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International financial centres—an industrial analysis

by

E P Davis

September 1990

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Contents

Abstract

This paper discusses the determinants of financial firms' location decisions, thus providing a framework for the analysis and evaluation of factors underlying the development of financial centres such as the City of London. It is suggested that the analysis is relevant both for policy makers and financial institutions. External economies of scale and relative conditions between centres are highlighted as key determinants of location for financial firms, which may imply the existence of a cumulative or self-sustaining process whereby financial centres grow or decline. Analysis of financial centres in the light of oligopoly theory, given the importance of sunk costs and increasing returns to scale, offers further insights into the nature and dynamics of financial centres. For example, it illustrates the difficulties minor centres have in competing with global centres as well as offering the insight that concentration of business in major centres may be economically efficient. It is suggested that the mechanisms outlined in the paper are likely to be of particular relevance in coming years, given such potential reforms as domestic deregulation in the United States and Japan and the establishment of the EC internal market as well as advances in technology, all of which may entail shifts in the location of financial activity. Given the potential for such shifts, the paper goes on briefly to discuss the net benefits of a financial centre to a domestic economy, which would be lost if business were to shift elsewhere.

1 Introduction

(1) Can the City of London survive as a major financial centre? Or will it absorb much of the business currently conducted in Paris, Frankfurt and Amsterdam? Will financial centres soon cease to be necessary, given developments in technology? Or are there structural factors which will continue to attract financial firms to such centres? And does a major financial centre benefit the domestic economy in any case? Such questions have arisen frequently in recent years in the context of more general discussions of the location of financial business, which are focussed on the possibility that business may in some way be lost to its current location due to a change in relative business conditions between the centre and other locations. However, a criticism of such discussions has been a lack of theoretical focus.

(2) As a contribution to debate on these matters, this paper sets out to provide an analytical framework for interpreting the underlying issues, namely the motivations which lead financial firms to their choice of location, (which enables one to assess the potential effects of various adverse changes in conditions), and the benefits of a financial centre to the domestic economy.[1] The paper's principal claims to originality lies in the application of industrial location theory to the location decision of the financial firm, the development from this basis of a theory of growth and decline of financial centres, and the application to these problems of the theories of oligopoly and contestable markets.

(3) It should be noted that although the thrust of the paper is largely forward-looking and focussed on *prospects* for *international* centres, the analysis can equally be used for interpretation of *past* changes in the location of financial activity (for example the recent growth of London following "Big Bang" at the expense of smaller centres), and for analysis of the development and prospects for domestic centres such as those in Paris, Frankfurt and Milan. In addition, the current level of globalisation,[2] is taken as given. Instead, the paper assesses the determinants of the location of globalised activity.

(4) The paper is structured as follows: in Section 2 the theory of the location of firms is set out in general terms. This highlights the importance of cost, demand and external economies in location decisions as well as the importance of uncertainty and sunk costs. In Sections 3 and 4 the focus is narrowed to the financial firm. It is suggested that external economies of scale are of particular importance, though the influence of the other factors should not be neglected. In Section 5 the implications of location theory for international financial centres are assessed, and the nature of the risks to such centres highlighted. Section 6 offers a contrasting view of international financial centres based on the theory of oligopoly, which offers further insights into the development of such centres. As a counterpart to concerns over the future of centres, Section 7 briefly examines the value of an international financial centre to the domestic economy. It is emphasised that summation of value-added is not an adequate measure of the contribution of finance. Background data indicating the relative size of financial centres and the contribution of a typical centre (London) to its domestic economy are given *in the Appendices*.

(5) It is concluded overall that concerns regarding the future of international financial centres should be focussed on the possibility that once a move of firms and business away from a centre begins, it can easily become cumulative, given the importance of external economies. Technological change, regulation and taxation are among the potential causes of such shifts. Given the importance of an international financial centre to the domestic economy, such a move would be at a net cost.

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(1) An earlier version of this paper constituted the theoretical background for the analysis of London's status and prospects as a financial centre provided in Davis and Latter (1989).

(2) See Bank for International Settlements (1986) Chapter 7.

2 The Optimal Location of the Firm

(6) In this initial section the theory of the location of firms is set out in general terms [see Devine et al (1979), Richardson (1969), (1978)]. Although partly a paradigm for industrial firms, this provides a general framework for analysis of the location decision, while also enabling one to highlight by contrast the main determinants of location in the case of financial firms. In the absence of such a framework a discussion of concerns regarding the future of financial centres risks becoming purely taxonomical. ***A summary is provided in paragraph 22 for those wishing to omit the detailed analysis of theory.***

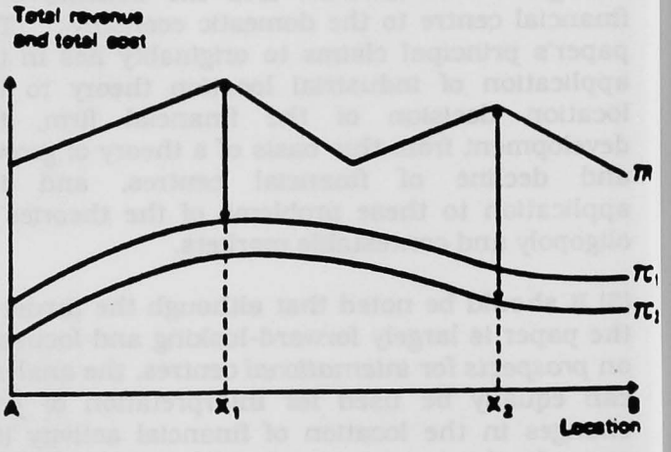
(a) Theories of industrial location

(7) Early studies of location theory tended to concentrate on relative *transport costs* of the factors of production and finished product [Burn (1958), Mathias (1969), Richardson (1978) Ch3]. Suppose a firm uses two factors, of which one is generally available while another is only available at one site A, and the product can only be sold at a single site B. Then optimisation will entail minimisation of total transport costs for a given level of output. If the localised factor is bulky relative to the product, the "pull" will be to site A, if the opposite for the product, site B. Such a mechanism can be generalised for more than one localised factor. The optimal location changes over time in response to the location of resources or products, and any change in the production technology which alters the combination of factor inputs.

