

Where is Wall Street? Financial Geography after 09/11

Nicole Pohl

Economics Department
Franklin & Marshall College
Lancaster, PA
nicole.pohl@fandm.edu

ABSTRACT

We analyze the effects of the 09/11 attacks on Wall Street as a geographical cluster of financial service providers. We point out that 09/11 has served as a catalyst for an already ongoing trend of relocation in the industry. The financial district 'Wall Street' has been superseded by a broader agglomeration that includes Midtown Manhattan and possibly even parts of New Jersey (Greater Wall Street pattern). The paper discusses the challenges that 09/11 has set for financial services companies in reducing risk and optimizing their information flows by adapting geographical organization patterns and making best use of costly technologies. The effects of 09/11 are put into a wider context of driving forces of change that include technological changes as well as the broader economic situation and its influence on the industry.

Keywords: economic geography, financial services industry, New York City, financial district, terrorist attack

INTRODUCTION

The terrorist attack on the World Trade Center on September 11, 2001 led to a shake-up of the financial services industry, which was the major industry situated in the area around the World Trade Center in Lower Manhattan.¹

The financial services industry has long been a sector for which concentration in few global financial centers was taken for granted: New York, London, Tokyo, Singapore, Hong Kong, Frankfurt, with different positions in the global hierarchy of financial centers. Some, but not all financial services centers are or were in the past condensed into concentrated districts within global cities, such as the City of London or Wall Street. Although new technologies may have rendered proximity less important, the high importance of partly uncodified

¹ We use Lower Manhattan and Downtown Manhattan interchangeably. Wall Street is part of Lower Manhattan, but stands for a smaller part of the city that represents the core of New York's financial district. Downtown Manhattan is understood as district 1 of Manhattan, which is the area south of Canal Street and west of Baxter Street. Midtown Manhattan is understood to be the 5th district, which is south of Central Park and 59th Street, east of 8th Ave., north of 14th

street and west of Lexington Ave (New York City Government definition).

information and the reliance on expert skills have still made the financial services industry a good candidate for continuing concentration. Awareness of the costs of agglomeration in terms of traffic congestion and high rents has long been present, but did not seem strong enough to reverse the attraction of core districts in major cities, even if ancillary and back-office services were often driven out of centers. Mainly due to intangible benefits of agglomeration, the idea of the financial district and other clusters is well alive in academic writing. Indeed, it sometimes seemed that the notion of the financial district as an information center was more persistent in academic views on the geography of finance than in the minds of practitioners.

In a sense, 09/11 serves as a laboratory test to investigate the gravity that keeps companies in the old center in times when new technologies have decreased the importance of geographical proximity. Although wars, earthquakes and terrorist attacks have caused major damage to cities in the past, the tragedy of 09/11 was unprecedented given the narrow geographical target and the boldness of the attack, the extent of the damage and the focus of the attack on one particular industry. It seems fair to say that the events have triggered a rethinking of the geographical organization of the financial services industry worldwide and they have raised academic attention expressed in efforts to re-evaluate the importance and future of the financial district.

In this paper, we ask whether 09/11 has triggered a search for new patterns in the geographical

organization of the financial services sector, how the financial services industry has reacted to the events and whether we can observe more general temporary or permanent changes in the geography of finance. We also raise the possibility that the 09/11 shocks have emphasized an already existing pattern of relocation and served as a catalyst for change in the geographical organization of the financial services sector. We will call the pattern that we find "Greater Wall Street", a more decentralized geography of Wall Street, which however still concentrates in the New York area. We will finally ask how far such reorganization changes the way the industry operates, in particular when it comes to companies' ability to collect, process, interpret, and use information efficiently. The length of the paper will, however, only allow a brief discussion of these implications. In general, we point out that the 09/11 shock has to be interpreted against the background of other relevant changes including the general economic situation, the consolidation of the financial services industry as well as technological changes.

The data we use to establish our conclusions come from reports published by real estate companies, reports published by other interest groups, manifold news sources that analyzed the reactions of companies or the industry as a whole immediately after the attack and in the coming year as well as interviews with industry insiders. We integrate those data into the existing literature on financial clustering as well as conclusions from ongoing discussions among practitioners. It has to be pointed out that understanding the geography of the financial services

sector is a challenging task due to the high complexity of operations often managed under the roof of one company, which makes it necessary to not only ask where companies are located, but also which operations are performed in which locations. The latter is, unfortunately, information that is not easily accessible and would probably require case studies.

EMPIRICAL PICTURE

THE SITUATION BEFORE 09/11

Lower Manhattan's main industrial clusters before 09/11 were the financial industry, communications and business services, accounting, insurance, law and publishing firms. But above all, the securities industry was strongly concentrated in the area. Built in 1970, the World Trade Center had hosted more than 430 companies from 28 countries that employed an estimated 50,000 people. The financial services industry was the sector that was hit hardest in terms of human losses.

