

Analysing the Changing Landscape of European Financial Centres: The Role of Financial Products and the Case of Amsterdam

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Abstract

The turn of the twenty-first century saw the re-emergence of debates about the reconfiguration of European financial geographies and the role of stock exchange mergers in this process. There has been, however, no systematic attempt to date to analyse such changes. This paper proposes a specific conceptual framework to explore these issues. It uses a product-based analysis to examine, in the context of recent stock exchange mergers, the factors affecting the competitiveness of a financial centre. It argues that it is important to understand three intertwined influences – product complementarities, the nature of local epistemic communities, and regulation – and their contingent effects on change. This is exemplified by a tentative application of the framework to the case of Amsterdam in order to better understand its recent decline in competitiveness as a European financial centre.

1. Introduction

The turn of the twenty-first century saw the re-emergence of public and academic debates about the centrality of London as Europe's pre-eminent international financial centre (IFC) and the wider reconfiguration of European financial geographies (Bindemann 1999; Seifert et al. 2000; Harrschar-Ehrnborg 2002). This was sparked by the EU agenda to develop a Europe-wide financial market, the introduction of the Euro currency, and the first attempts to create a Pan-European exchange. With the highly visible, but failed, initial merger talks between the Frankfurt-based Deutsche Börse and the London Stock Exchange (LSE) in the late 1990s (Beaverstock et al. 2001; Faulconbridge 2004), and the creation of Euronext (the first cross-border exchange in Europe with subsidiaries in Amsterdam, Brussels and Paris in 2000), the scene was set for consolidation in Europe's fragmented and diversified exchange landscape (McCreevy 2005;

FESE 2006). Renewed bids for the LSE by both its German competitor and by Euronext in 2005 (Bundeskartellamt 2005; Competition Commission 2005), as well as the recent entrance by the NYSE and Nasdaq in the European scrimmage, point to a future of intercontinental alliances and even transcontinental exchanges.

While media speculation about the local impact of cross-border stock exchange mergers flares up periodically, the empirical evidence on the interrelationship between the restructuring of exchanges and its impact on the wider urban setting in which these exchanges are located is both scarce and indeterminate. Historically stock exchanges have been closely connected to the development of national and even international financial centres (Thrift 1994; Michie 1999), but these linkages seem to have become weaker with the increased virtualization of stock exchanges in recent years (Lo and Grote 2003). However, there is much that remains to be done in current research into these linkages, both conceptually and empirically. In this context, the paper explores the implications of the continually fluxing stock exchange landscape for financial centre development by focusing on the changing levels of trade in different financial products in Amsterdam pre and post merger with the Brussels and Paris (and latterly Lisbon) exchanges in the guise of the Euronext consortium. As such, the paper's aim is primarily explorative. It seeks to assess the explanatory power of a product and knowledge-based approach to the financial landscape by using Amsterdam as a test case.

The paper is divided into three parts. First, the discussion focuses upon the spatial stickiness of international finance and identifies the forces that continue to exert considerable influence on the geographical organization of the European financial landscape. It is suggested that it is the type of financial product developed and traded in each centre that matters most in the spatial (re)configuration of Europe's financial centres. More specifically, the paper argues that the nature of the mix of complementary financial products determines the strength of a financial centre and that this in turn is influenced by the activities of local epistemic communities, national regulation and, embedded within this context, stock exchange reconfiguration. Second, drawing upon the case of Amsterdam, the paper considers the extent to which the analytical framework proposed allows us to make sense of the city's recent decline as a European financial centre. The

relationship between different financial products is examined and the effect of the emergence of the Euronext consortium is explored with some preliminary data on the Amsterdam financial centre. The paper concludes with a tentative discussion of the relation between stock exchange reorganization and the informational content of products traded in a specific financial centre.

2. The Spatial Stickiness of International Finance

The organizational structure of the European financial system, and in particular the constitution of the stock exchange and financial market landscape, has been explored from various perspectives. For example, Michie (1992; 1999) acknowledges the pivotal role of the Lloyds Insurance market, and especially its magnetic qualities for those seeking mercantile insurance, in the development of London as an international financial centre during the British Empire. Similarly, Thrift (1994) and Porteous (1999) have emphasized the importance of regulation and administrative procedures in order to explain the physical co-location of financial firms that specialize in equity-related activities. More recently, attention has turned to the effects of the virtualization of stock exchanges on existing financial geographies. Drawing on the well rehearsed ‘death of distance’ (Cairncross 1997) and ‘end of geography’ (O’Brien 1992) theses, the evolution of stock exchanges away from ‘open outcry’ pits towards ‘screen-based’ trading has been examined. This has led to claims that the traditional anchoring devices that fix activities in IFCs have been weakened and that as a result financial centres might gradually disappear in the vortex of dispersal that is technologically-driven globalization (Engelen 2007). At the same time, fascinating stories have been told about the changes in the ‘social construction’ of markets, as physically embodied encounters between traders in the pit are replaced by hoards of (still predominantly) men staring intently at screens. Of course, even in a virtualized world markets are being ‘produced’ and ‘reproduced’ by the performative effects of practices, ideas and techniques of traders embedded in social networks (Knorr Cetina and Preda 2005; MacKenzie and Millo 2003; Zaloom 2003) but it seems this might increasingly have less spatial fixity than before with financial knowledges moving across new spatial topologies (Allen 2002; Amin and Cohendet 2004).

All of these bodies of literature touch upon issues that are important for understanding changing financial geographies. However, they fail to add up to a consistent analytical framework that allows us to identify the full gamut of relevant variables. While regulation clearly matters for the distribution of financial activities over space, it is evident that the regulatory landscape has radically changed since the early 1990s. Responding to the intensifying transnationalization of financial activities, regulation at the national level has increasingly been liberalized while a growing number of responsibilities and prerogatives have been shifted to transnational agents like the EU, the Bank for International Settlements (BIS), the International Organization of Securities Commissions (IOSCO) and other, even more obscure agents (Lütz 2002; Braithwaite and Drahos 2000). As such, national-level regulation has become less a constraint and more a source of competitive (dis)advantage.