(8) The transport cost minimisation model is rather simple and ignores the potential for factor prices to vary over space for other reasons besides transport costs (higher wages for workers in the centre of cities to compensate for commuting, lower costs of land on greenfield sites). Given these shortcomings, transport cost minimising will thus only by chance be optimal for a profit maximising firm. A more realistic objective is *production cost minimisation* [Mills (1972), Richardson (1978) Ch11]. The spatial location chosen will depend on the pattern of factor prices (including the influence of transport costs), though it will also affect the firm's production decision, to the extent that factor proportions can be varied. The simultaneously chosen location and method of production will economise on the use of the spatially expensive resource (for example land in the centre of cities).

(9) The definition of the market underlying the approaches noted above is of a single centre. Hence profits are maximised if the establishment is located so that production costs inclusive of transport are minimised. More than one market centre with different levels of demand adds a further refinement to the location decision—the gain in profit from locating at one must exceed the loss in profit from not locating at the other.

(10) These mechanisms can be combined in a generalised framework known as the *profit maximising model* [see Richardson (1969)]. The key constructs needed are the space-revenue (TR) and space-cost (TC) functions. As their names suggest, they illustrate how revenue and cost vary by location. The space revenue curve shows how (post tax) receipts vary over space given a constant ex-works cost, while the space cost curve sums the costs of factors and production processes at each allocation. The special cases of production cost minimisation and revenue maximisation as criteria for profit maximisation are given by flat space revenue and space cost curves, respectively. Plotting these functions together, as shown below, allows one to find the location which maximises profits (the maximum distance between the curves).



(11) The diagram also shows how a change in one of the functions TC1 and TC2 can change the optimal location. Evidently, the optimal location need not be either that of maximum revenue or minimum cost, unless they happen to coincide. In addition, the diagram illustrates how demanding the location decision may be in terms of *information*, as in reaching a fully-informed decision *all* combinations of revenue-price and cost-output at all locations must be calculated. As well as being relevant for siting of a new enterprise, these mechanisms are also relevant in the case of a branch or subsidiary, in which case costs and revenues as a function of the location of the subsidiary in relation to other establishments of the enterprise must be taken into account.

(12) The analysis can be refined by the inclusion of *scale economies* as determinants of plant location. *Internal economies* (at the level of the establishment) are relevant to choice of location of a firm which has the alternative of one large establishment or several small ones at different locations. Although locational factors as identified above may still be important and might suggest a variety of plants given constant returns to scale, significant internal economies of scale may mean that the firm maximises profit by disregarding them and concentrating production in a single plant.

(13) *External economies* of scale accrue because of the scale of the industry and not the size of its constituent firms. Once an industry exceeds a certain size in a given location, it may attract a variety of institutions that enable it to obtain factors of production more cheaply and reliably, and to sell products more effectively, than would otherwise be the case. For example, there may develop a pool of local labour experienced in the techniques of the industry, local advertising and market organisations, co-operative r & d and specialist raw material markets.[1]

(14) In each of these cases of scale economies, there may be a point at which *diseconomies* come into play, which will tend to repel rather than attract further expansion. A large establishment may become harder to manage; large scale economic activity in an area may require factors of production to be acquired at a greater distance and hence at greater expense. It may also lead to congestion on transport networks, resulting in increased transport costs to establishments.

(15) In addition to these refinements, there are various shortcomings and over-simplifications in the profit maximising model as presented here, appreciation of which are essential to understanding the motivations and constraints underlying location decisions. Perhaps the most important relate to *sunk costs*. If a firm is already established in one location, there are likely to have been considerable expenditures on factors of production which are not transferable to other sites (buildings, land improvements) or only at considerable cost (labour, machines, electronic and computer systems). Such costs entail a considerable degree of inertia in the location decision; a new location must not merely provide a greater unit profit in a comparative static sense, but must also provide sufficient profit to compensate for the discounted present value of the new investments—and losses on existing investments—that are necessitated. Conversely, if sunk costs of location are zero the industry is "contestable"[2] in a location sense and any location is vulnerable to sudden "hit and run" entry or departure. Related to sunk costs are *indivisibilities*; in many cases it is not possible to transfer marginal quantities of business to a better location in order to optimise. Instead, the new location must be profitable for a whole establishment, which particularly in the presence of internal economies of scale may be large. Together, sunk costs and indivisibilities imply that the location decision is typically not a marginal one (except in "contestable" industries as noted above). The relative disadvantage of an existing location must be sizable in order to provoke a move.

(16) Nor are these the only problems. Given positive sunk costs, the choice of a new location entails a commitment over time, which means that the choice has an *intertemporal* aspect. Not only must the new location offer advantages now, but the firm must be confident that these will remain—not always a simple decision when government policy may be one of the inputs to costs or revenues at the different locations.

