of financial activities is traditionally characterized by a great deal of inertia. However, the boom in new information and communication technologies, the globalization of economies and the 2007-08 financial crisis have considerably modified the geography of finance. Financial globalization has, first of all, had a heavy impact on the level of spatial concentration / dispersion of activities. The dynamics have not acted in a uniform way – schematically speaking three levels can be distinguished. On the urban scale, financial activities have been spread out (suburbanization), while on the regional scale or the national scale, due to financial globalization, financial activities have been more tightly grouped. Lastly, on the international scale, a movement of dispersion has mainly been observed, along with a specialization of financial centers. The 2007-08 financial crisis might well accentuate this last effect and cause an upheaval in world hierarchy. Actually, the financial centers that are most elastic to the economic situation – London, New York and tax havens – are massively losing jobs, while the stock markets in Shanghai, Hong Kong and Bombay are now upstaging them as major players.

Keywords: Financial Geography, International Financial Centers, Globalization, Informational Externalities.

JEL Codes: E44, G2, R1.

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INTRODUCTION

Will the financial crisis put an end to the supremacy of Wall Street and the City over other stock markets? As of the end of April 2009, London was, for the first time, no longer listed in the Top 5 list of stock exchanges in terms of market capitalization. New York, Tokyo, the Nasdaq, Euronext, and then Shanghai successively displaced what had been the world's number one financial center for two centuries. As of the first quarter of 2009, the great majority of IPOs involved countries in Asia and the Middle East. It can be argued that China, overheating on an inflow of liquid assets, is the new theater of a speculation bubble and that Asian companies newly listed are in no way comparable to their American counterparts. However, when all is said and done, Wall Street and the City have still lost their competitive edge.

The upheaval seen in the world's financial geography is remarkable in that the hierarchy of financial centers is traditionally characterized by a great deal of inertia. Another important point is that these changes were not triggered by the 2007-08 financial crisis – the crisis only accelerated the rate of change. In the last twenty years or so, the development of new information and communication technologies (NICT) and the liberalization of economies have gradually, but thoroughly reshaped the world's financial geography. Is this something to worry about? How might these changes impact national economies?

Competition between financial markets: what is at stake?

Political authorities' defense of their financial centers is an established fact (Cassis, 2006) and the present situation is no exception to the rule. Despite the financial crisis and the need for countries to cooperate, competition between financial centers has not completely ground to a halt. Each government continues to defend its own financial system. It is true that the financial system fulfills functions required for economies to operate smoothly (Merton, 1995) and a number of empirical studies conclude that finance leads growth (Levine, 2005). This is why governments have traditionally defended the presence of financial intermediaries and markets within their borders. However, in a globalized economic world with free capital flows, this argument is no longer relevant. In fact, with present-day technology the functions carried out by financial systems could theoretically be fulfilled at a supranational level.

So what is behind the defense of domestic financial centers today? Reasons of a symbolic nature very probably come into play (Ferguson, 2001). The economic – and geopolitical – power of a country is associated with its financial power. Having a financial center means maintaining a certain status on the international scene. Additionally, financial activities – particularly market activities – are proof that emerging countries adhere to the Anglo-Saxon model and have adopted capitalism as a regulatory system.[1] Still, symbolic reasons are not the only argument.

The defense of financial centers is mainly justified by the importance of the financial sector in the economy. In 2006, i.e. shortly before the crisis began, the financial industry in the United States accounted for over 6.5 million direct jobs (4.3% of total employment) and salaries worth $ 500 billion (8.2% of total salaries)[2], with the corresponding percentages being about the same in the United Kingdom. In the European Union, financial activities represented 6% of the GDP and directly involved over five million employees. This is twice the working

[1] Ironically, the Warsaw stock exchange (*Gielda*) is now located on the site of the former headquarters of the Polish Unified Workers Party (PZPR).
[2] See Philippon (2008) for a discussion of employment dynamics since 1860 in the United States financial sector.

population of Ireland and equal to the working population of Belgium, Austria or Portugal.[3] Moreover, the financial activities are even more significant on a regional level. In 2006 they accounted for over 10% of the jobs in London, in the state of New York or in Paris (over 20% if the focus is limited to the City of London or to New York City). This is without factoring in the ancillary jobs in information technology, law, for example.

In addition, financial activities are usually high value-added undertakings that require a highly qualified workforce. Salaries in the sector are consequently 1.5 to 2.5 times higher than the average (cf. Philippon and Reshef, 2008): employees in the banking-finance-insurance sector account for 16% of total salary value in London and up to 25% in New York City!

Towards a new financial geography?

Given the influence of the financial sector in the economy, the consequences of the financial crisis have become disastrous for financial centers. London, New York and Dublin have seen a drastic drop in hiring and employment volumes in the financial sector. This empirical fact should not be allowed to hide reality: changes in the location of financial activities go deeper and began to make themselves felt in the 1900's.

With financial globalization, there has been a thorough reorganization of activities. A new geography of finance has emerged with, first of all, activities being transferred from the historical heart of big cities to the peripheral areas. This suburbanization heralds a more profound movement of delocalization of financial activities, at least as far as the most standardized activities are concerned. The problem of delocalizations is posed in different terms for high value-added activities. These activities are characterized by manpower demand according to opportunities on the financial market and the existence of externalities of proximity that justify the agglomeration of activities. Manpower supply is highly mobile between financial centers and choices are made on the basis of economic considerations (base salary and bonuses), but also according to extra-economic considerations (quality of life, health coverage, etc.). Although spatial dynamics on the international scale have been dominated by manpower demand in the last twenty years, thereby inducing the centralization of activities in certain financial centers, the crisis could bring about some modifications in this set-up. The workforce might well proceed to opt for new geographical choices where extra-economic considerations would be as important as salaries. The centripetal trend could be reversed in favor of a dispersion of financial centers based on employees' search for a certain quality of life for themselves and their families (e.g. Switzerland, Paris). Lastly, the booming emerging stock markets in the Middle East and Asia need to be closely watched.

To provide an understanding of the future dynamics of the location of financial activities we need to redefine the notion of financial market (Part 1) and then specify the centripetal and centrifugal forces at work on the urban scale, as well as the international scale (Part 2). Following this, we will be in a position to propose our view of the future landscape of the financial industry (Part 3).

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[3] Sources: Base STAN (OECD) and Eurostat.

FINANCIAL CENTERS

The concept of a financial center is rather difficult to define. Often it is (implicitly) identified with the stock market, which is easy to understand as long as the negotiation of stocks and shares requires physical presence. In this case the stock market floor is the node that financial activities are organized around. In order to guarantee sure and fast access to information, all players in finance – banks, insurance, along with ancillary activities (law, accounting, information technology, consultancy, analysis, the media, etc.) – will be situated near this node. In this case, the geographical concentration of financial activities is extreme, as was true in the eighties for the top three financial centers in the order proposed by Reed (1981): London, New York and Paris. Until the end of the decade the Square Mile centralized all the financial establishments in London on 2.6 km² and in New York, financial activities were concentrated on the few streets around Wall Street known as the Financial District. Lastly, Brongniart Palace and the "grands boulevards" (9th, 8th and 2nd districts) were the scene of the financial activities of Paris's financial center.