The ‘end of geography’-literature, on the other hand, while forcefully arguing for an increased awareness of the impact of ICT on international finance, clearly seems to overstate its main insights in what is often unmitigated technological determinism. The continuing relevance of place and co-location, demonstrated by, for example, the recent successes of New York’s South Manhattan and, especially, the City of London (see *The Economist* 2006), doubtless flies in the face of all radical globalization claims. Technological possibilities of virtualization are clearly counteracted by more traditional advantages of co-location. It remains to be seen, however, whether these advantages are indeed of the traditional kind or have changed their nature under the impact of regulatory and technological change.

The very productive ‘social studies of finance’ perspective, finally, presents a growing amount of evidence that even virtual financial markets have a social underpinning, which, moreover, can only be fruitfully investigated by ethnographic means. As such, this literature both emphasizes the importance of going beyond the proximity clichés that have for so long been the stock-in-trade of economic geographers and of the need for economic geographers to become more like cultural anthropologists (see also Clark 2005a). However, because of its descentance from social studies of science, this literature has a tendency towards meta-theorizing as a result of which scholars can lose sight of the ultimate explanatory role of the social sciences.

While taking on board, as much as possible, the insights of these three bodies of literature, we take as our starting point a corpus of literature that is more down-to-earth in the sense that it takes empirical developments as an invitation for conceptual and theoretical renewal rather than the other way round.

2.1 Geographies of Virtual and Amalgamated Stock Exchanges

The virtualization of stock exchanges was one of the underlying drivers behind the ‘death of distance’ and ‘end of geography’ exaggerations, principally because of the technical ability it provided to trade from a location physically remote from the site of an exchange. However, as Martin observed, this “may well have annihilated *space*... but it has by no means undermined the significance of location, of *place*... [N]ew technologies and globalization are not obliterating the landscapes of money, but reconfiguring them in significant ways” (1999, 15-16, emphasis in original). The most important outcome of such reconfigurations was the emergence of what has become known as a ‘new’ international financial system, a system where money and financial products flow more freely (but not totally unimpeded) across capitalist networks (Thrift and Leyshon 1988; Clark and Wojcik 2006). Nevertheless, IFCs have continued to act as ‘nodes’ within a ‘neo-marshallian’ system (Amin and Thrift 1992), exerting a form of ‘stickiness’ that, to follow Clark’s (2005b) analogy, means that ‘money flows like mercury’, rather than water, with geographically uneven pools of financial activity remaining. This, then, is the most well-rehearsed argument about the continued importance of place to financial activities, with three strands of discussion, emphasising different explanatory variables, continuing to dominate explanations of the importance of ‘being there’.

- *The ‘urbanization’ logic:* pivotal to the international financial system are the large global financial institutions that act as the principal traders and prime brokers for third parties. For example, the UK’s Competition Commission (2005) noted that the ten largest financial institutions are responsible for half of all European equity trading. The same is true for global foreign exchange trade. While uniquely transparent and globalized, trade is highly dominated by the

largest investment banks and is deeply embedded in the organizational entrails of these firms, allowing for highly valuable trade between anonymous ‘others’ who share the birthmarks of the organizations of which they are part (Clark and Thrift 2005). These firms also have intense relationships with a range of other advanced producer services (in particular accountants, lawyers and financial information providers) that act as essential intermediaries in financial transactions. Consequently, leading IFCs such as London and New York, where these financial conglomerates have their (head) offices – primarily for historical reasons –, continue to remain hubs of financial activities because of their agglomerations of financial institutions and supporting producer services and the benefits brought to them in terms of both the timeliness of services and ability to convey tacit advice and consolidate important inter-firm relationships (Beaverstock et al. 2000; Faulconbridge 2007; Sassen 2000; Thrift 1987). However, while urban concentration was crucial for financial liquidity before virtualization, the advantages of concentration seem to have shifted in today’s screen-based environment. Instead, the presence of a sufficient number of *knowledgeable* clients and suppliers with which to conduct ever more complex and sophisticated bespoke trades seems important today, something which leads us to our second point.

- *Localization advantages*: finance has always been an industry where the knowledge of traders has had a direct influence on profitability, something that is even further amplified by the increased complexity of contemporary financial products (Thrift 1994; Tickell 2000). The clustering of financial institutions within IFCs leads to what has been described as ‘information spillovers’ (Porteous 1999) or ‘buzz’ (Storper and Venables 2004). This is the process of knowledge creation and dispersion that is facilitated by the relatively tight spatial matrix within which financial institutions locate themselves in leading IFCs (e.g. The City and Canary Wharf in London, South Manhattan in New York, ‘das Bankenviertel’ in Frankfurt), and the dense social interactions between traders within these matrices (Thrift 1994; Corporation of London 2003). Being embedded within such spaces of knowledge production and dispersion appears to be essential for conducting profitable trades. As studies in the

sociology of finance have shown (Abolafia 2004; Beunza and Stark 2004; Zaloom 2003), decision making and actions in financial markets cannot be disassociated from the interactions within the trading room, and more widely within the local financial community. However, it is increasingly debated whether that actually requires physical proximity and whether other forms of proximity — social, cultural, organizational — do not suffice (Allen 2002; Amin and Cohendet 2004; Beaverstock 2006; Faulconbridge 2006; Grote et al. 2002). The implications of this, whilst contested (Clark et al. 2006; Gertler 2003), are potentially significant and may force a reconceptualization of the nature of localization advantages.

- *Institutional and regulatory advantage*: whilst some have suggested this is of declining influence (e.g. Budd 1999), it is argued here that the regulatory institutions influencing IFCs are as pertinent as ever (see also Clark 2002; Corporation of London 2003). Without wanting to become entangled in debates about the rolling back or otherwise of the nation state, it seems that regulatory influences continue to provide advantages to some centres and disadvantages to others. The example of the Bund-future market, primarily based on German federal bonds, but initially traded and regulated in London because of the prevention of derivatives trading in Germany until 1990, illustrates such an argument (Laulajainen 2001). After re-regulation the Bund-future market moved to Frankfurt because of the advantages of the German electronic trading system, especially its cost-efficiency. However, this resulted in an interesting form of spatial organization and specialization. The exchange was based and regulated in Germany, but traders continued to be almost exclusively located in London as the ‘epistemic knowledge community’ exists there and the ‘localization’ advantages described above ‘fix’ traders in the City (Lo and Grote 2003). Other examples are the successes of Dublin and Luxembourg to attract an increasing number of hedge funds and other money managers by lax establishment rules and competitive fiscal systems (Hardie and MacKenzie 2006). Even more topical are the worries voiced by the British financial establishment about a future merger of the LSE with Nasdaq, currently one of its largest shareholders, over the possibility that the LSE would come to fall under the over restrictive regulation of the SEC

(Financial Times 2006a). Similarly, the growing share of international IPO's going to London's LSE and AIM instead of New York's NYSE is largely the effect of prohibitive corporate governance regulation under the US Sarbanes-Oxley legislation (The Economist 2006). Hence, it is fair to conclude that even in a neoliberal world, regulatory differences can still play a role in explaining the differential distribution of financial activities over space.