(17) Intertemporal aspects introduce the more general problem of *uncertainty*. It has already been noted that gathering information on all possible sites is likely to be extremely difficult. In addition, the firm may be uncertain as to the advantages of different sites. What will be the reaction of factor suppliers or of demand for the product to a new establishment? An additional source of uncertainty in the case of oligopoly if of course the likely *strategic reaction* of rivals to a change in location, which may affect supply and demand at the new location.

(b) Empirical studies

(18) Other criticisms have originated from *empirical studies* of location decisions. These suggest that firms are rather unsystematic in choosing new sites, typically only investigating a few sites and often not performing costings or

(1) A variant of external economies is *agglomeration economies*, which vary with the total concentration of economic activity in an area.

(2) See Baumol (1982). According to the theory of contestable markets, many seeming oligopoly situations may be characterised by competitive behaviour on the part of existing firms, because of the potential for new firms to enter in a "hit and run" manner in response to excess profits. Contestable markets may thus benefit both from efficient industrial structures and competitive behaviour. In order to induce competitive behaviour there has to be an absence of significant lags between a decision to enter and entry occurring, an instant response of demand to changing prices and an absence of losses on exit due to *sunk costs* (for example capital specific to the industry that cannot be used if the firm decides to withdraw). According to this theory, economies of scale need not be a barrier to entry; firms can produce at minimum efficient scale for a short period and sell (storable) output over a long period. Contestability in terms of location is perhaps more demanding than in terms of product or market sector. For example movement of staff is unlikely to be costless.

financial evaluations [Townroe (1971), Luttrel (1962)]. While this can be rationalised as worthwhile economies in information given the costs of gathering it, (ie still potentially consistent with profit maximisation), it might equally reflect bounded rationality, (ie the firm often does not recognise the importance of the location aspect) [Hamilton (1974)]. In empirical studies, the main identified cause of movement has been *stress within the firm*, such as pressure for space caused by growth of the firm, together with inadequate supplies of local labour or existing premises [Townroe (1971), Sant (1975)]. Such repulsion factors were generally more important than attraction to other sites. This finding presents further difficulties in that it suggests growth rather than profit maximisation (in line with the managerial theory of the firm and divorce of ownership from control). The location theory developed here can be adapted, for example, to sales revenue maximisation—location would be at the peak of the space revenue curve—but the predicted location could be different from profit maximisation.

(19) The extent to which these empirical findings refute the neoclassical theory of location is open to dispute. As noted, limited search and crude evaluation technique may be consistent with profit maximisation given high costs of search and large elements of uncertainty in financial evaluations of costs of transfers. Growth maximisation may be consistent with long-run profit maximisation, and would still take account of the basic market, cost and agglomeration variables of the profit-maximising model.

(20) Other empirical studies have cast light on the relative importance of the factors identified in the neoclassical model. These emphasis the self-perpetuating nature of the success of large economically viable regions [Latham (1976), Chalmers and Beckhelm (1976)]. Key underlying factors are the locational pull of market and agglomeration economies, and the reluctance to transfer existing plant or establish new branches at great distance from such regions. Government regional policies have typically had a significant influence on location, though the size of the effect is open to dispute [Keeble (1976), Sant (1975), Ashcroft and Taylor (1977), Moore and Rhodes (1976)].

(c) Theory of multinational enterprises

(21) The above discussion offers a generalised theory of firm location. However, some specialised considerations may apply in the case of *multinational enterprises* (MNEs) [for a summary see Hood and Young (1979)]. To briefly recapitulate the theory of MNEs; in imperfect market situations firms have incentives to internalise certain activities within their organisations [Coase (1937)]. By this means they can exploit ownership-specific advantages such as technology, management skill, r & d and product differentiation, and compete with firms in other countries which otherwise have inherent advantages such as familiarity with local market conditions and the legal framework. These tendencies are particularly marked for large firms with ready access to capital and oligopoly at home. However, explanation of location abroad rather than competition by exports requires analysis of locational factors related to the host country. Those found particularly relevant in statistical analyses [see Dunning (1973)] include tariff barriers of the host country, political stability, and "defensive" shifts to protect the position of the firm in an oligopoly (by setting up plant at locations where rivals have already established themselves) as well as variables identified in the analysis above such as market size and growth, relative labour costs and transport costs. However, Hood and Young concluded "it would be wrong to over-dramatise .... in reality MNEs may be only slightly less susceptible to locational inertia than other companies. Moreover, not all .... are in 'footloose' industries .... many have high fixed investment on each site" [Hood & Young (1979), p124].

(22) To summarise, the theory of the optimal location of firms suggests that the principal underlying factors are the supply (of factors of production), demand (for the product) and any external economies at a given site *in relation to alternative sites*. Sunk costs of location at a given site provide a degree of inertia, as does a high level of uncertainty over future conditions elsewhere. Information problems mean in practice that only a few sites are likely to be investigated. Empirical studies highlight particularly the supply-side factor of "stress" at the existing location in precipitating movement. In the case of Multinational Enterprises tariff barriers, political stability and strategic moves in oligopoly situations may also have a role to play. We now go on to focus on the locational choice of financial firms, examining in detail the implications for financial institutions of each of the principal factors influencing location.

3 Application to the financial firm

(23) To what extent is the general theory outlined above applicable to the financial firm? The conclusion reached in this section, after a detailed assessment of each determinant of locational choice for financial firms, is that the same basic mechanisms are likely to be operative. However some refinements and caveats are required, as discussed in Section 4 below.