The Lower Manhattan area is host to the New York Stock Exchange and five other exchanges as well as clearing houses and a number of suppliers to the financial services industry. For decades, the name of the street where the New York Stock Exchange is located has been the symbol for the industry operating there. In Wall Street's early times, there was little doubt that certain parts of the financial services industry would have to be located in a narrowly defined area around the stock exchange, as long as the business was paper-based (trade and quote data for the NYSE were only fully automated in 1966). While this is no longer

relevant, other reasons for concentration that are usually mentioned are information-related and include the close interaction and exchange of non-codifiable information needed to organize joint transactions like loan syndication, the overall spillover of information that is likely to be possible in narrowly defined agglomerations, and better access to talent and specialized services (Immergluck 2001, O'Hallachain & Reid 1992; Porteous 1999). Some, though not all of these reasons for the existence of a financial district, are likely to be weakened in times of new information technologies. Others, such as localized information spillovers, may appeal to intuitive thinking, but have proven difficult to validate empirically. Robbins and Terleckyi (1960 p. 173) describe the concentration of the securities industry in Lower Manhattan for the '50s:

The characteristic benefits of face-to-face communication appear unusually strong: the securities brokers and dealers find it helpful to be near the country's two dominant exchanges, banking facilities, and transfer agents; they enjoy the benefits of participating in underwriting meetings, professional lunches, and business discussions; they can participate in – or at least be continually in touch with – the money-market core that shapes the swiftly changing stream of prices. That is why some 430 of the 459 New York Stock Exchange firms that in 1956 had their offices in the Region were located in Manhattan below Chambers Street...²

It would be misleading to assume that new technologies were the only relevant trend impacting the business

² Chambers Street is south of Canal Street, which we used for our definition of Lower Manhattan.

composition of the Wall Street area and the organization of the financial services industry itself. Another important influence is certainly that the financial services industry has changed rapidly during the last decade, in terms of the instruments it uses, its global expansion and above all the increasing importance of few bulge bracket players.³ Traditionally, the idea of the financial district seemed more related to the predominance of smaller companies that shared certain tangible and non-tangible infrastructures. The reference to small company patterns in cluster theories seems to be a general trend into which large multinational companies could often not be integrated easily.

While Wall Street has long stood for the largest cluster of financial services companies in the U.S., we would be mistaken to assume that that meant that all major companies were headquartered in Lower Manhattan until September 2001. Prior to that, decentralization had started and a lot of companies had moved to Midtown Manhattan in particular (Leonhard 2001; Smith & Kelly 2002). Companies like Bear Stearns (since 1988), JP Morgan Chase (since 1996/ 2001)⁴, Citigroup (1961), Donaldson, Lufkin & Jenrette⁵ (1996) and Morgan Stanley

(since 1973) had already moved their headquarters before September 11, 2001.⁶ Leonhard (2001) claims that the move out of Lower Manhattan had started as early as the '50s, when the first major non-financial companies moved to Midtown, which were then followed by some of the large investment banks. This trend was reinforced by the construction of modern office buildings in Midtown Manhattan, which had before been a mostly residential area. Among large financial firms with headquarters in Lower Manhattan on 09/11 were Goldman Sachs, Merrill Lynch, Lehman Brothers and American Express. Many of the other major securities firms were present in Lower Manhattan, but not with their headquarter functions.⁷ Other Wall Street residents were small- to medium-sized firms as well as foreign financial institutions. The appendix of this paper includes a map of Lower Manhattan and Midtown Manhattan.

Therefore, the pre-09/11 picture of Wall Street should not be misunderstood as a situation where all the major players in the financial services industry had most or all of their higher-level decision-making functions located at Wall Street. Scholarly work often assumes that information-sensitive activities tend to cluster, while back-office functions are the first to leave such places that are often also high-cost locations. Some of the clustering at Wall Street may in fact have been related to inertia

³ The term 'bulge bracket' refers to the biggest of the full-service investment banks. Traditionally, the term is also used for the firms in an underwriting syndicate who were responsible for placing the largest amounts of the issue with investors. Their names usually appear first in the advertisement showing the details of the securities issue.

⁴ JP Morgan moved its headquarters in 2001, Chase had already moved in 1996. The two merged later.

⁵ Later to be acquired by CSFB.

⁶ See DeYoung & Klier 2004 for an analysis of headquarter locations in the financial services industry.

⁷ Despite the fact that Morgan Stanley has its headquarters in Midtown Manhattan, it was the biggest tenant in the World Trade Center.

rather than information-intensiveness of activities. The fact that agglomerations – once they have been created – tend to display a certain level of inertia has been recognized in the literature on urban economics:

Once a city is formed, the cost-benefit calculations that led to its creation may no longer be relevant. This is because the existence of the city is in itself a reason for its persistence. In particular, the level of cost that could lead a city to erode is generally far higher than the costs sufficient to discourage city formation in the first place. In short, there is an agglomeration rent: once workers and firms are in a city, costs and conditions can deteriorate substantially without tempting them to leave. (Harrigan & Martin 2002 p. 99)

A similar argumentation is appropriate for financial centers, although change at Wall Street may actually have occurred faster than perceived by parts of the academic community. In so far as this self-driving agglomeration is based on the presence of a critical mass of agents, we argue that the reverse – an exodus – may follow when a cluster has lost its critical mass.

THE IMMEDIATE SITUATION AFTER 9/11

The Federal Reserve Board in an interagency paper with the Securities Industries Association and the Office of the Comptroller of the Currency describes the events of 09/11 as a “wide-scale disruption”, “an event that causes a severe disruption or destruction of transportation, telecommunications, power, or other critical infrastructure components across a metropolitan or other geographic area” (Federal Reserve

Board 2003). Over 13 million square feet of class-A space were completely destroyed in the attack (table 1). All of this space belonged to the seven World Trade Center Buildings. Another 14,362,542 sf of class-A space were damaged in nearby buildings. This included space in the buildings of the World Financial Center among others. Sixteen buildings only had minor damages. Estimates by the insurance industry were as high as \$40 bn in terms of claims for property, life and other insurance.