The 'end of geography', then, is far from nigh in the European financial system. The introduction of Information and Communication Technologies (ICT) and the virtualization of trade are not going to wipe the historically pre-structured slate of finance clean. Hence, technological extrapolations are unable to explain the present nor do they allow an easy reading off of the future pattern of the geographically uneven 'pools' of financial activity from current distributions of capital. Similarly, the location and organizational form of stock exchanges are not proxies for market location and IFC construction (Clark 2005b). Consequently, it is increasingly important to ground analyses of European (and global) financial geographies in a closer understanding of the wider contexts that create sticky and, at the same time, shifting geographies. To do this, we need a conceptualization of finance that is not preloaded towards one of the three explanatory variables mentioned above but is catholic enough to encompass all three of them. We surmise that a focus on financial *products*, and the associated market conditions and knowledge communities that facilitate their development and trading, as suggested by Clark and O'Connor (1997), is up to this task.

Since financial products are about prices, risks and (future) streams of income as well as the external conditions impinging on these variables, they are pre-eminently about information. As such, a focus on products and the information they contain clearly covers the epistemic community dimension of the explanatory template. Moreover, since knowledge and information differ with regard to the extent in which they are in need of interpretation, a focus on the informational content of different financial products allows us to determine the importance of physical proximity to both clients and suppliers with regard to different financial transactions and hence to explain their spatial distribution.

The institutional dimension impinges on this in at least two ways. First, in determining the size of the domestic financial industry and the depth of public financial markets. Since the liquidity of financial markets is institutionally determined, the quality and quantity of available financial products is too. If there is a large amount of domestic capital available for investment in equity and bond markets, as is generally the case in political economies with funded pension systems, financial markets tend to be deeper and hence more transparent than is the case in political economies with pay-as-you-go pension systems (Verdier 2002; Clark 2003). Second, in affecting the extent to which financial regulation, corporate governance law and securities law do conform to what is increasingly seen as the international standard, namely British or American regulatory conventions. This latter, more direct dimension of institutional determination covers everything from the entrance criteria of public stock markets, to the accountancy rules concerning the consolidation of pension assets and liabilities (Véron et al. 2006), and the legal protections provided to minority shareholders (La Porta et al. 1998; 1999). This influences the locational decision-making of leading traders and investors. As such, a product perspective allows us to track shifts over time in the composition of the type of trade conducted in specific IFCs and relate these to stock exchange reconfigurations and changes in the underlying variables just mentioned.

Note, however, that while clearly implicating path dependent explanations of the current distribution of finance over space, our conceptualization of institutional ‘effects’ is more about the managed ‘reproduction’ (or, as is the case in Amsterdam: the failure to do so) of financial advantages and disadvantages than about the ‘origins’ of these advantages and disadvantages. Both are related, but different, and the two parts need to be kept distinct in order to avoid the fallacy of functionalism (explaining the genesis of a particular arrangement from its current function) or the a-historical *terra nullius*-assumption of much of neoclassical economics (see Mahoney 2000). We emphatically do not want to suggest that the empirical field of finance is not historically pre-structured. Hence, the distribution of transparent products will not be random, as the ‘end of geography’ thesis maintains, but will tend to ‘flow’ to historically determined pools of capital and, in particular, those IFCs that reproduce themselves in an attractive manner in the

contemporary era. The paper does not pretend to provide an historical explanation of the genesis of specific geographical pools of finance but takes the historically determined distribution of capital over space as an empirical given.¹ This historical substrate is, then, used as a starting point for considering contemporary trends and informs analysis of the present day influences on the geographical dynamics of finance. Before visiting the case of Amsterdam in order to exemplify this argument, we first briefly summarize Clark and O'Connor's framework and its usefulness in guiding this type of analysis.

2.2 Geographies of 'Sticky' Financial Products

According to Clark and O'Connor (1997), the localization of trading in *transparent* financial products is primarily determined by price considerations and hence by 'economies of scale'. Knowledge of the underlying entity (firm, commodity, real estate, infrastructure, etc) is unimportant, as the controlling variables determining the price of property rights are highly standardized, instantly available and hardly in need of insider interpretations. Consequently, trade in these types of products, which consists mostly of simple buy/sell transactions, can take place anywhere, with concentration normally occurring in centres such as London and New York because of the critical mass of traders present (and therefore the reduction in costs and a high level of liquidity offered). Trade in commodities, FX-trade as well as in 'blue chip' stocks of large internationally renowned firms and gilt-edged bonds are obvious examples of financial products that form the backbone of international financial trade and as such have increasingly become global assets that do no longer provide co-located traders with proximity advantages. Since these types of assets have increasingly become global assets, the information on which their prices are dependent does no longer serve as a criterion to distinguish insiders and outsiders.

[Table 1. about here]

¹ See Wallerstein (1974), Braudel (1982), Harvey (1982) Arrighi (1996), and Cassis (2006) for historical accounts of the genesis of the unequal spatial distribution of capital over time.