(a) Supply-side influences

(24) Among the principal *factors of production* for financial institutions at a given location are rights of establishment, personnel, premises, machinery (computers, ATMs) and costs of funds—again *relative* to other locations. Rights of establishment or costs of licences require little further comment—though deregulation (for example recent reforms in Canada and France) can increase the attractiveness of a location. Personnel must not only be of low cost but also reasonable quality or training—not typically the case in ldcs, for example. Rates of personal and corporate taxation for which the firm needs to compensate should be low, unless they are compensated by better public services of benefit to financial institutions. The extent to which staff can be profitably employed (rather than regulatory form filling etc) is another important factor. Again, premises must be suitably adapted, although unlike manufacturing financial institutions can generally fit into existing buildings. For both personnel and offices, the marginal revenue product relative to cost is the appropriate decision variable, not cost itself. Cost and quality of personnel and premises obviously differ between locations.

(25) Machinery by contrast may be classified as an ubiquitous factor, ie available at the same price everywhere, though transport costs may affect this in the more remote locations (offshore centres). Some would argue that technology embodied in machinery is increasingly making location a matter of indifference, particularly for the more routine bookkeeping and clerical tasks associated with financial intermediation. Whether it could also lead to dispersion of dealing and decision making is less clear. For example, telecoms could aid concentration if one centre is a superior "hub" of a global network. It may be impossible to benefit from technology without labour skilled enough to use it—a potential problem in some offshore centres or ldcs. An assessment of the impact of technology requires gauging its relative importance vis-à-vis the other factors whose importance is likely to continue, a task which is attempted in this and the following section. Finally, the importance of political and economic stability to location (given the importance of confidence to operation of financial institutions and markets) should also be borne in mind.

(26) *Funds* defined widely are perhaps the most important supply side factor. As well as being determined by intrinsic factors related to the demand and supply for loanable funds, the cost of funds in any location is also a function of domestic regulation; if capital ratios, reserve asset ratios[1] or other regulations are more onerous in one location or for one nationality of firms than another, then the cost of funds is higher. The same arguments apply to taxes such as stamp duty and withholding taxes (for example the stamp duty has hampered growth of financial activity in Switzerland). The efficiency of payments and settlements systems will also affect the overall cost of funds.

(27) Taking a more general view of costs, *regulations* that distort or prevent competition, for example, which impose limits on the range of activities of any financial institution (such as separation of commercial from investment banking in the United States and Japan) may raise costs—risk may be higher because there is less possibility of diversification. Intertemporal aspects are also important—firms must be confident that regulation will not change adversely. A capricious regulatory authority may be one of the greatest disincentives to location in a centre. On the other hand, all regulation should not be seen as purely a cost. Strong arguments can be adduced that strong regulation which provides *consumer protection*, and hence reduces the overall risk to depositors or investors, may actually depress the cost of funds (by contrast, weak regulation may operate to the detriment of certain offshore centres). In addition, if firms expect regulations to be tightened in all centres by international agreements such as capital convergence, there will be no incentive to change

(1) These constitute a considerable discentive to international banking activity in several European countries. Indeed Grubel (1983) suggests that domestic reserve asset ratios are largely responsible for the growth of offshore banking.

location. Finally, there is a game-theoretic argument that it is *always* in firms' interests to argue regulation is too tight and to threaten to leave, even if they are unlikely to do so, in the hope of loosening regulation in the process[1] unless the regulation constitutes a restriction on entry, support of which[2] may be rational for individual incumbent firms,[3] or if regulation can reduce the risk premium firms need to pay for finance.

(b) Demand

(28) On the demand side financial firms are likely to place a premium on ease of access to customers, modified by communications and technology. The continuing importance of branch networks suggests that this is at least the case for retail intermediation. For wholesale, the case is less clear from the point of view of an individual institution. Hence there is no longer a necessary connection between concentration of manufacturing and of finance, as the growth of entrepot financial centres has illustrated. In addition, as discussed below, the importance of access to customers may differ for primary and secondary markets. However, one factor that remains important on the demand side is location in a time zone (see Hewson (1982) for the case of Singapore).

(c) Stress

(29) The "stress" factor highlighted above for manufacturing in terms of lack of physical space is probably less important for finance, given it can take over nearby buildings from other service industries at an appropriate rent. However, another type of stress may be important, namely the stress caused by such "shocks" as excess capacity in certain major centres since the equity market crash and the intensification of competitive pressures with 1992. Such abrupt changes in conditions can plausibly precipitate reassessment on the part of financial firms of their commitment to a given centre.

(d) Sunk costs and indivisibilities

(30) Sunk costs for financial institutions are sizable, particularly at the time of entry to a location or market ("start up costs") but are nonetheless perhaps less important than for manufacturing. Sunk costs are likely to include training and movement of labour, improvement or construction of premises (though it may be saleable to another institution) and costs of application for licences and establishment rights, as well as potential loss of clientele and loss of "face" from withdrawal from a site or market. Sunk costs of relationships may be the most significant—location in a new centre does not guarantee that relationships developed in the former centre will continue to operate. Relationships may be more important for primary issuing business than secondary trading, which would imply that the second is more "contestable" in terms of location—firms may enter or leave a location without concern over breaking of relationships and consequent losses. Another example of a "contestable" sector in finance may be mortgage lending [see Davies and Davies (1984)].