Immediately after the attack, some of the companies without decentralized backup facilities and with sensitive operations in the area experienced major disturbances in their operations, among other things in the form of trade-processing delays.

A number of companies faced the immediate need to relocate their people. Moreover, the collapse of the twin towers had destroyed a major telephone switching office and damaged a second, both of them operated by the same provider. The American Stock Exchange had to use the headquarters of the NYSE and temporarily traded its stocks at the New York Stock Exchange and its options at the Philadelphia Stock Exchange. NASDAQ, being an entirely electronic exchange, suffered telecommunications problems that created difficulties in connecting trading firms with the exchange. This led later on to discussions how far exchanges could use each other as backup facilities and how far special backup sites had to be built. Moreover, it took significant time until the transportation system in the area returned to smooth operations.

SHORT-AND MEDIUM-TERM RELOCATIONS

Data by the Securities Industry Association (2003) show that 217,000 people were employed in the New York State Securities Industry in 2000, an all time high. In 2001, this number had fallen to 184,000 (from 208,000 to 183,000 from September 2001 to October 2001) and 180,000 in 2002. The numbers for New York City were 200,000 in 2000, 167,000 in 2001 (with a fall from 191,000 to 166,000 between September and October 2001, which is about the same as in the middle of the '90s) and 165,000 in 2002. These data indicate a loss of 25,000 jobs for New York City directly after 09/11. New Jersey has actually seen a long-term increase in securities employment from 19,500 in 1990 to 61,400 in 2001 and 55,500 in 2002, but the Securities Industry Association reports that the dislocations after 09/11 have “reversed themselves within months” (SIA 2003 p. 7), while tax and real-estate incentives may have played a larger role (SIA 2004). Relative to total securities industry

employment, New York City’s share has been declining throughout the ‘90s from 36% in 1987 to 21% in 2001. These data suggest a general loss of competitiveness for New York State and City independently from 09/11 and most likely only minor employment losses to states like New Jersey due to 09/11. They also clearly show a sharp decrease in employment just after the terrorist attack (Bram, Orr & Rapaport 2002). However, they do not help us understand location choices within New York City. This small-scale analysis is necessary to understand the implications of 09/11 for the financial district as a confined part of Manhattan.

In 2001, McKinsey estimated that the World Trade Center disaster had dislocated more than 50,000 financial service employees from Lower Manhattan, many of which had found new locations in Midtown Manhattan, but 19,000 of which had also moved into office space outside of New York City, primarily to New Jersey, which may reflect the temporary relocation effect described above. Most of the

Table 1: Damaged and destroyed buildings, class-A space

Destroyed buildings	World Trade Center 1-7: 13,420,045 sf
Damaged buildings	One Liberty Plaza: 2,121,437 sf 140 Broadway: 1,200,000 sf World Financial Center 1-4: 8,400,019 sf 1 Bankers Trust Plaza: 1,415,086 sf 101 Barclay Street: 1,226,000 sf

Source: TenantWise 2002b

movement immediately after the attack was inevitable, at least on a temporary basis, as major buildings had been destroyed or damaged. Companies temporarily relocated some of their employees into hotels. Some had to work from home. Newmark (2001) reports that 66% of the companies that relocated in fall/winter 2001 went to Midtown Manhattan and that New Jersey attracted another 15%. Only 9% of the companies that had to relocate stayed in Downtown Manhattan. So, at least in an initial phase, the shock forced a significant increase in dispersion. Whether these companies would return depended on the strength their ties to Downtown that can among other things be due to existing long-term leases or even ownership, how early they would be able to return and whether the costs of moving completely or returning would be higher (including the risk calculus).

Mc Kinsey's 2001 estimate was that 7,000 of the 19,000 employees that had relocated to places outside New York City would be unlikely to return. Estimates made in 2001 by TenantWise said that about 66% of the space damaged in Lower Manhattan (that hosted larger tenants before) would be reoccupied (TenantWise 2002a).

Newer data by TenantWise (2003a) show that 52% of the office space used by companies that used to be in destroyed or damaged buildings had remained in Downtown as of April 2003, while 47% of the office space had been shifted elsewhere and 1% remained undecided. A large percentage of office space did actually not need replacement, but could be

backfilled using leased/ owned, but unused office space of companies. About 52% of the jobs related to those companies had returned to Downtown. Those jobs that had left had mostly been relocated to Midtown Manhattan (about 62%), while about 25% were shifted to New Jersey and 13% to other locations. Measured in numbers of companies, these percentages look a bit different: Concerning companies whose buildings were destroyed, 52% went to Midtown Manhattan, 23% stayed in Downtown, and 15% went to New Jersey (TenantWise 2003b). For companies that had their homes in damaged buildings, the share of those staying in Downtown is – maybe not surprisingly – larger with 67% (measured in numbers of companies), while 29% moved to Midtown Manhattan with negligible numbers for New Jersey and other locations (TenantWise 2003b). It has to be noted that TenantWise data do not always separate financial companies from others and include other tenants in the professional and business services sector, which are, however, relevant for the notion of the financial district, too. The map in the appendix shows the data for financial companies only. Table 2 shows the pre- and post-9/11 decisions of major tenants of damaged or destroyed buildings. The reactions of these larger tenants were mixed, but even many of those staying in Downtown have tried to decentralize parts of their operations in addition to their New York City location. Altogether, the data suggest significant relocations to Midtown Manhattan. One can argue that those companies whose office space was completely destroyed were, on the one hand, completely free to make new choices, but may, on the other hand, also have faced difficulty finding adequate space in Downtown. Beyond

that, however, a sizeable number of companies that could have returned have also moved to Midtown Manhattan.