The intermediate category consists of *translucent* products. These are variations on well known global products that use local mutations to create a geographically and temporarily unique product. As a result, the knowledge needed to trade in such products and the risk associated with them is unclear to those outside the market, yet is not exclusively local in a strict sense. A small investment to gain insight into the product may allow it to be traded without physical presence in the long term. Clark and O'Connor (1997: 97) acknowledge that the translucent category often blurs with the transparent and opaque ones. As such, this intermediate category bridges the completely transparent and the completely opaque. While hard to identify and delineate clearly, it is our contention that within the contemporary financial landscape, those financial agents who are able to render transparent products (partially) opaque (e.g. hedge funds) and opaque products partially transparent (e.g. private equity funds) have become increasingly important for large institutional investors looking for (quasi)bespoke products that fit their highly idiosyncratic risk and return profiles, and have come to determine by and by the dynamism on which vital IFCs rely. Hence, if nothing else, localization advantages and regulation can ensure such competitive advantage is gained.

Trade in *opaque* financial products, by definition, takes place in close proximity to the actors who have a thorough knowledge of the underlying entity. There is a deep information asymmetry in the sense that traders have no way of fully understanding the variables controlling fluctuations in a product's price, something that can only be overcome by developing strong relationships both with those who 'design' the product and those with experience of its trading. Private equity exemplifies this category, but so do the small and mid cap sections of public exchanges. Since changes in the underlying variables impinging on the price of the property titles largely occur outside the radar screens of the international analysts, different means of access to crucial information are needed in order to be a successful trader. Here proximity and access to relevant epistemic communities becomes crucial. Outsiders lacking these avenues of access are dependent on local 'gatekeepers' in order to be able to trade in these opaque financial categories. At the same time, regulation determines whether such innovative products can be accommodated.

As table 1 highlights, one result of the differing informational content of each product type is, according to Clark and O'Connor's (1997) analytical framework, a product-specific spatial distribution of financial activities over different IFCs, which neither conforms to the strong 'end of geography' claim nor to the 'neo-marshallian' world of Amin and Thrift (1992), in which agglomeration spillovers are strong enough to withstand the combined centripetal forces of market integration and technological change. Instead, the Clark and O'Connor framework leads one to expect increasing concentration of transparent trade in the largest, most well-equipped IFCs, while the trade in opaque products would remain located across a wider range of IFCs, including smaller centres such as Amsterdam. Less clear are the spatial expectations for the intermediate category of 'translucent' products since Clark and O'Connor have largely treated them as a residual category. Below we apply the Clark and O'Connor framework to trace the fate of the Amsterdam IFC from the 1980s onward in order to identify the as yet undertheorized inter-linkages between the three product categories and the three-pronged influence of agglomeration, localization and regulation on processes of change over time. We argue that the changing geography of financial products is a result of inter-relationships between all three product categories and that, in particular, transparent and opaque products are interlinked with their geographies being mutually dependent and not exclusive.

3. Changing Financial Geographies: The Case of Amsterdam

3.1 Sustainable Growth?

As a historical financial centre that once ruled the international financial world, Amsterdam has succeeded in weathering many fateful shifts and turns (see Barbour 1976; Riley 1980; Schama 1987; Neal 1990; Braudel 1982; Cassis 2006). During the 1980s, the Amsterdam financial community was well positioned to jump the bandwagon of the financial boom that started with the demise of 'embedded liberalism' in the mid-1970s (Ruggie 1982; Helleiner 1994). Compared to the 1960s and 1970s when annual turnover of trade in equities and bonds at the Amsterdam stock exchange ranged from EUR 4,5 billion to EUR 8,7 billion and EUR 1,2 billion to EUR 9,7 billion respectively for shares and bonds, during the 1980s levels of EUR 83 billion were reached

for shares and EUR 90 billion for bonds (CBS 2006a). Given this sharp increase in liquidity and hence volatility of the most transparent products traded in the Amsterdam IFC, it became increasingly attractive to set up a formal trading floor for the trade in derivatives which until then had largely been traded 'over the counter'. The Amsterdam Option Exchange, established in 1978, is a clear example of the adroitness of the Amsterdam economic elite in anticipating a number of organizational and technological innovations that were destined to radically change the face of international finance by building upon an already existing epistemic community of commodity traders in order to create a new equity option market. The Option Exchange was the first of its kind in Europe and attracted a large number of foreign financial firms during the 1980s and 1990s to the Amsterdam IFC. At that time equity options were still relatively obscure and hence possessed opaque informational characteristics, forcing foreign firms to locate in the immediate surroundings of the option exchange at the Rokin in the centre of Amsterdam. Whilst the uniqueness and hence attractiveness of the Amsterdam IFC gradually wore off as the number of formal derivative exchanges increased and options gradually lost their 'opaqueness', the early establishment of such a formal derivative exchange and the facilitation of this by suitable regulation, clearly indicates Amsterdam's role in the development and trade of the new breed of 'opaque' financial products that symbolized the 'new' international financial system (Tickell 2000).

Another innovation that saw Amsterdam at the forefront was the use of ICT to virtualize the trading process, enhancing the accessibility of the Amsterdam exchanges by means of remote access ports. The Amsterdam stock exchange, which went virtual in 1994, was one of the first worldwide to do so, as was the Amsterdam Options Exchange which followed in 2002. These decisions must be seen in the light of increasing competition from more liquid financial markets such as the ones domiciled in Paris, Frankfurt and, especially, London, with the underlying rationale that virtualization would bring higher trading efficiency, improve liquidity, and would thus enhance the attractiveness of the Amsterdam trading platform both for investors and for share issuing firms. Concerning the former, the two Amsterdam exchanges witnessed a rapidly increasing growth in turnover during the 1990s. Turnover at the Amsterdam option

exchange rose from a little over 10 million contracts traded per day in 1990 to well over 60 million contracts in 1999. The biggest boost to trading volume, however, came after the virtualization of the exchange when the number of contracts traded daily rapidly reached the one billion mark (Euronext.Liffe 2005). Turnover at the Amsterdam stock exchange too got a huge boost from virtualization. While the beginning of the 1990s saw average daily turnover reaching a level of EUR 66 billion, in 1994 it had increased to EUR 143 billion, before reaching an all time high of EUR 707 billion in 1997 (CBS 2006b). Also in terms of share issues, the 1990s saw a huge increase. Starting from a low of EUR 326 million in 1988, it reached EUR 2,7 billion in 1994, and since has gradually increased to EUR 18,9 billion in 1999 (DNB 2006), clearly demonstrating the liquidity attracting effects of virtualization.