The development of new information and communication technologies has considerably modified this geography. Dematerialization of stocks and shares, along with rapid and secure data transfer (for the flow of orders as well as information), no longer require financial activities to be concentrated. Stock market floors have been deserted one after the other – with the notable exception of the New York Stock Exchange, but for how long? They have been replaced by IT networks, with one of the main advantages being that agents can take part in the market wherever they may be. Since the stock market is no longer a physical place where stocks and shares are exchanged but a virtual structure, it really makes no sense any more to identify financial centers with stock markets.

Another way of defining the concept of financial center is to take its systemic nature into account. For example, for the Banque de France (Hannoun, 2000; Duvivier, 2004) financial centers are defined as "meeting places provided for a large number of players who contribute to the smooth operation of financial markets within ecosystems, giving rise to significant synergies". This definition emphasizes the essential importance of the effects of inter-industry agglomeration. However, it does boil down to considering that a financial center worthy of the name has to provide a very wide field of activities and that practically all the professional categories in finance must be exercised there: listing and trade of stocks and shares, negotiation of derivatives, foreign exchange operations, management of assets, middle and back office, venture capital, etc. This is far from being a reality and many financial centers among the world's largest would not recognize themselves in this description.

In the United States, financial centers are historically highly specialized: stock exchanges are in New York, derivatives markets are in Chicago and asset management in Boston. What about off-shore markets? Luxembourg, for example, claims fully-fledged status as a financial center. Although it can not compete with the City, how could the term of financial center fail to apply when the importance of financial activities is greater there than in any other European region[4] and when the Luxembourg stock market is the largest European market for corporate bonds?

The ecosystem approach applies only to certain traditionally comprehensive national financial centers, such as London or Paris, during a period when financial activities were tightly intertwined. Financial evolution has led to a vertical disintegration of professional categories. The City, for example, has delocalized some of its functions to Dublin or Jersey and

[4] Salaried workers account for 12% of the bank-finance-insurance sector in Luxembourg, compared to 11% for London, and between 5% and 6% for the Greater Paris region and the Frankfort region. The European average is around 3% (Capelle-Blancard *et al.*, 2007).

Guernsey, and Paris management firms have branch offices in Luxembourg.[5]

To discuss the evolution of financial centers properly, we argue that it is important to highlight their diversity. Recent research seems to support this concept, for example the study of Faulconbridge (2004), based on the research into geography initiated by Friedmann (1986) and Sassen (1991, 1999) on "world cities". The advantage of this approach is that it emphasizes the complementary nature of financial centers and showing that they operate more in a network mode than in competition. This led Faulconbridge (2004) to rank financial centers (one of Reed's ambitions in 1981). In Europe, London alone was defined as a global financial center (in the sense that London provides a link with America via New York and with Asia via Tokyo). Frankfort was granted the status of continental financial center, while Amsterdam, Milan and Paris were seen to play a purely domestic role. It should be noted, that this type of ranking exercise is always rather sensitive as it is highly subjective (see also Capelle-Blancard and Tadjeddine).[6] In the same register, Poon (2003) and Poon et al. (2004) examine the changing concentration in world financial centers in the 1980s and the 1990s. The data they used mainly pertain to market capitalization. Among some forty cities under study, such major financial centers as Chicago, Osaka and Dublin are missing.

In this article, we simply define a financial center as a place where financial activities exert a significant macroeconomic influence on a circumscribed geographical area.[7] This influence can be appreciated in terms of added value or employment, relative to other economic sectors. There is no longer any need for a stock market in order to qualify as a financial center. In contrast, we feel the need to emphasize the heterogeneity of the labor factor (see also Clark and O'Connor, 1997) which, as we will see in the following sections, explains the diversity of financial centers.

THE EFFECTS OF GLOBALIZATION ON THE LOCATION OF FINANCIAL ACTIVITIES

The decrease in transaction costs due to liberalization and new information and communication technologies has had two contradictory effects on the location of financial activities (see Figure 2 – numbers ❶ to ❾ in the text refer to the figure). The decrease in transaction costs is often – somewhat hastily – thought to allow a greater dispersion of activities, but this is tantamount to ignoring the forces that act to promote geographical concentration.

With electronic exchanges, agents no longer need to be close to the market to carry out their transactions and are seemingly freer to choose their location ❶. Richard O'Brien (1992), in a book with the provocative title "Global Financial Integration: The End of Geography", concludes that financial establishments will be setting up house any and everywhere. He forecasts a rapid decline in the major financial centers, among other things. The advent of online banking and brokerage would seem to prove him right for the time being. Let us point

[5] Luxembourg at the end of the 1960s and Ireland in the mid-1980s, for instance, decided to practice accommodating fiscal and regulatory policies to attract offshore subsidiaries of financial groups, thereby developing their financial and economic sectors and rebooting their respective economies.

[6] The criteria to be considered are not only extremely varied, but even when a consensus can be reached about some of the variables, there still remains the task of getting homogeneous data, aggregating them and determining suitable weighting factors. In addition, Faulconbridge (2004) fails to account for the wide variety in financial centers. The financial centers in Luxembourg or Dublin, for example, are not mentioned at any time!

[7] Actually, our approach resembles the simple definition proposed by Porteous (1995, p. 93): "… *a financial centre is an area, usually a city, although often more localized within city boundaries in which high-level financial functions are concentrated.*", except that our definition is not restricted to high added value activities.

out that the idea that lower transaction costs could act as a dispersion force is not just relevant to financial activities. In the 1990s, Frances Cairncross predicts "The death of distance". On the whole, this research views globalization and new information and communication technologies optimistically, as slated to free the world from the constraints of distance. These scenarios have been largely called into question on a theoretical as well as empirical level.

Lower transaction costs are more a centrifugal than a centripetal force. Firstly, with lower distance-related costs as a result of new information and communication technologies, the other variables that determine the choice of location will be able to exert greater influence. Some variables will act in favor of the dispersion of activities, such as congestion costs (real estate costs, saturation of downtown areas) and the pressure of competition ❷. In contrast, other variables will encourage geographical concentration ❸. This is the case for advantageous tax policies, accommodating legislation and low-cost manpower whose power of attraction will be felt farther away.[8] The harmonization of accounting and regulatory standards on an international level and, in Europe, the construction of a common market reduce the importance of certain local particularities in the choice of location, thereby promoting the concentration of activities on a regional, national or international scale.

Secondly, the choices of each individual in matters of location are not independent of the choices of others – whether they be customers, suppliers or competitors. Research by the New Economic Geography[9] insist precisely on these strategic interactions and show that clustering phenomena are essentially a result of the presence of positive externalities. This paradigm can easily be applied to financial activities.

The concentration of companies in the same industry in the same place has a tendency to attract specialized suppliers, e.g. companies in the IT and telecommunications sectors, law offices, accounting firms, but also research laboratories. Where one single (non-monopolistic) company would fail to attract the suppliers it requires for its production needs, a grouping of several companies can succeed. This gathering together of specialized suppliers enhances the availability of intermediary goods and services, increases competition and, as a result, exerts a lowering pressure on costs.