To understand the situation better one has to know that Lower Manhattan accounted for 26% of all office space in Manhattan (against 37.7% in the Midtown core), while the World Trade Center represented about 12.5% of Downtown office space (but 60% of class-A space in Lower Manhattan were either destroyed or damaged; Kelly 2002, Orr & Hobijn 2003).⁸ This implies that the destruction meant a large loss of modern office space for the Downtown area, but only a relatively small loss in terms of regional office space (Kelly 2002).⁹

The large percentage of office space that could be backfilled is remarkable. In a situation where the financial services industry was consolidating, many companies had wanted to reduce their space anyway, which led to a situation in which – instead of falling – vacancy rates in Lower Manhattan rose after the attack.¹⁰

In the second quarter of 2001, the last reference period before the attack, vacancy levels in the New York region were lowest in the Western part of Midtown (7.2%), followed by Downtown (7.6%). Vacancy levels in

the core of Midtown were 8%, more than 10.7% in Southern Midtown and 12% in Urban New Jersey. Rents were lowest in Urban New Jersey (about \$20 per sf), followed by the Penn Station area (below \$40), Southern Midtown and Downtown (around \$40). The highest rents were to be found in the core of Midtown Manhattan (more than \$60).¹¹

After 09/11, office vacancy rates in Downtown Manhattan went up to near 12% towards the end of the year (Grant and Rich 2002), and they kept climbing throughout the first quarter of 2002. City-wide vacancy rates increased from 7.6% to 11.6%. Vacancy rates for Downtown A-space had risen from 3.7% to 14.5% and rents had fallen by 13% (Beard 2002; Colliers 2003). Meanwhile, vacancy rates in Midtown Manhattan stood at 8.2% (for class-A space up from 5% in 2000) at the end of 2002 with rents just below \$60 and more buildings under construction (Grubb & Ellis 2003). While vacancies increased significantly, they were still lower than the vacancy rates that prevailed in the first half of the 90s. Moreover, it has to be taken in to account that 9/11 was just one factor among others, including the overall economic situation, influencing these numbers. It would be misleading to interpret these changes as sole effects of 09/11, as the upward trend in vacancy rates had started well before towards the end of 2000 and is, therefore, likely to be related to the burst of the IT bubble. The data may help explain, however, why companies had significant backfill opportunities.

⁹ The region defined as also including Northern New Jersey, Long Island, the northern suburbs of Fairfield and Westchester County.

¹⁰ The high vacancy rates in Downtown Manhattan may also have created some kind of a lock-in effect for some companies which would have liked to sublease their space but could not find tenants for it.

¹¹ Since the 80s, figures for office occupancy and employment have tended to change relatively parallelly in New York City.

Table 2: Relocation decisions, financial services companies with more than 200,000 sf pre-09/11 in damaged or destroyed buildings

Company	Pre-09/11	Post-09/11
American Express	106,000sf in WTC 7 with 250 employees, 1,120,500sf in WFC 3 with 3,800 employees, additional space in 100 Church and 140 Broadway	Returned to WFC 3 with 3,500 employees, partly Midtown backfill
Bank of New York	75,400sf in 75 Park Place, 1,226,000sf in 101 Barclay, 250,000sf in 100 Church	Returned, will have additional locations in Brooklyn, NY, Orlando, FL and NJ in future
Bank of Nova Scotia	235,000sf in One Liberty Plaza with 400 employees	Returned
Cantor Fitzgerald	220,000sf in WTC 1 with 960 employees	Relocated to Midtown and other locations
CIBC World Markets	500,000sf in WFC 1	Relocated to Midtown
Citi/ Salomon Smith Barney	1,202,900sf in WTC 7 with 2,300 employees	Backfilled space in Midtown, NJ, and CT
Deutsche Bank	273,991sf in WTC 4 with 1,096 employees and 1,415,000sf in 130 Liberty with 4,000 employees	Purchased 60 Wall Street from JP Morgan in 2001 (before 09/11), Downtown and Midtown backfill
Fidelity	208,000sf in WFC 1 with 900 employees	Returned and leased additional space in New Jersey
Goldman Sachs	259,654sf in One Liberty Plaza with 750 employees	Will move to New Jersey (planned before 9/11)
Lehman Brothers	1,030,800sf in WFC 3 with 5,500 employees, plus space in WTC 1	Has purchased new building from Morgan Stanley in Midtown, leased space in NJ, sold WFC 3 space
Merrill Lynch	2,083,600sf in WFC 4 with 5,000 employees, 470,000sf in WFC 2 with 2,000 employees, plus space in 100 Church	Returned
Morgan Stanley	840,000sf in WTC 2 with 2,700 employees	2,200 people moved to Westchester County, NY, dispersion of employees in Midtown, Downtown, NJ, elsewhere
Oppenheimer Funds	231,000sf in WTC 2	Moved to WFC 2 (lease from Merrill Lynch)

Source: TenantWise 2003b

Besides 09/11, the consolidation trend in the industry, the difficult situation of stock markets and the national economic downturn are important parallel developments to be taken into account when interpreting relocation patterns. They make it easier for companies to give up existing office space and to make up for the lost space by backfilling existing space. This exacerbated the situation in Downtown. In so far as consolidation is a global issue, this tendency is not specific to New York as a financial center (Hagerty 2002). Moreover, companies have been granted extensive tax advantages for keeping employment in the city. To a large degree the choices that companies make also reflect their degree of mobility in terms of ownership of buildings, possibilities to sublease buildings, and rollover terms of leases.