A third, organizational, innovation within the world of stock exchanges was undertaken in 1996 when the Paris Bourse and the Brussels and Amsterdam exchanges announced that they would integrate their (virtual) order books and would adopt the Parisian trading system in order to pool their respective liquidities, which were considered to be too small to withstand the increasing centrifugal force of the London Stock Exchange. Euronext, as the product of the merger was christened, is at the moment of writing still the only truly transnational stock exchange. While the value of average daily trading of the combined exchanges of Euronext in 1990 added up to only \$ 170 billion, turning them into the 8th largest exchange worldwide, currently Euronext is the 5th largest exchange in terms of average daily turnover (after, respectively, the NYSE, Nasdaq, the LSE and the Tokyo exchanges), the 6th largest exchange in terms of market capitalization (after, respectively, the NYSE, Tokyo, Nasdaq, the LSE and the Osaka exchanges), and the 8th largest in terms of number of listed firms (after, respectively, the Bombay, Toronto, Nasdaq, LSE, NYSE, Tokyo and Korean exchanges) (WFE 2006). This, again, clearly demonstrates the importance of pooled liquidity for the operational success of an exchange organization in a context of financial market integration.

During the 1990s, the anticipatory strategy of the Amsterdam financial community (since 1992 officially represented by the Amsterdam Financial Centre Foundation) appeared to pay off in terms of number of firms, share of financial services in Amsterdam GDP and in total

turnover. The number of foreign banks in the Netherlands rose from 54 in 1990 to 79 in 1997, more than three quarters of which were located in the Amsterdam city centre (NIBE-SVV, several years). A similar picture is shown in the field of stock and option trading. While the total number of officially registered Dutch stock traders declined gradually from 19 in 1990 to 12 in 2000, this was more than offset by the rise of foreign traders, whose number rose from 8 in 1993 to 27 in 2002 (DNB 2002). This growth was reflected in the increasing share of the financial services in Amsterdam GDP. While the Amsterdam economy increased between 1996 and 2002 by 25.7 per cent, financial services grew by a stunning 46 percent, the largest single annual share of which was booked in 1999 (22.6 per cent). Overall, total annual turnover of Amsterdam's financial service industry increased by a factor 16 between the early 1970s and the turn of the twenty-first century, most of which occurred during the 1990s. Meanwhile Amsterdam's economy overall merely grew by a factor five. At the turn of the millennium financial services generated approximately one fourth of the total economic product of Amsterdam compared with only one-fifth in the early 1970s (CBS 2006c).

Less clear-cut were the developments in terms of employment. Since Amsterdam is also the controlling centre of Dutch financial retail activities, domiciling two of the three large Dutch retail banks (ING and ABN AMRO), the employment gains caused by growth in wholesale activities were largely offset by huge labour reductions in retail banking because of the introduction of ICT during the 1980s and 1990s, the disappearance of many retail offices as a result of market consolidation,² and the rapidly increasing replacement of full scale retail bank facilities by ATM's,³ all of which have had a downward effect on employment (G10 2003). Nevertheless, during the 1990s the employment in the Amsterdam financial industry increased with more than 15,000 jobs between 1993 and 2001, which represents an increase of well over 30 per cent. Or to put it otherwise, in 2001 one in every eight workers in Amsterdam was directly employed in the financial services against one in ten in the early 1990s.

² Because of bank mergers, between 1997 and 2004 the number of bank offices in the Netherlands declined from 7,161 to 4,100 (CBS 2006d).

³ Between 1997 and 2004 the number of ATM's in the Netherlands increased from 6,397 to 7,889 (CBS 2006e).

3.2 Post-millennial Blues?

So far, the Clark and O'Connor tale seems to hold true. Despite virtualization, consolidation and continuing globalization, Amsterdam's financial centre seemed to be able to withstand the growth of London and other financial centers (e.g. Frankfurt), assumingly because of its opaque and translucent markets. However, after the turn of the millennium things began to change. Banks and security traders shed workers, losing, on average, one fifth of employees between 2001 and 2003. According to the Dutch Society of Equity Analysts, the total number of analysts has decreased by several hundred since 2001 (Het Financieele Dagblad 2003). Combined with the employment effects of continuing downsizing and outsourcing in Dutch retail banking, this has resulted in a steady decline from a high of slightly over 50,000 workers in 2001 to 47,000 workers in 2003 and, according to the latest figures, 40,000 on January 1, 2006 (CBS 2006a; O+S 2006). This is reflected in the decline of financial firms located in Amsterdam. Since 1998 when there were 79 foreign financial firms in Amsterdam, their number has steadily declined to 39 in 2004. Even more telling are the developments in the number of brokers located in Amsterdam. Of the 26 officially recognized brokers that were located in Amsterdam in 1975 only 7 have survived. The rest has disappeared through mergers, takeovers, closures or relocations. Of the 176 current members of Euronext who have a license to trade on the Amsterdam electronic order book only 54 are actually located in Amsterdam. This number encompasses the remaining Amsterdam brokers, foreign banks as well as Dutch universal banks (NIBE-SVV 2005). Moreover, an increasing number of foreign financial firms are licensed by the Dutch Financial Market Authority to conduct business in the Netherlands without actually being located here. While their number reached 49 in 1993, it had increased to 371 in 2005 (DNB 2006). Because of remote access ports there is no longer a functional need to be located in the immediate surrounding of a physical exchange, while other potential advantages of co-location — specialized labor market, asymmetric information, the accessibility of social networks — have apparently also disappeared.

What was a virtuous growth cycle in the 1990s — more liquid markets attracting more traders and investors, which, in turn attracted a growing number of firms tapping into Amsterdam's financial markets — has rapidly turned into a vicious one of decreasing liquidity, a

declining number of financial firms located in Amsterdam and a decreasing number of share issuances. While part of the explanation is of course cyclical and has to do with the worldwide slump in stock prices after the bursting of the ICT bubble, in contrast to the London Stock Exchange, the New York Stock Exchange as well as Euronext at large, activity on the Amsterdam order book has remained lacklustre. Total monthly turnover on the Amsterdam exchange has decreased gradually from a high of EUR 153 billion in January 2001 to a low of EUR 33 billion in February 2003, a steep decline even when taking into account that as per October 2001 the Dutch Central Bureau of Statistics shifted from a double counting measure of equity turnover to a single counting one (CBS 2006b). As table 2 indicates, such declines suggest that Amsterdam runs the danger of becoming one of the smaller European international financial centres.