The concentration of companies also helps develop the employment pool and the reasoning is about the same as for specialized suppliers. These two sources of externalities are often placed under the same heading of pecuniary externalities. The geographical grouping of a large number of companies in the same industry attracts a large labor force, since the probability of finding the desired job quickly is higher in the area.[10] Companies benefit in turn from this concentration of specialized manpower as they can more easily fill their job slots with suitable personnel. There is a trade-off, however: high employee turnover and pressure for higher salaries.

Lastly and most important, the concentration of companies yields informational externalities. New information and communication technologies promote the circulation of information, essentially public information. The more (standardized) public information circulates freely and at low cost, the more value private information takes on. Players may no longer need to

[8] Thanks to technological progress, tax and regulatory havens such as Switzerland, Luxembourg and Delaware have become competitors for historical financial centers since the 1970s. This could be considered as a form of dispersion of activities. In fact, even though certain establishments or their affiliates are being delocalized, it has occurred to the benefit of another financial centers and the activities remain concentrated, even more so than before.

[9] Krugman (1991) is often considered to be a pioneering article.

[10] In particular, at least until the 2007-08 financial crisis, the power of attraction of New York or London was very high – each year it hosted graduates from the all world over drawn by the prospect of highly lucrative careers.

keep close to the stock market – which has become virtual – but it is still very much in their interest to set up their businesses near one another in order to share knowledge and information and keep abreast of rumors, buzz, etc.[11]

These three types of externalities are a source of increasing returns in industry and this is what really holds financial centers together ❹. It is also what explains their inertia: clustering forces create a lock-in effect.[12] London, which acquired its status as world financial center during the period of the British Empire and the supremacy of the pound sterling as an international currency, illustrates this phenomenon perfectly (Porteous, 1999). Although some of the conditions which initially nourished London's boom are no longer in existence, the city continues to be a first-rate financial center, particularly for foreign exchange activities.

Given the importance of externalities, and therefore in contradiction with Richard O'Brien, it is expected that the recent drop in transaction costs due to new information and communication technologies will act in favor of the geographical concentration of financial activities – obviously except for those that require direct contact with individuals (tellers' windows in banks and financial advisors) or companies (financial analysts). In any case, this is nothing new since Garbade and Silber (1978) showed that the telegraph and transatlantic transmission cables at the end of the 19th century greatly contributed to the integration of markets. Furthermore, Arnold, Hersh, Mulherin and Netter (1999) showed that the dramatic decrease in the cost of long distance telephone calls early in the 20th century (a 60% decrease between 1925 and 1940) and the regulatory changes following the crisis of 1929 are two factors that caused regional stock markets in the United States to move toward consolidation.[13]

Up to now in this section we have discussed the general principles involved in the location of financial activities. In so doing, we have implicitly considered that these activities are homogeneous, but in order to proceed we need to reconsider this hypothesis. Along with the process of horizontal integration of the major players in finance (banks, insurance, asset management, etc.) ❺, a vertical disintegration of professional categories has been observed since the 1990s. The rapidity, traceability and securitization of information flows have, since then, allowed some activities to be farmed out. In addition, liberalization and NICT has allowed many tasks to be standardized and reduced externalities at the company level. All of this has caused a break-up in the production process of financial services ❻. NICT allow the activities of the same group to be centralized without having to concentrate them geographically, thereby causing the separation and dispersion of activities formerly grouped within the same establishment in the same place. This movement may take on several forms: creation of affiliates or externalization, transfer of activities to peripheral areas (i.e. suburbanization ❼) and delocalization ❽. According to the traditional theory in international economics, specialization of financial centers should also be expected in function of their comparative advantages ❾.

New information and communication technologies have therefore not only given rise to a new financial geography (without necessarily reducing the geographical concentration due to the presence of externalities at the sector level), but they have also contributed to restructure

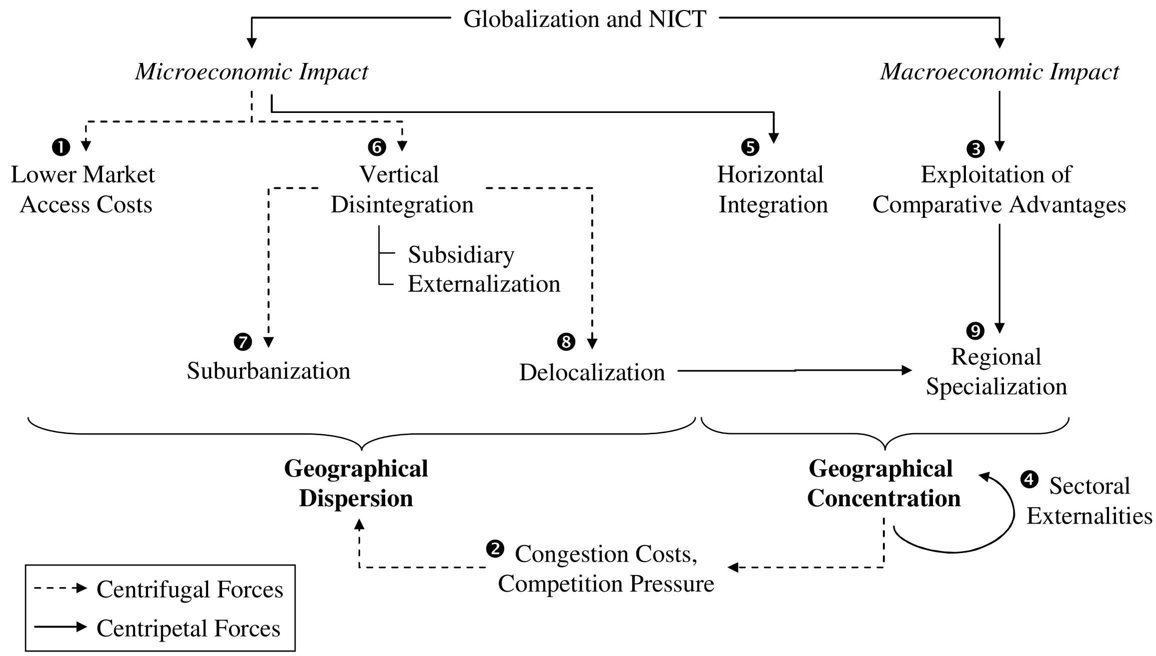
[11] This is also what explains that sociocultural factors have such a great influence on the formation and development of financial centers (Thrift, 1994; Agnes, 2000).

[12] Lock-in or path dependency effects are classics in the literature of geographical economics. For example, for Ottaviano and Thisse (2001, p.117), "*There is a great deal of flexibility in the choice of locations but a strong rigidity of spatial structures once the process of agglomeration has started*".

[13] Among the innovations that have helped restructure the financial landscape, mention can be made of the appearance in the Middle Ages of the bill of exchange. It remodeled banking geography by creating a European network (Favier, 1995), even if its effect on the concentration of financial activities is uncertain.

financial groups. The following section deals with these dynamics.