Among reasons for a reduced attraction of New York as a nucleus for the financial services industry are rising costs in terms of insurance premiums, direct spending on increased security, and security-induced delays. However, estimates by Hobijn show that costs for additional security should not have a major impact (Orr & Hobijn 2003). Health risks and transportation problems were at least relevant concerns for quite a while. New York City has also experienced a temporary rise in taxes to cover the fiscal deficit. Moreover, there have been intensive debates about the future purpose of the World Trade Center site. The full reconstruction is a major prerequisite for allowing the area to return to some of its old importance.

Patterns regarding the characteristics of companies leaving or staying in the

Downtown area can be found. For instance, relocation patterns differ according to the size of the companies. Small companies have fewer options to split their operations between various locations. Moreover, small firms rely more on Wall Street's infrastructure, reputation and the still relatively large density of agents in Downtown. They also depend more on being located where large firms are because the latter are attractions for a large labor pool and other types of specialized infrastructure. At the same time, large firms have the critical mass to divide functions geographically, while the options for small- and medium-sized companies are often either staying or going. Moreover, companies' managements are likely to differ in terms of their risk aversion and possibilities to finance the technological infrastructure to support geographical decentralization. Indeed, data for mid-2002 show that 81% of the square footage held by the smallest tenants (measured in office space held pre-09/11, for those between 10,000 and 20,000 sf) stayed Downtown and 57% for the next larger category (20,000-50,000 sf) (TenantWise 2002a). For large companies, this percentage is below 50%. Similarly, large companies tended to move a higher percentage of jobs out of Downtown (which also means a larger absolute number of jobs). These patterns can be due to company characteristics as much as office space needs that may be difficult to fulfill in Downtown after 09/11 for large tenants.

In summary, the data used show that most companies have decided to remain in Manhattan after 09/11, but in many cases Midtown Manhattan instead of Downtown Manhattan. A

smaller share has opted for locations outside New York City, predominantly New Jersey. This supports the observation that it is no longer appropriate to think in terms of a narrowly defined financial district “Wall Street”. Some of the movement was inevitable due to the complete destruction of office space in Lower Manhattan. Moreover, the data support the view that large companies enjoy the freedom to make themselves independent from externally supported infrastructures, while small companies show a stronger degree of inertia in terms of their propensity to stay within the established financial core Wall Street.

THEORETICAL IMPLICATIONS

There is only limited literature to draw on when trying to assess the effects of terrorist attack on cities. Existing empirical work has analyzed the effect of wars and natural catastrophes (such as earthquakes) (Davis and Weinstein 2002; Pohl 2002). Meanwhile, the threat of an attack like the one of 09/11 may be subtler, as it is much less predictable than war attacks and at the same time extremely concentrated on agglomerations of important economic activity. Cities are more prone to be targets for terror because of their rich assets, their being sources of prosperity and growth, their status as nodes for vast international networks of communication, which allow for “contagion of fear and economic rupture” (Savitch and Ardashev 2001, p. 2516).

There is quite a broad literature on financial centers by scholars in economic geography (Choi et al. 1996; Gehrig 2001; Kindleberger 2000; Pohl 2003; Reed 1980; Roberts 1994; Thrift

1994; Walter 1998). Yet, work on the functional/ geographical organization of financial services providers that would overlap with a business studies approach is rare.¹² The work by economic geographers has predicted a decentralization of operations that do not rely on non-codified, face-to-face information. “Clerical, administrative and other mid-level tasks can be as effectively done from the suburbs or from less costly regions of the country” (Kotkin 2001). Meanwhile, many scholars were particularly skeptical about the dispersion of information-intensive functions. The decentralization of higher-level functions “that require face-to-face contact, high-end deal making, collaborative creative processes and global connections” has been doubted (Kotkin 2001). Reasons for such doubts are the concentration of talent, skills and information in locations like Wall Street and the observation of an “economic and social gravity” that pulls financial experts together. Some of the doubts about decentralization clearly rely on traditional Marshallian arguments of thick labor and services markets. Even scholars, who do believe in Wall Street’s future as a financial center, suggest that it will change and become “a more concentrated version of what it already is, the information city par excellence” (Sassen in Business Week 2001). Sassen expects that Wall Street will remain the home of cutting-edge jobs that require “evaluation, judging, inferring, guessing, forecasting, making the most of what you really don’t know”.

¹² See Baron and Besanko (2001) as an exception. Their focus, while it includes geography, is more on the global organization of financial institutions than on a smaller regional context.

Yet, these arguments – while they predict the move of back office functions and less information-intensive functions away from Wall Street – assume that major players would remain in a financial district with certain core functions. Empirical observation does not confirm this as long as the financial district is narrowly defined as the area around Wall Street. We believe that the new notion of financial concentration will be a looser version of the old financial district with financial activities spread out in a wider geographic realm. This is in line with other authors' findings (Clark 2002, Immergluck 2001), whose conclusions are, however, based on different determinants of decentralization. Referring to London's financial services industry, Clark (2002, p. 438) states:

[The city] is now a set of related office nodes spread across London, and a set of isolated locational choices connected to systems of national and international communication and transportation rather than immediate market relationships.

Among other things, Clark explains his observation with the increasing size of individual financial services companies that creates bottlenecks in the real estate sector and therefore leads to dispersion.