(31) Indivisibilities are low, given the relatively low level of *internal economies of scale*—at least to an industrial establishment—in finance.[4] This has the consequence that it is economic for a firm to have branches in many centres, so it may be relatively easy to transfer business in a response to adverse changes in conditions. Not that internal economies are entirely absent. Revell (1987) suggested that individual units such as branches within a financial firm may obtain significant scale economies. A certain size of institution in terms of capitalisation may be needed to become a "major player" in, for example, securities markets, and it is likely to be advantageous for dealers, salesman, analysts etc to be in the same place and for decision making to be centralised. Clearing and settlement may also offer economies of scale. Finally, there may be considerable *economies of scope* in finance, ie joint[5] costs and joint demands[6] between products.

(e) External economies of scale

(32) All of the factors enumerated so far suggest a somewhat greater degree of footlooseness for financial institutions than the generalised theory would suggest, although the barriers to movement should not be underestimated. In the case of *external economies of scale* very much the

(1) The recent threat by a major Swiss bank to shift its securities operations away from Switzerland if stamp duty is not abolished may fall into this category.
(2) Technically a form of DUP (directly unproductive profit seeking) behaviour.
(3) Paradoxically, such regulation also increases the attraction of a location to entrants by leading to higher profit margins (Spain was an example before the recent deregulation).
(4) It is argued below that for *financial centres* they are very high.
(5) For example, shared buildings and management.
(6) For example, for mortgages and life insurance.

opposite is the case. Many of these external economies are related to improvements in information flows—and hence more accurate and competitive pricing of financial services and instruments. For example, firms may be linked together by participation in organised markets whose liquidity (defined as entailing low dealing costs and rapid execution of large orders with minimum disturbance to prices) and efficiency (in establishing price which reflect all available information)[1] increases with the number of participants.[2] Groups of markets themselves may be so closely inter-related that is is hardly conceivable that they should operate other than in one place (for example short-term money markets). There may be joint membership facilities.

(33) Even if firms do not operate in such markets, financial firms frequently enjoy close business contacts with each other, for example in loan syndication. Documents may frequently and speedily require dispatch. A group of trades and professions is likely to grow around a group of institutions to provide services—lawyers, accounts, actuaries, computer programmers and consultants. [Lee (1986) discusses the advantage of Hong Kong over Singapore in syndicated-credits due to its legal skills.] Customers of financial institutions such as the central bank and industrial and commercial companies may have offices in such centres. A supply of skilled labour becomes readily available to newcomers (at a price). More generally, a fund of expertise is built up and innovation is stimulated among a group of people with similar occupations and interests whose work brings them into close proximity. Research institutes, of benefit to all markets, may be set up.[3]

(34) There are many other advantages of proximity. Directors of financial firms often sit on several boards, and it is an economy of their time if their various activities are located together. Links with customers, in terms of familiarity with complex and changing needs, (for example in corporate finance) may be facilitated by location together. Firms in related activities may need to be linked, for example, the lead manager and seller of bond issue. Access to professional advisers and the central bank may equally be of importance. Financial institutions often set up joint services for clearing and settlement,[4] which especially where documents are concerned will lead to external economies of scale. Finally avoidance of misunderstandings over transactions requires errors to be remedied quickly and without friction—perhaps by close contact at a junior level.

(35) Equally, there may be external diseconomies to location together—discomfort of travelling, difficulty of parking, noise and grime. Arguably, there must become acute before they offset the economies of agglomeration. More seriously, common location may lead to excess capacity in markets.[5]

(36) *Economies of agglomeration* are of some importance to finance, though perhaps less so than external economies. Commuter railways, for example, may only be economic in large conurbations. A diversified set of economic activities in an area may offer ready customers for financial services, while skills such as accountancy, law and management are useable both by finance and other sectors.

(f) Strategic interactions

(37) Given external economies of scale (together with the continued existence of protected markets, which enable cross-subsidisation) strategic interactions may be an important determinant of the location of activity in finance. For example the current level of financial activity in the City of London may be in part a product of predatory moves by firms (such as the Japanese) to capture markets—which has in turn entailed excess capacity. It may be the case that such predatory practices will also influence the

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(1) Given the fundamental importance of information gathering to financial activity, this point implies that profitability for many firms will be lower or negative away from a major financial centre (in terms of the diagram in section 2, TR and TC cross).

(2) Conversely, any market fragmentation poses a threat to financial centres.

(3) As an empirical example of external economies, which supports this analysis, an empirical study by the EIU (1964) found that most financial firms locating in *London* did so for *contact with external organisations*. The types of contact which were included were categorised by Dunning and Morgan (1966) as follows. First, "knowledge in a hurry" describes the advantages in terms of information of close contact between financial firms, for example dealers in markets subject to rapid price change. One location is a trading floor—but even in a screen-based system frequent telephone calls supplemented by personal contacts are an important conduit for this type of contact. While such personal contact remains important, there is good reason for financial firms to locate together. Second, there is building of confidence. In many financial markets contracts are made by word of mouth, face to face (futures) or on telephones (other securities markets). This facilitates speed and economy in transactions but requires mutual confidence, to which close personal contact may have much to contribute, even when the principals are large firms. Observed patterns of trading location suggests that the degree to which mutual confidence is important may depend on the extent to which the product is a homogenous commodity—hence contact is less important for forex than securities, and secondary than primary trading. In non-homogeneous instruments financial trading relationships have the characteristics of a "repeated game"—where the discipline on cheating (for example, the intermediary deliberately selling a mispriced security to the investor) is loss of business in the future.