Figure 1. The effects of financial globalization on the location of financial activities



Note: the mechanisms numbered from ❶ to ❾ are discussed in the text.

Globalization along with a high rate of savings in Western and Asian countries has nourished financial innovation, which has been the source of significant profits for financial intermediaries. In this way, financial organizations have generated profits enabling them to offer attractive remuneration. Manpower demand for high value-added jobs dominated the equilibrium on the labor market, being underpinned by the exploitation of externalities (❹), thereby giving rise to geographical concentration and competitive pressure for higher remuneration. Since this was a self-sustaining loop, world financial centers concentrated more and more financial activities. Alternative asset management (Tadjeddine, 2009) that has emerged in Europe in the past ten years is undoubtedly the emblematic example of this concentration. The specific nature of this activity – highly skilled employees, high value-added knowledge services – justify concentration in order to take advantage of informational externalities and of the presence of specialized companies. As of the end of 2006, two-thirds of the hedge funds in Europe were managed in London (source: IFSL).

The current crisis has caused hardship in financial organizations by reducing their profits, forcing them to practice moderation in the area of salaries. In these conditions, competitive pressure becomes stronger ❷, the demand for manpower in financial capitals slows down (a double-barreled contraction in the number of jobs and the level of salaries) and the supply of mobile manpower becomes dispersed by exploiting the comparative advantages of the different financial centers, both in economic and extra-economic terms. The crisis was just a catalyst: the competitive pressure for higher salaries and the costs of congestion were more and more economically unsustainable.

TOWARD A NEW GEOGRAPHY OF FINANCIAL ACTIVITIES

In the preceding section financial globalization was seen to have varied and contradictory effects on the location of financial activities. In particular, the NICT has split up professional categories in finance and this vertical fragmentation has modified the problematic of choosing locations. The issue is no longer to identify the optimum location for a group, but to combine the optimum organizational forms and locations for each professional category. As a result, we are seeing a profound transformation in the world's financial landscape. In this section, we emphasize three characteristic features of this transformation: the transfer of certain activities to peripheral areas, the delocalization of certain establishments and the expected dispersion of high value-added jobs.

The suburbanization of financial activities

The transfer of ancillary activities to peripheral areas is known in urban geography as suburbanization. Ansidei (2001) applies Ota and Fujita's model of the delocalization of ancillary activities (2003) to financial activities. In this model, production is broken down into a central unit (in our case, the activities of the front office) and an auxiliary unit (the activities of the back office). Front office activities benefit from informational externalities, which justify their being geographically concentrated and kept in the center, while back office activities are delocalized to cut costs. This suburbanization model describes the site transfers observed recently in international financial centers remarkably well. The only difference is that all financial activities are potentially involved and not only those with little added value.

A large number of services have left the center of London, New York or Paris to go to peripheral areas (see graphs and maps in the Appendix). Historically, the United Kingdom's financial activities are highly concentrated in the City (The Square Mile), but since the mid-nineties financial institutions have started to prefer Canary Wharf, located 3.5 km to the east on the banks of the Thames in an area formerly occupied by docks. This new business district now accommodates Credit Suisse, HSBC, Citigroup, Lehman Brothers, Morgan Stanley, Bank of America and Barclays among others. It is also home to the Daily Telegraph and Reuters as well as the Financial Services Authority, a strong symbol.

This type of movement can been seen even in New York. Rosenthal and Strange (2005) show that finance-insurance-real estate (FIRE) is the most geographically concentrated sector in New York (compared to industry, wholesale commerce and services). In contrast, the authors do not comment on the transfer of activities from Manhattan to New Jersey. This is one of the consequences of the September 11th 2001 terrorist attacks[14], but not the only reason. Pohl (2004) discloses that these transfers were already under way[15]: the cost of rentals, the problems of congestion, the decrepitude of facilities had prompted a number of financial companies to move. Recently, institutions as illustrious as Goldman Sachs, Chase Manhattan Bank, Lehman Brothers, Merrill Lynch and Charles Schwab have moved to New Jersey.[16]

Paris is experiencing a similar situation: between 1993 and 2005, in the 2nd district, the number of employees in the finance sector dropped by more than one half, going from 27,000 to 12,000. The share of financial activities in the total employment picture is now only 21% compared to 35% in 1993. These moves have swelled the district of La Défense to the west,

[14] In September of 2001, the city of New York lost 25,000 jobs in the market finance sector.

[15] Orr and Rosen (1997) also calculated that some 9,000 jobs in the bond industry had left New York for New Jersey between 1993 and 1996.

[16] The number of employees in the financial sector in NYC as percentage of the US has been divided by two between 1973 and 2008.

where the number of employees in the finance sector grew by about 20%. Additionally, suburbs to the east of Paris as well as to the north (Saint-Denis) have also benefited from the new location of financial activities (Capelle-Blancard et al., 2007).

Before the crisis, financial activities mainly moved away from historic centers toward the peripheral areas.[17] In the future though, some activities will probably not be delocalized just to the suburbs but farther: to the provinces or abroad, with jobs being transferred internationally.

Should delocalizations be feared?

Since the beginning of the 21st century, the debate on delocalizations has taken on another dimension. Until then, delocalizations only involved industrial activities, but service activities are increasingly hit, particularly financial activities. It is difficult to quantify this phenomenon, there are few existing studies for the time being, but all agree on the significance of the trend.[18]

Traditionally, the activities hardest hit by delocalization are those that can be standardized (little experience or no sophisticated training required). For the financial sector, this essentially means support activities, such as accounting, IT, call centers and payroll services. It is also the case for back office and middle office activities with standard products like shares, bonds, foreign exchange and short-term financial instruments, based on explicit routines and procedures that can easily be commuted into specifications. Luxembourg has become an important center for back office and middle office activities in asset management; many German, Italian and French asset management firms have delocalized their depositary holder functions there. In contrast, back office and middle office activities for innovative unregulated products, such as over-the-counter contracts, structured products and derivatives, are more difficult to externalize. They not only require rare skills but must also be located near operational personnel so that the nature of orders can be analyzed and risks can be judged as well as possible.

In comparison with the above-mentioned activities, those with a high added value seemed to be protected from delocalization for a long time.[19] This was and still is the case for financial analysts and distributors who have everything to gain in remaining as close as possible to customers and issuers. Many foreign investment companies have offices in Paris, for example, and do manage some funds under French law, but they mainly employ analysts keep abreast of French companies and salespeople to distribute their home products to French institutional investors. In contrast, some high value-added activities, such as front office activities for example, do not need to be near final users. As a result, there is every reason to fear that financial evolution, by reinforcing the externalities at the sector level, will promote the concentration of these activities and therefore their delocalization. This holds true for every

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[17] An exception to this trend, independent hedge funds favored downtown areas: Mayfair in London, the 1st and 8th districts in Paris (Tadjeddine, 2009).