[Table 2. about here]

While these developments clearly concern Clark and O'Connor's transparent category and might be explained by the centrifugal effects of larger pools of liquidity in neighbouring financial centres such as London, Paris and Frankfurt, that is not the case with the post millennial developments in the small and mid cap section of the Amsterdam stock exchange. Since we are dealing here with firms with total capitalization between EUR 150 million and EUR 1 billion in the case of midcaps and less than EUR 150 million in the case of smallcaps, we can safely assume that this is an investment category that falls largely outside the radar of mainstream equity analysts. As such, these financial products clearly belong to Clark and O'Connor's opaque category, which, according to their reasoning, would continue to provide local intermediaries (i.e. Amsterdam based brokers and analysts) competitive advantage over foreign financial service providers because of information asymmetries. However, between 2001 and 2005 no less than 69 firms have left the Amsterdam exchange, 13 because of bankruptcy and 56 because of mergers and delistings, a large number of them small and medium sized enterprises. Each year since 2001, including 2006, the Amsterdam exchange has lost between 4 to 8 per cent of its listings (VEB

2006). Attempts to counter these losses by Euronext, such as the low threshold Alternext order book, have yet failed to attract newcomers. While 28 of the 72 new listings on the Paris Bourse since 2005 were on account of the Paris Alternext exchange, in Amsterdam the number of IPOs was only five. The success of Paris Alternext appears to be largely due to fiscal subsidies and financial guarantees of the French Ministry of Finance for investors in SMEs quoted on the Alternext exchange. The Dutch Minister of Economic Affairs has already announced that no subsidies and guarantees will be forthcoming even though Alternext Amsterdam did receive a licence to operate from the Minister of Finance on May 30 2006 (Het Financieele Dagblad 2006a).

The category of translucent products was defined above as an intermediate product category, linked to highly sophisticated financial agents such as hedge funds, that has only recently become a main attractor for buyers and sellers. What is striking about the Amsterdam case is the failure to develop a market in alternative investments, as it is called by the industry itself, and hence the absence of a vibrant community of smaller alternative financial firms. Approximately two third (74 %) of the 900 hedge funds active in Europe are located in London, which, moreover, controls more than 90 per cent of all European capital invested in hedge funds (IFSL 2005), making London the hedge fund capital of Europe. Smaller clusters of hedge funds can be found in Paris and Madrid, while Zurich, Geneva, Stockholm, Luxembourg and Dublin are in the ascendancy. According to the Dutch Financial Market Authority there are only five single-manager hedge funds authorised for distribution in the Netherlands. This is the same number as in 2002 (AFM 2005). However, hedge funds are only obliged to get authorization if the fund has more than hundred participants and/or the participations are less than EUR 50,000. Hence, these figures fail to capture Amsterdam located hedge funds like Aster-X, Theta Multistar and Go-Capital, whose participatory thresholds are over EUR 50,000. Much larger is the number of fund of hedge funds in the Netherlands. The register of the Financial Market Authority lists 35 of these funds licensed to distribute in the Netherlands. However, roughly half of these are operating out of Luxembourg (AFM 2005: 29). While Amsterdam clearly is the capital of the

Dutch hedge fund industry, its size is too small to generate the type of self-sustaining innovation cycle that is visible in London (Financial Times 2006b).

In short, in all three categories identified by Clark and O'Connor (1997), Amsterdam's financial centre seems to have lost clout. In the category of transparent products, the trading agents increasingly seem to have exchanged their Amsterdam location for establishments in larger financial centres such as London, Paris and Frankfurt. We content that this is largely because access to transparent trading opportunities that used to be provided exclusively by the Amsterdam exchanges have increasingly, as a result of virtualization and remote access ports, become accessible through other means. As such, this development is still within the boundaries of Clark and O'Connor's framework, simply suggesting that the importance of the integration within a local trading community to gain interpretative trading advantages is diminishing or is itself shifting to a higher order trading community (i.e. the one based in London). Harder to accommodate, however are the developments within the small and midcap section of the Amsterdam exchange. These types of assets clearly fall within the opaque category and as such would represent the 'sticky' type of trade that should remain the prerogative of the local (or national) trading communities despite increasing globalization and the ensuing pull of larger financial centres. Nevertheless, in this product category too there are clear indications of decline. Finally the failure to develop a viable community of traders in translucent products suggests that there are interaction effects at work between the different product types and their respective trading communities, which can explain both success and failure in reproducing financial advantages.

3.3 Accounting for Decline

The questions raised by this case can be reconsidered in several ways. For example, at a generic level, has Amsterdam become less competitive in comparison to London and other European financial centres in terms of the presence/absence of knowledgeable workers and the availability of business infrastructures (e.g. Corporation of London 2005)? Alternatively, this argument could be complicated further by looking at both the changes in financial products (*à la* Clark and

O'Connor 1997) and also the 'relational' impacts on Amsterdam of changes in London and other financial centres in recent times (Beaverstock et al. 2005; Faulconbridge 2004). We argue that there is somewhat of a 'chicken or egg' dilemma in terms of causality when examining changes in the levels of transparent and opaque products traded in Amsterdam. Three points are relevant in our view in relation to this argument.

First, it seems that to understand the decline of Amsterdam it is vital to accommodate into the analyses changes over time in the knowledge intensity of different financial products and the degree of epistemic embeddedness of the groups of traders specializing in these products. In terms of opaque products, local players operating in Amsterdam seem to have lost their monopoly of local information gathering and with it the advantages associated with 'embeddedness' in local epistemic communities. Despite a flurry of activities within the social studies of finance subdiscipline (see Carruthers and Stinchcombe 1999; Beunza and Garud 2005 Arnoldi 2006), there is still a dearth of empirical studies on the activities of traders to state conclusively how they obtain their information and how they assess the inherent risks.