(4) Though Euroclear and Cedel (which are paperless) are not in major trading centres—because of withholding taxes and restrictions on securities lending in major centres.

(5) To the extent that all markets are not completely globalised.

equilibrium level of activity at the location, given the importance of "network" links between firms.

(g) Insights from the theory of multinational enterprises

(38) The extent to which the locational theory of multinational enterprises (MNEs) offers additional insights for finance to those outlined above is unclear [for a summary of the theories of expansion of international banking networks see Park and Zwick (1985), also Campayne (1990)]. MNE theory is clearly relevant to finance in terms of the frequent use of ownership specific advantages developed at home (such as commercial contacts with domestic head offices of MNEs, or financial innovations) to aid penetration of new markets; use of oligopoly situations at home to cross subsidise entry to new markets or centres; and the tendency of mass shifts to occur into centres or markets apparently for defensive reasons. In the discussion above of determinants of location of financial firms, political stability and relative regulatory factors have been cited, similar to those for multinationals in paragraph 21.

(39) There are also contrasts between determinants of location for multinational financial firms (for brevity, MNFs) and multinational manufacturing firms. In the absence of locational advantages to host countries such as labour costs, marketing factors and trade barriers MNEs would export and not set up plant offshore. In contrast, it can be argued that in the case of finance the need for contacts, relationships etc between financial firms as outlined above is fundamental and (lacking technological advance) is always likely to lead financial firms in certain markets to locate together[1]—although not necessarily near their customers. Largely for this reason[2] it is suggested that the theory of MNEs does not capture the unique features of finance and international financial centres, financial firms are not typical multinational enterprises, and given the global status of their markets these are best analysed in terms of a suitably adapted version of the generalised theory of firm location, as outlined in this paper [for a contrasting view see Campayne (1990)].

4 Some caveats to the analysis

(a) Technology

(40) Three caveats to the discussion in Section 3 must be borne in mind—the role of technology, the varying needs of different types of financial institution and the distinction between location of markets and firms. The key question regarding technology is whether it can completely offset the benefits of financial concentration, via audio visual links, automatic trading systems etc on a global basis, and make departure sufficiently attractive to offset the sunk costs.[3] As noted above, it has already led to a dispersal of routine functions to outlying regions. In principle, video links could also offset some of the benefits of concentration in dealing and decision making. However, it seems less likely that all of the external benefits[4] of concentration as outlined above could be offset in this way. Useful distinctions, as noted above, may be between primary and secondary trading; between "commodity" (forex, government bonds) and "specialised" (equities) secondary trading and between "advice" and trading. Given the lesser need for relationships and personal contacts for secondary trading, especially for "commodities", technology may be more able to offset the external benefits of a given location for secondary than for primary and specialised trading. Finally, as noted, the benefits of technology need to be seen in connection with the availability of labour skilled enough to use it. This may limit dispersion of finance to advanced countries.

(b) Different types of institution

(41) Different types of financial institutions differ in their needs for the external benefits of location

(1) This view contrasts with that of Giddy (1983) who suggested in the absence of regulatory barriers and other imperfections in international financial markets all international banking would be purely "arms length" (ie conducted from a home base with minimum presence offshore).

(2) Other contrasts include the fact that MNEs often create external economies, while for MNFs this is a major attraction of a financial centre. MNEs shift to avoid trade barriers in the host country, while international financial centres benefit from their absence. For an MNE the attraction of offshore location is often market size in the host country—for an MNF in an international financial centre the attraction is ability to service the global market. While an MNE often takes advantage of cheap local labour, an MNF will import its own or in any case pay the world price for local skilled labour. Finally, although MNFs do take advantage of advantages "developed internally" within the firm they also often shift to financial centres in order to *develop* such advantages (eg reputation and skills) and any technical advantages (eg new instruments) are easily copied. Advantages of "internalisation" within the firm are often partly superseded for regulatory reasons by need for "Chinese Walls" and separate capitalisation.

(3) Or alternatively, whether given its ubiquity, technology sharply increases the leverage of other factors.

(4) Such as a common pool of skills; innovation and research; confidence building; multiple directorships; personal contacts with customers; access; resolution of misunderstandings.

together. This may be seen empirically in the United Kingdom by the dispersed location of building societies, some tendencies in the same direction for (head offices of) banking and insurance, but the continuing concentration of securities firms. Such tendencies are linked to use of technology, the nature of transactions, skilled labour requirements, the importance of external economies, etc. They suggest that the degree of footlooseness of financial firms is variable. Equally, foreign firms may be more likely to move than domestic firms, given the pull of their own domestic customer bases and the lesser commitment to the country in question. Similar patterns are observable in continental European countries.

(42) More detailed suggestions regarding influences on the competitiveness of a location for the different types of financial institution are given in Economists Advisory Group (1984). Effects of these on the dispersion or concentration of world markets can be gathered from the tables in Appendix 1. For example for *banking* it was suggested that freedom from regulation is less important than external economies such as expertise developed over time; depth and breadth of money markets; close links with other financial and trading activities and the array of ancillary services available. It was also suggested that the idea that international banking has a "home" (ie that they prefer if possible to do international business from their home countries) is a fallacy. As an example, the rates for offshore dollars in the IBFs in New York are no cheaper than in eurocurrency markets in other financial centres. *Forex* is closely bound up with the presence of an international banking centre, though also the demand for forex business in the relevant time zone and the availability of forward or derivative hedging markets. *Securities* trading was thought to be attracted by turnover in the main markets, listing of international securities, clearing and settlement, consumer protection and flexibility of regulation. *Insurance* benefits from the presence of organised insurance markets (eg Lloyd's), the presence of broking firms and readily accessible banking, legal and other support services. However, information technology (IT) may be particularly able to disperse insurance, as evidenced by the dispersed nature of insurance markets in the United States. IT's development may thus reduce the need for geographically concentrated markets.