[18] According to the Deutsche Bank (2004), one-quarter of German banks resort to delocalizations, a higher percentage than for manufacturing industries. The Deloitte Office (2004) reckons that 80% of the major banks (those with market capitalization of over 10 billion dollars) practice delocalizations, while 50% of smaller banks do so. In 2004, the ECB also conducted a survey with around a hundred EU banks. In 90% of the cases, they put forward cost cutting as the reason for delocalizations.

[19] Up to now, major banks have delocalized their head offices only when faced with political upheavals. This was the case, for example, of the Deutsche Bank moving from Berlin to Frankfort after Germany was divided into East and West. Another case was when HSBC moved to London in 1993 in anticipation of Hong Kong being returned to China.

country except one – if all the players are concentrated in a given financial center, it is necessarily because the other centers have delocalized their activities there.

Increasingly specialized and dispersed financial centers

Whereas most observers anticipated financial centers to become more and more concentrated, the last few years have seen the reverse effect. On the international scale, financial activities are increasingly dispersed. There are two reasons for this – which have nothing to do with the financial crisis – the exploitation of the comparative advantages of each center and the economic boom in the Middle East and Asia.

Specialization of financial centers. The restructuring of Canadian stock markets in 1999 illustrates the situation very well. Until then, the different Canadian stock markets were designed as comprehensive in nature the same as in Europe. In contrast, the 1999 agreement provides for specialization by market sector: large-cap stocks are now negotiated on the Toronto stock exchange and those of small companies on the Alberta-Vancouver stock exchange. Lastly derivatives are all negotiated on the Montreal stock exchange.

In the same way, in Europe the stock market consolidation process currently under way is less one of grouping activities than of polarizing them. National European financial centers had traditionally been comprehensive in nature and until the 1980s all the professional categories in finance were present on these integrated centers. This is no longer necessary, since with the unification of the European market and in accordance with the traditional theory of comparative advantages, there has been a diversification by professional category and a specialization of financial centers along the same lines as the situation prevailing in the United States. As such, London is still ranked first for currency instruments and derivatives, Frankfort is the leader for debt securities, while Paris maintains in a strong position for asset management.

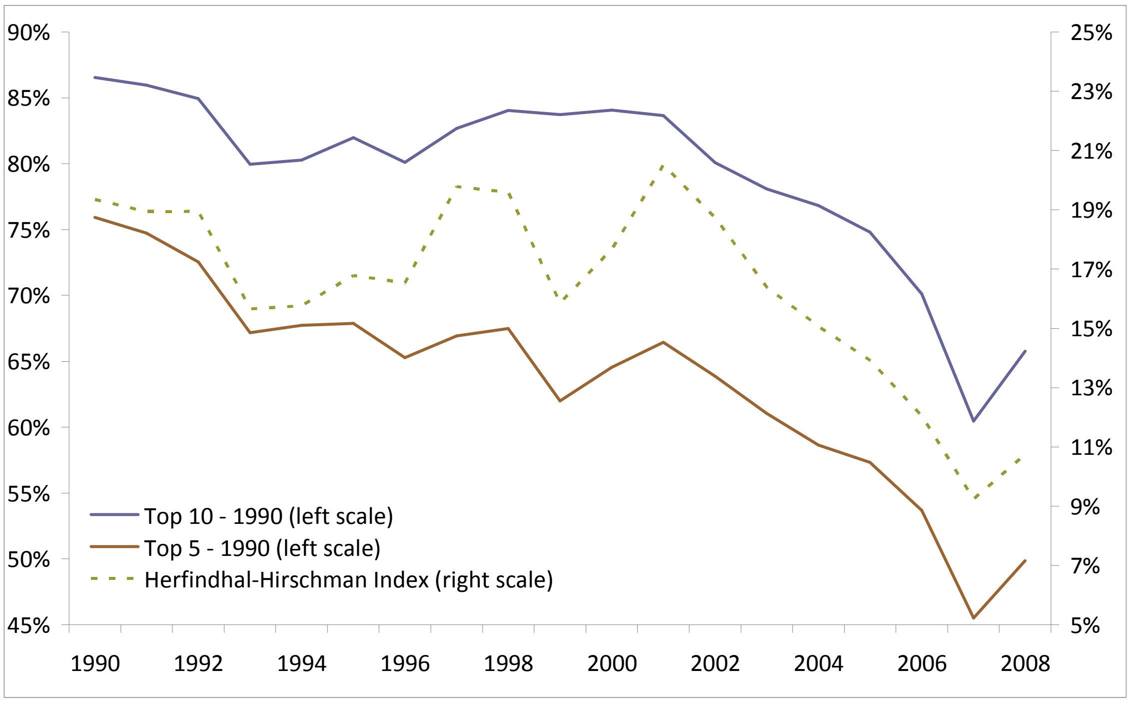
The booming Eastern stock markets. Historically a gradual disappearance of regional stock markets has been observed in Western countries. At the end of the 1990s, it was thought that this trend toward concentration would quickly continue beyond national borders and even accelerate because of demutualization. It is true that there was the creation of Euronext (2001) and then its merger with the NYSE (2006), as well as the grouping of Northern European stock markets under OMX Group, then its purchase by the Nasdaq and the Dubai stock market (2007). However, on the whole, there has not really been a decrease in the number of stock markets in industrialized countries. In contrast, during the same period of time, more than twenty stock markets have been created in the Middle East and Asia. In 2009, there is a grand total of over a hundred securities exchanges in the world – since the creation of a vast planetary market was expected, this fact is in itself symptomatic. Most of these stock markets are arguably minute and a number of them are highly likely to vanish as fast as they appeared. However, it is also certain that some of these newly created stock markets are in a position to reshuffle the cards in the world's market capitalization game.

In 1990, the five largest financial centers in terms of market capitalization were the Tokyo stock exchange, the New York stock exchange, the London stock exchange, the Deutsche Börse and the Paris Bourse. These Top 5 accounted for three-quarters of the world's market capitalization at that time[20], but the percentage fell to 45% as of the end of 2007. As illustrated in Figure 2, the drop in the Herfindhal-Hirschman index is also indicative of a lesser concentration of stock markets and is mainly due to the rising power of new economic

[20] As a reminder, the United States, Japan, the United Kingdom, Germany and France account for around half of the world's GDP and a twelfth of its population.

players on the world scene – with China and India coming in first place. In the emerging countries, finance is what follows growth, and here again the 2007-08 financial crisis has amplified an already existing trend.

Figure 2. Degree of concentration of stock markets worldwide



Note: Ranking on the basis of market capitalization. The Herfindhal-Hirschman index is equal to the sum of the square of the market share of all the stock markets that are members of the WFE. Data source: World Federation of Exchanges (2009). Calculation: Authors.

The significance of a financial center should not be reduced to the size of its stock market, even though it is the easiest indicator to mobilize. If the importance of banks is used as a reference, the situation is even more desperate for Western financial centers. As of the beginning of 2009, the three biggest banks in the world in terms of market value are Chinese: ICBC, China Construction Bank and Bank of China[21], whereas none of them was as yet quoted in 2005.