TOWARDS A NEW GEOGRAPHY OF MONEY

The observed changes in the post 09/11 geography of money are complex and would not be well described by a simple turnaround from strong clustering towards dispersal. The question about the impact of 09/11 on the financial geography can be looked at from a bird's eye perspective focusing on the location of the

financial services industry in the greater New York City area, from the meso-perspective of the industry and its critical markets or from the micro-perspective of the companies constituting the sector.

THE GREATER NYC AREA

The New York-Northern New Jersey-Long Island consolidated metropolitan statistical area is home to the largest number of headquarters in the U.S. (including those of the financial services industry) (Klier & Testa 2002). Headquarter locations are, however, far from being so concentrated that they would create an agglomeration such as Wall Street. They might contribute to the explanation why New York City is a nucleus of the financial services industry, although they probably do not sufficiently distinguish New York from other major business cities. What makes New York different is the city's quality as a work environment for financial experts¹³ and the lock-in effects of an already thick labor market for these experts. We come to the conclusion that labor market externalities are of highest significance to explain the continuing importance of the Manhattan.

Technological changes, including in particular communication and collaboration technologies, have decreased the need for companies to be clustered in a narrow agglomeration such as Wall Street (Majchrzak 2004).¹⁴ Nonetheless, most companies

¹³ One needs to take into account that there is hardly another industry in which the moves of top-tier managers or highly specialized employees is watched as closely and in which competition for these individuals is as high.

¹⁴ This includes one-to-one, many-to-many or one-to-many video communication systems like

have not left the wider New York City area and not even moved farther than Midtown. It seems appropriate to describe this new geography as “Greater Wall Street”. Table 3 lists push and pull factors working on the Downtown area’s attraction as a financial center. Psychological harm refers to the experiences of employees who were in the World Trade Center area during the attack or related considerations of companies that have lost a larger number of employees. While this would speak for leaving the Downtown area, there have been reverse effects of managements of companies that have argued that they would stay despite the events to show solidarity. Two of the pull factors mentioned, the availability of skilled labor and specialized services, are more likely to not be limited to Downtown Manhattan, but to extend to Midtown (though probably not to New Jersey and other areas), as distances are probably not large enough to distinguish Downtown and Midtown when it comes to these two arguments.

Beyond this macro-perspective on the wider geography of the financial services industry in the New York area, it is important to look at the implications for the interactions between companies (meso-level) and the functioning of individual companies (micro-level).

THE MESO-LEVEL: STOCK AND OPTIONS MARKETS

The damage to telecommunications systems, the lack of access to the area, and the loss of facilities and personnel

Avistar, instant messaging systems like Mind Align, group collaboration tools like Intraspect as well as broadband, handhelds and wireless tools.

led to severe disruptions in the operations of stock exchanges. Firms that were responsible for 40% of trading volume were significantly affected by the attack. While government securities markets reopened within two days and operated with low trading volumes, stock and options markets only reopened on September 17, 2001 (USGAO 2003).

The importance of these markets, the costs of disruptions and today’s high degree of interdependence between various agents make the topic of business continuity relevant for the industry’s regulator. The Securities and Exchange Commission has made several proposals that aimed at requiring backup facilities relatively far away from primary sites.¹⁵ The Board of Governors of the Federal Reserve System in co-operation with the Office of the Comptroller of the Currency and the SEC had initially suggested a 200-300 mile distance between data centers.

Such plans have up to now not been put into force, among other things because companies argued that firms will have problems to process data in real time beyond certain distances (between 60-100 miles). Recommendations for decentralization also include the dispersion of staff, equipment and data, which would limit the overall disruption from a catastrophic event at any one location.

¹⁵ The Board of Governors of the Federal Reserve System in co-operation with the Office of the Comptroller of the Currency and the SEC had initially suggested a 200-300 mile distance between data centers.

It has been noted that [t]he financial system operates as a network of interrelated markets and participants. The ability of an individual participant to function can have wide-ranging effects beyond its immediate counterparts. (Federal Reserve Board 2003).

This makes it important to look not only at the individual company, but to make linkages between actors, markets and other critical nodes transparent. Enterprise risk therefore becomes systemic risk¹⁶ (SunGard 2003). The Federal Reserve Board and other agencies have emphasized the particular importance of “firms that play significant roles in critical financial markets”, defined as those “that participate ... with sufficient market share in one or more critical financial markets such that their failure to settle their own or their customers’ material pending transactions by the end of the business day could present systemic risk” (Federal Reserve Board 2003).

THE MICRO-PERSPECTIVE

The attacks have exposed structural deficiencies in the organization of Wall Street’s financial sector:

- insufficient number of geographically dispersed back-up locations,
- insufficient number of replication servers in second locations,
- insufficient access to back-up sites,

¹⁶ This includes the risk that “the failure of one participant in a ... financial market to meet its required obligations will cause other participants to be unable to meet their obligations...” (Federal Reserve Board 2003)

- a lack of alternative networks for telecommunications and power,
- insufficient linkages between backup facilities and
- a need for better business continuity plans.

Companies have also become more aware of the need to disperse key staff. Disaster plans and business continuity plans have received priority on the agendas of decision-makers. Generally, new categories and foci in operational risk (defined as the ability to reduce and prevent disruptions to business processes) have entered the agenda as a result of 09/11. As Bies (2002 p. 1) notes, “operating risk is the least developed” among the different categories of risk management.