(c) Institutions and markets

(43) The discussion so far has largely been couched in terms of an individual firm's location decision. However, some of the analysis has related to markets rather than firms, and it is useful to draw these various suggestions together. Ease of access to customers may be less important for wholesale than for retail financial intermediation. Second, it was suggested that relationships may be more important for primary issuing than secondary trading. Moreover, the importance of mutual confidence in markets may vary with the homogeneity of the product: hence contact may be less important in secondary markets for forex than securities. Third, relationships may be more important for advice than trading. Multiple locations of firms may be able partly to offset the sunk cost and indivisibility problems of moving business at the margin, which would occur if the market centre shifts or becomes dispersed. Finally, technology can facilitate dispersal of the location of market trading. One can conclude there is a spectrum of footlooseness among markets, dependent on the importance of contact, availability of technology etc .[1] Markets may in general be more footloose than firms though in the long run, of course, shifts in markets' locations may be an important factor in *firms'* own location decisions. An illustration of this tendency may be the shift of eurobond and some other securities markets from European centres to London in recent years, and the later shift of intermediaries such as Deutsche Bank, BNP and Credit Lyonnais.

(44) On the other hand, it should be noted that many of the factors noted above, particularly some of the external economies, do not relate specifically to markets and would continue to attract firms to centres even if markets were totally footloose (ancillary services, the body of skilled labour and expertise, business contacts).

(45) Finally, it should be noted that the discussion above is largely set in terms of the costs and benefits of moving *away* from a location. Although considerations are similar for moving *to* a centre it should be borne in mind that given relative benefits the sunk costs (or this case "start up costs") argument then constitutes a

(1) An example of these patterns is that sales and trading of international bonds both became concentrated in major centres such as London after Big Bang. However, there is now a tendency for sales (which requires close liaison with investor customers) to be distributed back to the various countries of the investor base. Trading remains concentrated in centres such as London, as this offers benefits in terms of co-ordination and control of risk for the firm in question (*despite* the potential for technology to aid dispersion of trading).
McKinsey, reported in the Economist (1988) have put forward similar ideas in terms of "core" markets such as forex and "peripheral" ones such as corporate advice, where the importance of relationships as opposed to price increases towards the periphery.

disincentive to moving to the centre. To attract business, a centre must show greater benefits that it must to avoid losing it, though as noted above, the shifts required may be more marginal for "contestable" sectors such as trading (eg German government bonds) than primary market activity and other types of financial services.

5 Factors underlying the development of financial centres

(46) The sections above have suggested that external economies are the key influence on the location of many financial institutions, though costs and demand factors at the level of an individual establishment and the importance of the nature of markets in which firms participate should not be disregarded. External economies are precisely what international financial centres have to offer. In this section the causes of development of centres are assessed and related to the location theory noted above [see also Kindleberger (1974), Reid (1981), Scholey (1986)]. A view is developed as to the most likely threats to financial centres. Empirical data illustrating the relative size of financial centres are given in Appendix 1.

(a) Some general considerations

(47) At a most basic level, a financial market can develop where there is an agent or sector in financial surplus and an agent or sector in deficit. This allows an intermediary sector to develop, which given the various benefits of agglomeration noted above is likely to be grouped in a financial centre. Most countries have a *domestic* centre of this type. Widening the focus to an *international* level, the surplus and deficit sectors may be geographically differentiated. Although historically major financial centres have tended to develop at points of capital export (London in the 19th century; Tokyo; New York exporting captal to the West in the 19th century) the continuing importance of London and the development of offshore centres such as Hong Kong show that capital export is no longer an essential feature of a financial centre—though it may help in its development.

(48) There are several reasons why financial centres have become less dependent on the economy of their host country. Economists Advisory Group (1984) noted that since the Second World War no country has been a regular exporter of capital for decade after decade (as the United Kingdom was in the nineteenth century),[1] and hence borrowing and lending of financial institutions have become an entrepot trade, mobilising savings wherever they can be found. Second, no currency has had the dominant role in world trade that sterling once had, and there is no longer a close link between the currency in which trade is invoiced and the country in which it is financed. Third, there are no longer close links between the currency in which securities are denominated and the country in which they are issued, owned and traded. For example trading of many continental European shares owned by European investors occurs in London. These factors have entailed the development of multinational financial institutions, willing to locate in any centre rather than being tied to a domestic base.

(49) Other general factors behind the development of international financial centres can also be identified, though none are all embracing and there are generally exceptions. There would include deregulation of rights of establishment and of domestic markets, which besides encouraging entry may lead to increased competition and efficiency, thus attracting business. Of course until recently Tokyo has been a counter example. Absence of capital controls may also be important—though London thrived prior to 1979. Political stability, the prior existence of commercial trading facilities, a good local education system and liberal immigration rules for trained staff of foreign firms are also permissive factors. In addition, in order to survive, international financial centres need to develop an essential *adaptability* to change.