As far as foreign exchange activities are concerned though, their inertia is almost complete. London remains by far the dominant financial center with one-third of the transactions in 2007, followed by New York (17%), Switzerland, Tokyo and Singapore (6%). Since the first s Triennial Central Bank Survey of Foreign Exchange by the BIS in 1989, the Herfindhal-Hirschman index has even slightly increased, going from 14% to 16%.

[21] These banks ranked respectively 12th, 23rd and 30th in their sector on the Forbes listing that takes revenue, EBIT and book value into account, in addition to market value.

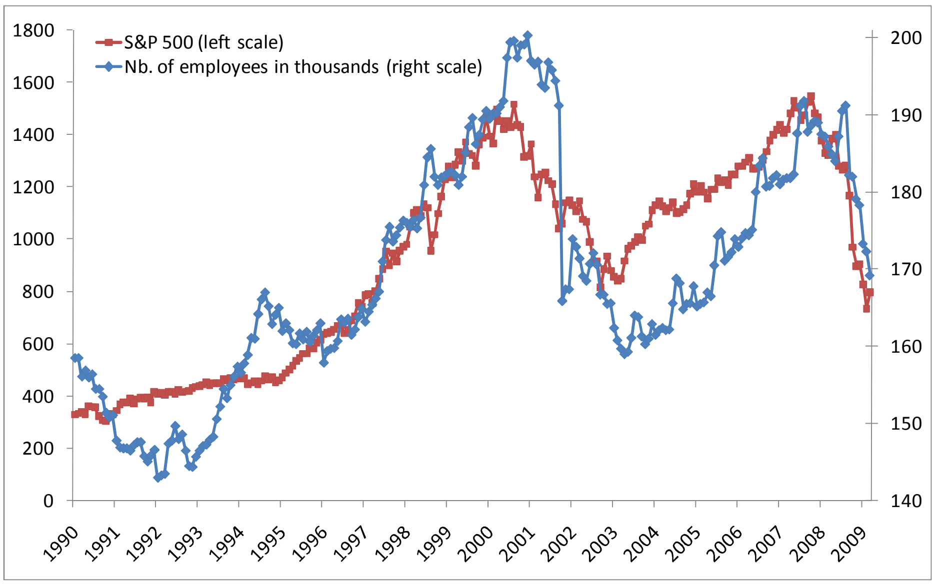
The impact of the 2007-08 financial crisis on financial geography

We have reiterated the fact that the financial crisis that began in 2007 had mainly had the effect of accelerating trends under way for several years. However, for certain financial centers, the impact of the crisis itself is particularly significant.

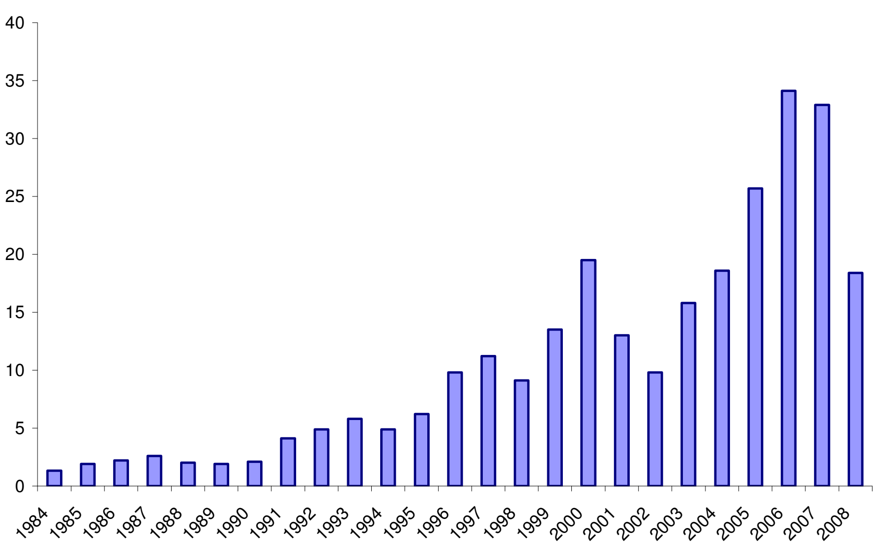
In 2006, the record-breaking level of bonuses in the financial industry prompted Alan Hevesi of the Office of the New York State Comptroller to say: "When Wall Street does well, New York City and New York State do well". This logic can be turned around – as illustrated in Figure 3, the number of employees in market activities is closely linked to stock market performance. The impact on remunerations, in particular on bonuses, is also strong.

Figure 3. Stock market performance and Wall Street jobs

a. Number of employees: Securs., Commod. Contr., and Othr. Finan. Invs. & Relat. Activs.



b. Wall Street Bonuses (in billions of USD)



Source: New York State Department of Labor & OSC.

The bursting of the Internet bubble between 2000 and 2003 in conjunction with the terrorist attacks of 9/11 resulted in the loss of 35,000 direct jobs, 10,000 indirect jobs and 60,000 ancillary jobs for the city of New York, i.e. a total evaluated at over 100,000 jobs (Hevesi and Bleiwas, 2004). This meant lost business opportunities worth over a billion dollars for the city and $ 4.5 billion for the state.

How much can the financial crisis have cost New York? As of the beginning of 2009, the crisis seemed to have calmed down. Without trying to outguess future developments, an initial assessment can be put forward: between the summer of 2007 and the spring of 2009, the city of New York lost over 30,000 jobs in the financial sector, i.e., for the time being, as many as between 2000 and 2003. More importantly, job losses seem to be more durable than after the Internet bubble burst, if only because the banks were directly hit. The main investment banks, the jewel in the crown of New York's financial industry, have now all disappeared and, in the same way, hedge funds have suffered a head-on collision with the consequences of the crisis.

As of the beginning of 2008, the approximately 11,000 hedge funds registered in the world managed $ 2,150 billion and employed some 150,000 people. In one year, according to the Hedge Fund Research of Chicago, some 1,500 hedge funds have vanished, and the trend is only just beginning.[22] London, where alternative management had been considerably developed since the end of the 1990s, has turned out to be the hardest hit. According to data from the International Financial Services of London, assets under management in London have plunged by 37.2% (from $ 430 billion in 2007 to $ 270 billion in 2008), compared with a relative drop of 26.7% in New York (from $ 860 billion in 2007 to $ 630 billion in 2008). Hedge funds employed 40,000 people in London (source: AIMA), and so large-scale job losses are expected in coming months. Overall, the City could lose up to 40,000 jobs.

Besides New York and London, the financial centers hardest hit are obviously tax havens, under the dual effect of the decrease in international volumes and the expectation of stricter regulations. It is difficult to get any figures but, for example, the Cayman Islands Monetary Authority observed a drop of 30% in funds registered in the Cayman Islands in 2008, whereas in Luxembourg gross added value fell by 7.3% in the financial sector.

On the contrary, the financial centers less exposed to the crisis have resisted job losses better. This is the case for Paris and Frankfort, which have not announced any drastic reductions in personnel for the time being.