Nevertheless, on the basis of the material available we can plausibly suggest that the 'local' knowledge which used to be opaque to outsiders and which provided a monopolistic niche for local, intermediary agents is decreasingly so. Due to increases in computing powers, standardizing agents like rating agencies (Moody's; Standard & Poor's; Fitch), transnational regulatory organizations (BIS; ECB; IOSCO), exchange organizations (Euronext; LSE; Deutsche Börse; Dow Jones Stoxx), financial information brokers (Bloomberg; Reuters; Thomson data) and private research institutes (Eurohedge; Institutional Investor; The Banker; Mar/Hedge) have increasingly been able to construct integrated, (quasi) transparent markets which dispense with local epistemic advantages. In fact, the added value of these agents and hence the source of their profits lies precisely in eroding informational asymmetries, whether caused by regulation, opaqueness or time lags, in order to give investors a larger choice of investment opportunities.⁴

Amsterdam's decline would thus seem to be the result of a loss in competitive advantage and failure to replace it with anything new in the form of innovative opaque and translucent

⁴ See Sinclair (2005) for precisely such an argument regarding the role of American rating agencies like Standard & Poor's and Moody's in the creation of worldwide bond markets.

products that rely on locally-specific and embedded knowledge communities, as London and other centres have done. Moreover, whilst the departure of transparent trading might have been expected, it seems this may have been amplified (or caused?) by the gradual disappearance of 'opaque' products from the centre's exchanges. A case in point is the recent closure of the potato futures market in Amsterdam. Established in 1958 and located in the Amsterdam commodities exchange it serviced Dutch, German and Belgium farmers and provided them with an alternative outlet for their produce to the large wholesalers. Being integrated in Euronext.Liffe and hence being managed out of London the organizational support was insufficient to maintain a lively futures market in Amsterdam. While in 1998 144 thousand contracts were still being traded, in 2004 their number had declined to a mere 26 thousand. Since the costs of maintaining the market outweighed the gains, Euronext.Liffe has decided to close down the platform (Het Financieele Dagblad 2006b). While rational from an organizational perspective, the closure of markets like these is much less commendable for future innovation possibilities within the Amsterdam financial centre as such. For the Amsterdam case clearly shows that there are product, market and trader complementarities, which are important for the innovative capabilities of IFC's. Understanding this dynamic is vital and leads us to our second argument.

The effect of the inability of Amsterdam's financial community to reproduce 'opaque' financial products needs exploring. The 1990s have seen an enormous increase in the importance of complex financial products, consisting of an assemblage of financial assets with different risk, return and liquidity profiles. These are demanded by highly sophisticated institutional investors and their intermediaries in order to reap returns over and above those provided by more mainstream (transparent) assets. At the most cutting edge of this type of financial trading are both the large international financial institutions and the 'new' communities of 'boutiques' and 'hedge funds', which increasingly mimic the organizational structure of the film and advertising industry and the 'project ecologies' in which these are embedded (Grabher 2004; Hall 2006; The Economist 2006). Both in these boutiques and in the larger financial institutions, the networks and expertise of individuals are used to maximise profit from complex financial transactions. Such an ecology requires both a circumscribed arena where these professionals can first learn the

trade and subsequently built up a network of collaborators, meet other investors and look for sophisticated customers. As the lack of a viable hedge fund community in Amsterdam indicates, these conditions were either absent or had been eroded too much to sustain the sort of epistemic exchange from which financial innovation springs forth. This raises two questions. First, whether the absence of traders in translucent products was primarily due to a decline in opaque products or, alternatively, in transparent products. In other words, is the future viability of smaller scale IFCs primarily dependent on the presence of agents that can mediate between outsiders and local opaque products (gatekeepers) or on the presence of traders who can transform transparent products into translucent, higher rewarding ones?

Third, it is important to examine the linkage between declines in liquidity, trade in transparent products and the financial innovation that leads to the development of translucent products. In the light of the Amsterdam case it is evident that there are functional relations between the different categories, suggesting that loss of trade in one category spills over in the other and vice versa. For example, the rise of remote access may have allowed foreign financial institutions to leave Amsterdam, thus seriously weakening the epistemic 'infrastructure' that is required for financial innovation. The difficulty with this line of argument, though, is that, as Clark et al. (2006) note, there are intrinsic 'home country' advantages even for transparent trade. Following this argument to its logical end, financial institutions would only want to leave a centre if these intrinsic 'home country' advantages decline (which they don't yet seem to have done) or if some other factor affecting the profitability of their presence spurred the abandonment of a financial centre. A critical case in point is the consolidation under British law of the Shell Oil Corporation. Since July 2005 the shares of the British and Dutch branches of Shell have been transformed in dually listed RDS-A (formerly Royal Dutch Oil) and RDS-B shares. Based on liquidity arguments, the directors of Euronext Amsterdam feared that most trade would leak away. In view of the fact that Royal Dutch Oil trades accounted for 15 per cent of average daily turnover, this would wreak havoc on Amsterdam's liquidity. However, due to regulatory disadvantages of the LSE — a 'stamp duty' of 0,5 percent raised on every share transaction — and sufficient initial liquidity in Amsterdam, over 70 percent of trade in RDS-A has remained in

Amsterdam. As a result the spread in Amsterdam on RDS-A shares is four percentage points lower than in London, making Amsterdam still the most attractive location to conduct Shell trades. This was given a further boost in November 2005 when Dow Jones Stoxx announced that it would include the Amsterdam Shell price in its European index. However, it remains to be seen how durable this distribution of trade is going to be, since Shell itself also prefers the Amsterdam order book to effectuate its share buy back programs. In the future this could well result in a gradual decline of the number of ‘Dutch’ shares vis-à-vis the British ones and hence in a loss of liquidity for the Amsterdam exchange and a rise in the spread between bid and offer prices.

Amsterdam’s relationality, both with the other members of the Euronext consortium and within a wider European financial system where London dominates as the leading centre, also means that only products with a high degree of ‘stickiness’ – the most opaque products – will attract traders and compel their presence in the city. Whilst ‘home country’ advantages still exist for transparent trading, these do not seem to be big enough to override the compulsion of the leading financial institutions to centralise their activities in centres which are known for financial innovation. Neither do they impinge on the attractiveness of the largest centres where economies of scale can be gained – in Europe particularly London, where leading Amsterdam-based (but multiply listed) stocks such as ING, ABN Amro, Aegon and Philips figure in the portfolios of major international institutions.