There are discussions about the question whether, where and in which way activities have to be duplicated and how the additional costs related to this can be kept under control in times when profit margins for the industry are melting. Other discussions focus on the use of backup facilities in normal times (number of active trading desks versus inactive recovery seats on trading floors, the availability of synchronous data transfer), the size and accessibility of these sites and the question how split-up companies can be, while still functioning efficiently.¹⁷

¹⁷ There have been announcements that the SEC will set up regulations about obligatory backup and duplicate facilities and their distance. These are heavily debated, as companies argue that extra staffing and empty room will cause exorbitant costs that will prevent some companies from operating profitably. Initially, proposals went as far as to require a distance between regular and backup site of at least 300 miles.

This raises the question how central locations and their backup facilities will be linked to each other and how these linkages will be sustained in an efficient way.

To implement these measures is costly. In spring 2003, the U.S. General Accounting Office studied 15 organizations and found that physical and information security measures had not been sufficient since 2001 and that several institutions had not developed business continuity plans that would ensure that key staff would be available in case of a disruption. Some organizations also did not have backup facilities or they only had facilities that were located very close to their primary facilities (within 2 to 10 miles) (USGAO 2003).

While communication networks and contingency plans will have to be improved, the geography of human capital will be even more challenging. Companies are aware of the fact that it is risky to locate highly-skilled staff in the same place, just as much as it is insufficient to depend only on one power or communication network for support of their activities. Despite this, surveys show that the majority of small firms have not dispersed business units and senior executives across locations (SIA 2003a).

For larger firms, the share of those that had split business units across locations was higher, but the percentage that had achieved a dispersal of senior executives was still small (Wall Street and Technology 2002). The resistance of financial experts to relocation may be a significant hurdle in implementing business continuity plans for human

resources. To handle these risks will require significant investments by the corporate sector, which will be difficult for small companies.

Intra-company decentralization also brings about new challenges when it comes to information-intensive functions where different divisions of the same company previously worked closely together and now have to be located at different geographical spots from a risk-perspective. While new technologies make a lot possible, most studies on the use of videoconferencing and similar technologies show that those technologies cannot fully compensate for face-to-face meetings.

Technological change is clearly one of the driving forces towards new financial geographies. And to some extent, new communication and collaboration technologies have become enabling technologies for the decentralization of activities, but at the same time, the reliance on the respective information and communication networks also poses new challenges. New communication technologies technically allow straight-through-processing today. This refers to processes where information is solely processed digitally from the trader's computer to the customer's back office with a record being kept in the financial institution's front and back offices without human intervention and with automatic reconciliation and confirmation only moments after the transaction has been initiated. They would thus allow for more decentralization while still guaranteeing access to electronically codifiable information. Yet, most financial services companies are still a

long way away from this. Bolting in scalable electronic settlement capabilities usually creates problems with existing infrastructures because those systems often cannot link to the existing trading and risk systems without causing problems. Rebuilding those infrastructures completely and on a regular basis is hardly affordable for many firms.

Moreover, the linkages between staff in different functions often do not follow the rationalities imposed by new technologies. Traders have to work with back-office staff in a team. While back-office staff (including staff processing trading tickets and dealing with customers as well as human resource departments, financial control, IT, general & property services) might be the first candidates for being moved, having them in peripheral locations will mean that they do not know the traders and vice versa. In some cases, traders have complained that they do not want to deal with customer queries, which has,

in various institutions, led to the creation of more complex organization structures including a middle office. It often proves difficult to redefine responsibility distributions in such a three-layer structure. Moreover, traders will need to have certain services close to them. Those include a product control group that keeps the profit & loss book up to date and that agrees on reserves on derivatives together with the market risk group. Most of the time, the compliance department also has to stay close to the trading desks. Finally, traders require help desk staff from IT that is responsive to their needs. There is strong evidence that proper customer settlements need such teamwork and that companies may be able to improve customer service by allowing their back-office staff and dealers to interact easily.

Traditional labor market externalities are also extremely relevant. It usually costs

Table 3: Push and pull factors determining concentration

PUSH FACTORS OUT OF DOWNTOWN	PULL FACTORS INTO DOWNTOWN	FACTORS INFLUENCING COMPANY MOBILITY
Psychological harm	Information spillovers which are, however, difficult to prove	Long-term leases/ ownership of property
Disadvantages of relying on one telecom/ power network	Availability of skilled labor	Ability to split operations/ company size
Clients in Midtown Manhattan	Availability of specialized services	Possibilities to sublease buildings to others/ sell them
Destruction of Downtown infrastructure with significant time to go until reconstruction.	Enhanced security plans suggested by local authorities	Risk averseness.
Availability of modern office space, rent, tax incentives		Technology awareness, technological capacity to overcome communication problems going along with geographical dispersion
Degree of destruction	Reputation of Wall Street	
Consolidation of the industry made backfilling of space possible.		
Higher costs for insurance, security etc.		
Fear of health risks in area around ground zero		

large sums to “export” experienced people from central to peripheral locations (O’Hallachain & Satterthwaite 1992). The more specialised the job descriptions, the smaller the group of people that will qualify. Companies in the financial services sector to some extent all “chase” the same scarce resources. Reasons for co-location of certain areas of expertise result from the need of companies to get access to expertise and from the location requirements of individuals. According to evaluations by senior executives and industry experts, companies moving away from central locations often lose large percentages of key employees or have to pay large premiums. Finally, putting staff into peripheral locations often creates a “second class citizen syndrome” that can decrease efficiency.

Meanwhile, the argument that clients are located in Midtown Manhattan and that financial service providers have to stay close to their clients—although it is frequently heard - seems to be a largely self-serving argument for financial experts who want to stay in centers.