CONCLUSION

Financial globalization has contributed to a reconfiguration of financial space and dictated a reconsideration of the notion of financial center, uncoupling it from exclusive reference to the stock market. The spatial dynamics of financial centers are complex as they act on different levels. Financial activities are no longer solely located in the downtown areas of large metropolises, but this is not in contradiction with the idea of an increase in geographical concentration at the international level. Financial evolution has in fact reduced externalities within the company, while reinforcing externalities on the industry level. Professional categories in finance are highly heterogeneous and are therefore not exposed to centripetal and centrifugal forces in the same way. Only a sophisticated analysis of these categories would allow predictions to be made about future financial geography. In any case, the risks of delocalization exist for activities of both high and low added value.

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[22] The financial crisis had a delayed impact on hedge funds mainly due to the existence of barriers to the withdrawal of funds, or lock-up, which forced or encouraged investors not to withdraw their capital. It was only in the fourth quarter of 2008 that the extent of the disaster was realized.

In the face of this new geography of financial centers, can the state still have a role to play? Even though we would like to believe that finance is depoliticized today, financial centers remain under the influence of politics, where the state exercises control. Fiscal policy and regulatory measures, as well as training and infrastructures are all public action tools to attract financial activities. Since remuneration is no longer the only motivation for the match between manpower supply and demand, extra-economic elements such as social welfare coverage, access to culture or education and quality of life have once again become factors determining location.

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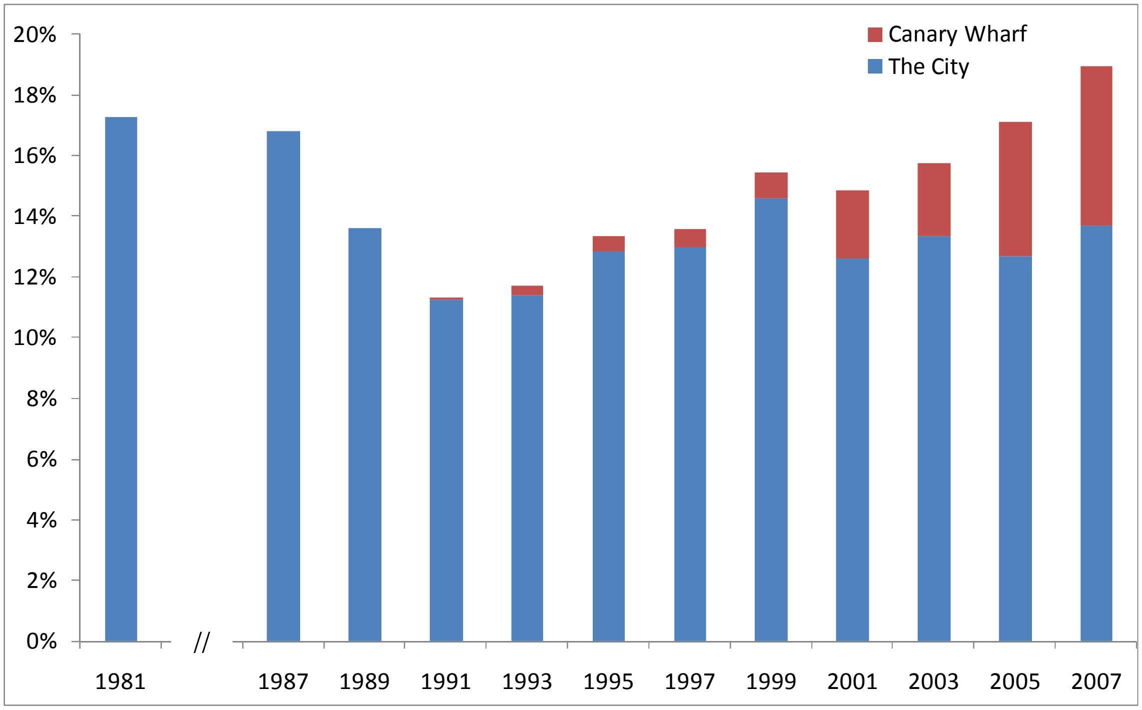
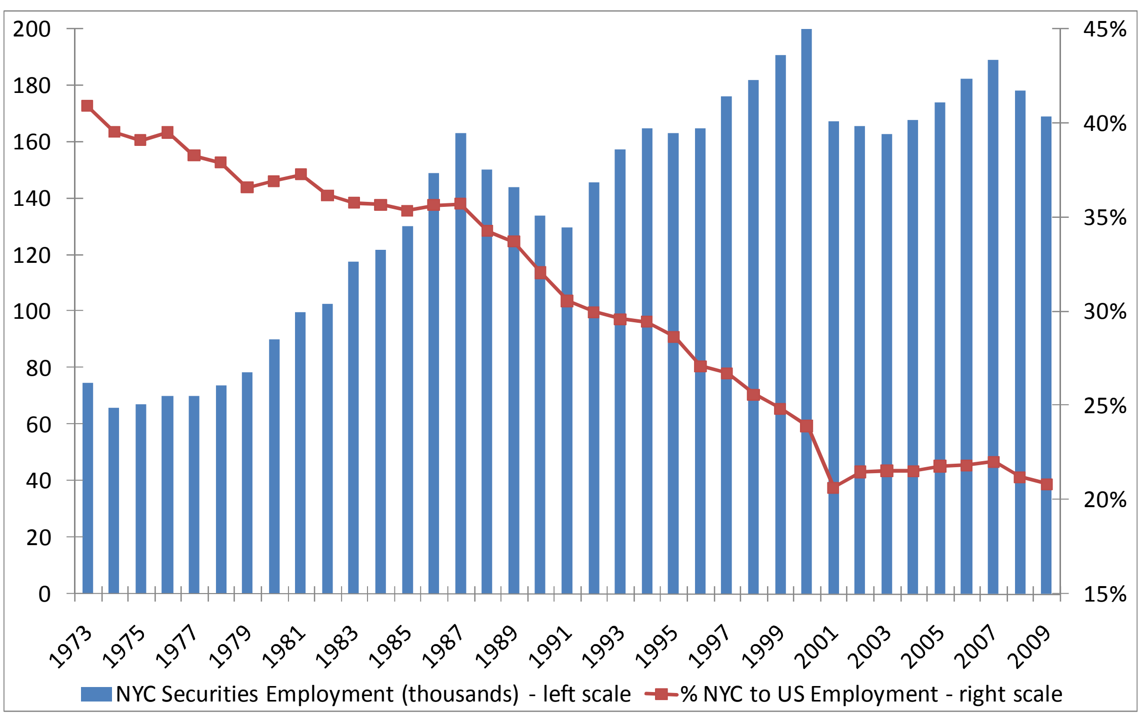
APPENDIX

Financial activities in London



Note: Number of employees in the financial sector in London, in percentage of the total number of employees in the financial sector in the United Kingdom. Data: IFSL. Data before and after 1999 are not directly comparable.