4. Discussion and Conclusions: Interpreting the Influences on European Financial Geographies

This paper has argued that there is much that remains to be done in order to fully understand the complex dynamics of European financial geographies and the changing roles of the multiple IFCs in Europe. In particular, by drawing on studies of the effects of the virtualization of stock exchanges on financial geographies and the importance of epistemic ‘infrastructures’ for financial activities, it has shown that the spatial distribution of activities within the new international

financial system is, in many ways, inherently linked to both the characteristics and relative strengths and weaknesses of different financial centres but also to the relational networks that tie centres together and into wider global financial networks.

In doing so, the analysis has in some ways echoed previous research focussing upon London's changing role in European finance (Beaverstock et al. 2005; Clark 2002; Faulconbridge 2004; Thrift 2000). All of these studies have noted the importance of London's competitive urban infrastructure, regulation and global interconnectivity and their effects upon the city's sustenance as a leading IFC both within Europe and globally. They have also argued that 'product complementarities' and the prevalence of knowledge-intensive, 'sticky' financial products in London are integral to the city's continued growth.

What this paper has offered to further this cause, however, is a deeper foray into the complex world of financial products and their complementarities, which emphasizes the interdependencies between transparent, translucent and opaque products and the way liquidity, innovation and regulation are at the centre of these relationships. This has allowed us to identify the intricate linkages between different categories of financial products and the potential for feedback mechanisms that impact upon an IFCs long term sustenance and growth within global relational networks. The case of Amsterdam has revealed that the vibrancy of an IFC is determined by the skill and the number of its opaque and translucent traders, but that these, in turn, are crucially related to an underlying 'infrastructure' that has been able to pool large 'chunks' of capital – something that London possesses in abundance.

In this regard the upshot is that transparency, and hence liquidity, is not a given but is actively 'produced', as is demonstrated by the 'construction' of an international real estate market through the commodification of so-called 'mortgage-backed securities' (see Carruthers and Stinchome 1999; Gotham 2006). Far from falsifying the explanatory adequacy of the product-information based framework used in this paper, the 'plasticity' of the categories, which, if our analysis is correct, is crucial for understanding the fate of different financial centres, can only be made visible on the basis of a typology of different ideal types such as the Clark and O'Connor one. In this we merely follow Max Weber's prescriptions. Our categories should be understood

as theoretical conceptualizations of a complex and layered social reality which allow us to focus on the discrepancies between the two — ideal type and empirical observations — in order to provide adequate explanations for these empirical ‘anomalies’ (Weber 1972: 3; Swedberg 1998: 193-4).

With regard to the reconfiguration of the stock exchange landscape and the emergence of the Euronext consortium, finally, there is a need to understand whether Amsterdam’s withering role in European finance can be explained by studying the complementarity of different types of financial products and the overlap between the different communities of traders only. Throughout the story we meet the effects of regulatory interventions, which seem to have been determinant for the future course of developments within different IFCs. For example, the failure to back the development of a low threshold equity market by the Dutch Minister of Finance may well seal the fate of the Amsterdam exchange as a source of capital for growing Dutch firms. Furthermore, the early lifting of capital movement restrictions by the Dutch authorities may well have been to the advantage of large Dutch financial institutes, while gradually eroding the standing of the Amsterdam financial centre. Finally, the ‘battle of the bourses’ that is currently reaching its endspiel may well result in a further loss of discretionary manoeuvring space for the directors of Euronext Amsterdam. It is, in any case, indicative that the Dutch authorities, in contrast to the German, the French, and the British, have until now remained silent over the distribution of employees, activities and prestige over the different IFCs involved. Either intended or unintended, there is a case to be made for the suggestion that institutional changes are the ultimate causes underlying the current reconfiguration of the European financial landscape, while shifts in liquidity and kinds of trades are merely proximate ones. However, as stressed above, how these types of causes are related is still very much up for grabs.

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Category of financial product	Characteristics of knowledge needed to trade in product	Example	Agents	Reach of trade in product
Transparent	Products “whose qualities and dimensions (including relationships to other products) are so well known or simply and cheaply observed that institutions can trade in/out of positions just on the basis of observed past and current prices”.	Gold; FX; Blue Chip stock and bonds	Global Financial Institutes	Global: being peripheral to the place of trading does not reduce the accuracy of trading as knowledge is explicit and codifiable, meaning embeddedness in the ‘epistemic community’ associated with the product is unimportant.
Translucent	“Products [that] are variations on products whose standard properties are well known in the industry (at the global level), but whose specific qualities are only known in the local market”.	Credit Based Derivatives; Asset Backed Securities; Futures	Hedge Funds; Specialized Traders	Intermediate: access to knowledge produced by epistemic community associated with this product is important but this knowledge only forms a small part of the understanding needed to trade in the product (the rest being codifiable). Therefore, risk can often be judged using advice from a third party.
Opaque	“Products whose design and execution are premised upon the existence of asymmetrically distributed information”.	Private Equity; Shares of Small and Midcap firms; Commodities	Local Brokers	National: direct access to tacit knowledge through presence within the epistemic community because of the low levels of standardized design and codified knowledge associated with the product.

Table 1. The knowledge components and characteristics of different types of financial product.

Source: Adapted from Clark and O’Connor (1997: 96-99).

Factor	Amsterdam	Frankfurt	London	Paris
Daily Forex Trade (EUR m) <i>Source: BIS (2006a)</i>	35816.94	74018.28	526444.1	44257.27
Daily Forex Derivatives (EUR m) <i>Source: BIS (2006a)</i>	33038.9	66063.7	478580.2	41840.8
Loans value (EUR m) <i>Source: BIS (2006b)</i>	371.6	1152.3	2494.5	774.6
Equities traded daily (EUR m) <i>Source: World Federation of Exchanges(2006) and Euronext (2006)</i>	558,692.6	1,545,794	4,618,041	1,103,351
No. HQ's of firms from top 500 <i>Source: Fortune (2006)</i>	4	4	23	27

Table 2. Indicators of Amsterdam's significance as an international financial centre in Europe.