Other traditionally emphasized arguments remain valid. Among those is reliance on specialized services that are attracted to locations with a critical mass. For instance, data service provider costs are reduced in locations with such critical masses. Companies can reap internal or external economies of scale by clustering operations. While large companies may be able to ignore those costs, as they create this critical mass internally, small companies may want to locate where other companies are in

order to create this critical mass. Another example for specialized services is high-quality telephone services that are vital for financial services providers, but often only available in certain centers. Access to transportation is another vital service.

Model solutions have not yet been found. Including travel inefficiencies, companies often end up not saving as much as they expected by creating decentralized structures. In a sense, commuting times are the variable defining the borders of the Greater Wall Street area when it comes to the question of how far away from Manhattan companies can set up facilities if they require frequent interaction with individuals in Manhattan’s core.

CONCLUSION

Altogether, an analysis that links geography, organization of financial firms, technological change and information flows is needed. While the informational efficiency of financial markets has been studied since the introduction of the concept by Eugene Fama (1970), we suggest that information efficiency is an issue at the level of the firm, too. The ability of companies to find geographical patterns of organization that reflect the post-09/11 reality and that allow them to share information internally in efficient ways will impact their success as well as the functioning of financial markets. This depends as much on publicly and privately available technologies as on the organization of processes. Baron and Besanko (2001 p. 2) point out the following:

[T]heory emphasizes that multi-business firms build and mobilize capabilities through the accumulation and sharing of know-how ... a firm develops a capability in a value-chain activity when the know-how accumulated in executing one activity within one unit of the firm is shared with, or 'spills over' to, other units in the firm. (Baron & Besanko 2001).

Moreover, our findings refer to a situation that is still in flux. The average lease time in NYC is nine years. Excluding firms in the World Trade Center, only a quarter of commercial leases have rolled over (Orr & Hobijn 2003). There will therefore be more potential for mobility in the years to come. This long lease time that decouples the point in time when decisions are made and when they can finally be implemented also makes it fairly difficult to decide whether companies move because of 09/11 or other reasons. The following conclusions can be made from our observations:

- The post-09/11 geography of Wall Street cannot be understood in isolation from consolidation processes in the industry as well as trends of technological change.
- Companies had already been leaving Wall Street before 09/11. The events may have served as a catalyst for an already existing trend by removing the fixed costs of moving for tenants of destroyed or damaged buildings. Stated differently, 09/11 forced many companies to move – even if only temporarily – anyway. This has changed the cost calculus when considering permanent relocation.
- While various companies have left the Downtown area, New York City as a whole has not lost its

attraction (Greater Wall Street). This Greater Wall Street pattern concerns an area that is larger than the traditional financial district which was a very confined area containing only few streets. The most important forces holding this wider cluster together are labor market externalities and intra-firm (and possibly inter-firm) information flows in the broadest sense. At present, the emphasis on preferences of highly skilled staff and thick labor markets makes us doubt whether New Jersey and other locations outside New York City should be included as more than satellites in this Greater Wall Street structure.

- The new challenges include new solutions for intra-company organization where companies have to live with a certain level of decentralization without losing their informational efficiency and simultaneously controlling their costs. The new geography has to be one of balanced intra-company decentralization combined with excellent intra- and inter-company communication linkages that ensure security and efficiency of day-to-day transactions as well as linkages to emergency backup sites.

The effects of the 09/11 terrorist attack have to be juxtaposed with other developments in the industry, such as the effects of the economic downturn, consolidation trends, technological developments, and long-term developments concerning the competitiveness of locations for the financial services industry. 09/11 has not triggered a completely new development in the sense that there were already more diverse location choices that were not limited to Downtown Manhattan prior to the

events. But it has served as a catalyst leading to a condensed reaction of the industry in a very short time. This concerns two types of decentralization: firstly spreading out the activities of a single company across a wider set of locations and, secondly, decentralization away from Lower Manhattan across the industry. Companies have been considering decentralization as a technologically increasingly possible, but socio-economically still challenging option before the events. Yet, 09/11 has changed the functional/ geographic organization of the industry by creating awareness for new types of risks and by introducing completely new categories to be considered when companies try to balance intra- as well as inter-company linkages across physical as well as digital geographies.

In order to be relevant for practitioners, future research will, firstly, have to go into more detail concerning the possibilities of specific technologies used in the financial sector to bridge distances between markets, companies and business units and concerning strategies to manage new types of risks. This has to be an analysis that goes beyond technological potentials and carefully considers the socio-economic background and requirements of operations. Different transactions in the financial services sector are interlinked in highly complex ways between companies as well as within companies. When these different transactions can be split up geographically, the key question becomes no longer “Where do financial services companies locate?”, but “Where is which function located and how are different transactions linked to each other?” This requires very

detailed knowledge of the structures and processes in the financial services industry that economists and geographers often lack. Secondly, systemic perspectives on risks and inter-linkages between and among institutions and systems have become of great relevance for regulators. Which are the critical nodes in a globally linked sector like financial services? How is systemic risk linked to location choices that private agents make? This, too, requires detailed knowledge of relevant technologies, processes, risks and regional as well as global linkages. Altogether, this future research will need to go beyond disciplinary boundaries to incorporate knowledge from Geography, Business Studies and Economics.

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Appendix Map of Manhattan

Other locations chosen after 09/11:
 Jersey City, NJ, Brooklyn, NY,
 Rutherford, NJ, Stamford, CT
 Long Island, NY, Hoboken, NJ,
 Harborside, NJ ...

10 companies known to have decided to decentralize out of NYC, sometimes in addition to NYC locations