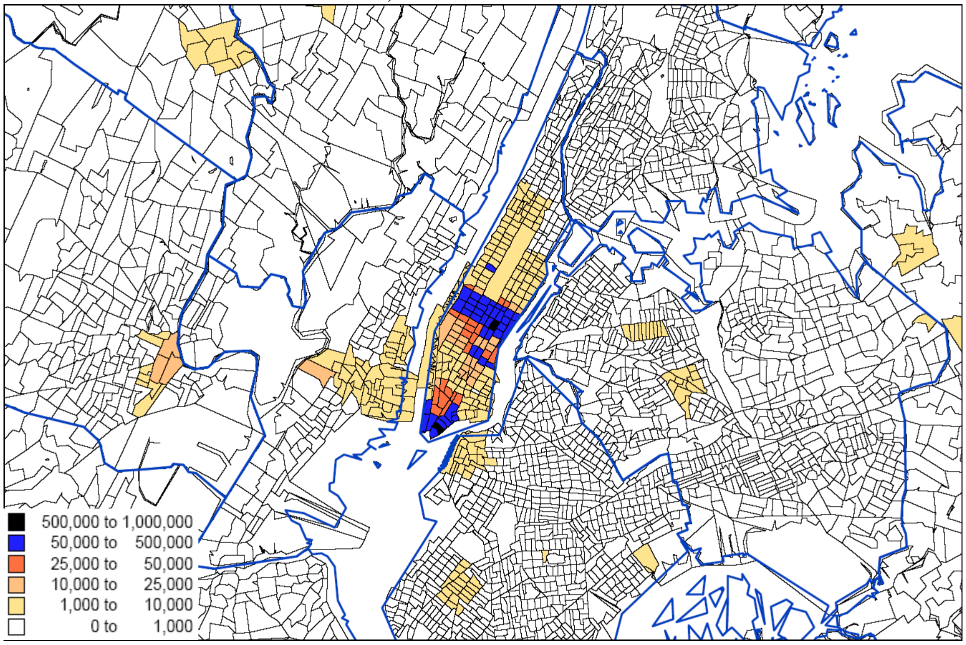
Dynamics of financial activities in New York



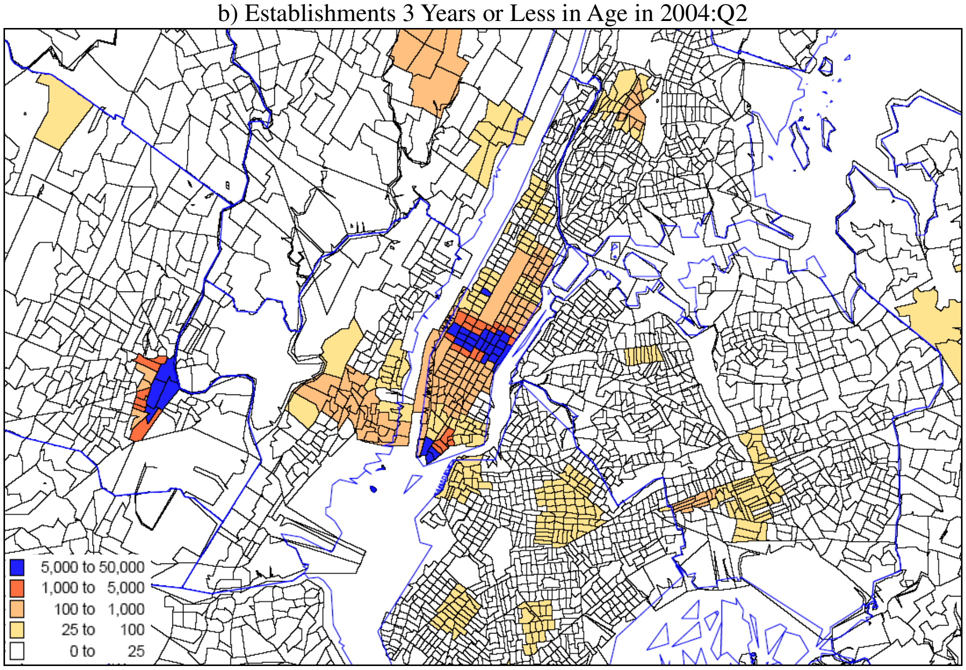
Data: US Department of Labor (BLS), New York State Department of Labor.

Map of location of financial activities in New York

a) All Establishments

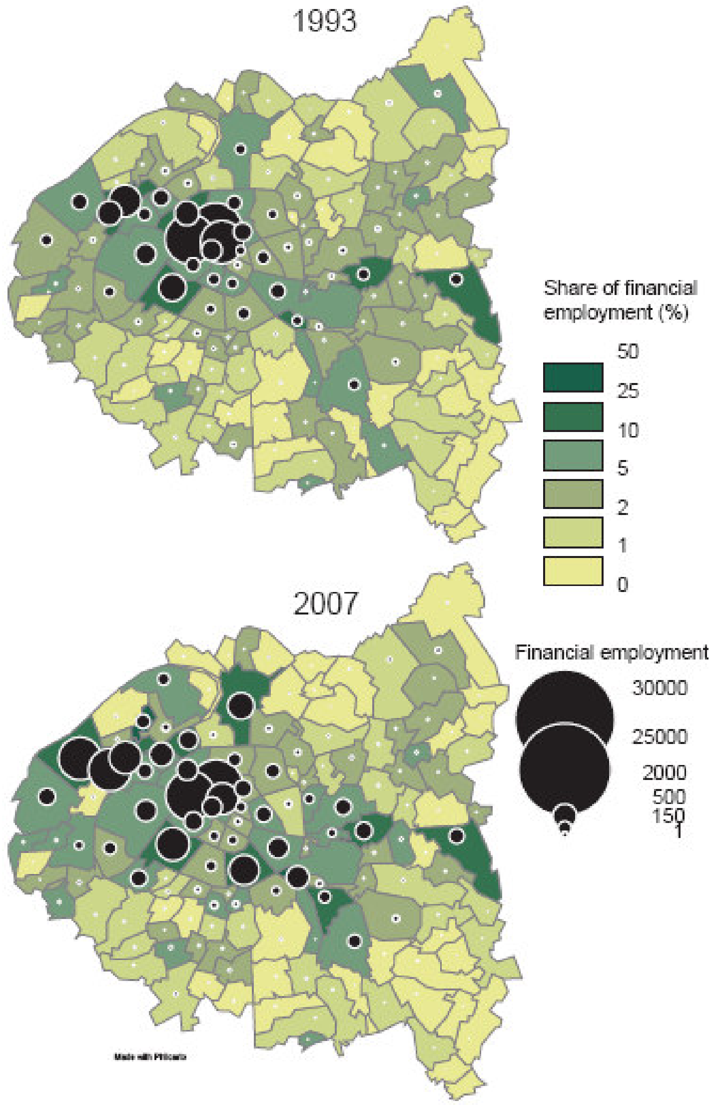


b) Establishments 3 Years or Less in Age in 2004:Q2



Note: FIRE Employment Density (Workers/Sq Mile) at the Tract Level At Establishments 3 Years or Less in Age in 2004:Q2. Source: Rosenthal and Strange (2005). Data: Dun & Bradstreet, Inc.

Map of location of financial activities in Greater Paris



Data: Garp.