(b) An approach based on the theory of industrial location

(50) It may be suggested, however, that rather than relying on a similar set of determinants in each case, international financial centres have tended to evolve on the basis of diverse sets of causal factors and then (given an existing tendency towards globalisation) *grow in a self-sustaining manner on the basis of external economies of scale and economies of agglomeration.* These have already been

(1) Though international investment has been greater than at any time since World War I, thus providing business for international financial institutions.

enumerated; however, one may also divide them into *static and dynamic economies*. Static economies such as the existence of commuter railways do not tend to increase the attractiveness of a centre as it grows, though obviously only when the centre is a certain size will such services tend to develop. By contrast, the benefits arising from contacts, participation in markets etc, increase with the number of firms in the locality.[1] For example, a financial centre such as London establishing a market in a financial instrument that is bigger[2] than its rivals such as Paris and Frankfurt can, by offering the benefits of liquidity and efficiency, attract business, and secure more scale economies in a cumulative manner. In addition, beyond a certain size there will be a self perpetuating critical mass of skills and services at the disposal of firms entering financial centre. Reputation will also develop over time. It can be suggested that beyond a certain size, the growth of financial centres may become self perpetuating even if the initial motivation for growth (such as a domestic financial surplus) has disappeared. Firms will continue to be attracted given the number of firms already there; equivalently, as the number of firms increases so will the marginal benefit to new entrants, thus attracting entrants whose marginal costs were previously too high to encourage entry.[3] Business will be concentrated in such centres, smaller centres will lose business and new centres will find it hard to become established.

(51) A recent example of such tendencies for cumulative concentration relates to the fact that non-financial companies with wide-ranging financial activities—active treasury departments in particular—see an incentive in locating in well-developed centres such as London; this in turn increases the attractiveness of the place for banks and other financial institutions etc. By contrast, the lack of critical mass in the Paris financial centre operated to its disadvantage—major multinationals did not see any interest in coming to Paris due, *inter alia*, to the relative lack of sophistication of banking services, thus hindering the growth of the centre.

(52) Given such tendencies, *why should financial firms leave major centres?* Diseconomies of congestion and high factor costs (office space) could be factors,[4] though tightening of regulation is likely to be more threatening. Government subsidies (including preferential tax treatment) to other centres may make other centres more attractive. Technological factors could lead markets to shift or disperse. Put more generally, although economies of agglomeration are important to growth of financial centres and to the location decisions of individual firms, they do not override the other inputs to a firm's location decision, sufficiently adverse developments in which could lead firms to reconsider their current location.

(53) One may distinguish between *self-stabilising and self-reinforcing* causes and associated consequences of relocation. For example, high office rents or housing prices, assuming they are the *sole* disincentive factor, may be self stabilising. If firms leave due to high rents, rents will fall, thus attracting other firms previously at the margin of decision. On the other hand there are arguments that departures for any reason, for example tighter regulation/taxation relative to other centres, or political instability, may lead to further departures in a cumulative manner.[5] The dynamic benefits identified above—contacts, participation in markets, the critical mass of skills—could easily be lost in a cumulative way whereby each departure makes the centre less attractive to others already established there. On balance, the cumulative factors are perhaps more likely to be relevant than self stabilising, although there is clearly a moderate rate of departure that could be sustained without provoking large scale withdrawals. This implies that the *best way to maintain an international financial centre is to avoid provoking departures on anything but a minor scale*. The history of financial centres (Beirut, Panama) shows the relevance of this argument.

(54) Technology may, of course, change the economics of financial centres too. As well as those factors outlined above for the individual financial firm or market, it can also determine the number of centres able to exist in the world. It is often suggested that given large economies of scale, the globalisation of markets and the 8-hour

(1) Thus, in terms of the diagram in Section 2, widening the gap between space—revenue and space—cost curves at this point only, and narrowing it at other points.

(2) Or, in the recent case of German government bonds, which offers derivatives such as futures which are not available in the home market.

(3) This pattern justifies a "bandwagon" effects where numerous firms copy others' location decisions. For entry to centres, unlike entry to individual markets, such behaviour may be rational.

(4) Docklands have proved an important safety valve for the City of London.

(5) In addition, the more equal the burdens of regulation/taxation are between centres (as has been the tendency recently), the greater the leverage a single adverse measure may have.

working day enforce a maximum of three on the number of international financial centres where previously many more could subsist.[1] Three may also be a minimum, as long as it is preferred to work in daylight and the major economic regions (United States, Far East, Europe) each require a "local" centre. However, this need not be immutable. Information systems can and are increasingly used to link markets in different financial centres as well as linking participants in one market (for example, the introduction of 24-hours futures trading by Chicago Mercantile Exchange). If technology could be developed in this way sufficiently to offset the benefits of concentration, the business of the major centres could begin to be dispersed in response to any adverse cost or demand influences.

(55) To summarise, this section suggests that external economies of scale, which can lead to self-sustaining growth, may be the major factor underlying development of financial centres whatever the initial stimulus to development (history, deregulation, a centre for trade). The cumulative nature of external economies, however, also suggests that such a process of growth could go into reverse, which implies a need for caution on the part of the authorities in causing or acquiescing in a worsening of conditions.

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6 An alternative approach based on oligopoly theory

(56) Using the analysis above as background, and drawing on Davis (1988), further light may be cast on the development of international financial centres and associated location of firms by pursuing an analogy between an international financial centre and a large diversified firm in an oligopoly[2] characterised by increasing returns to scale and of scope, and with large sunk costs.[3] Thus in this section, the "firm" or "agent" is the centre itself and the "market" is for location of financial activity. The diversified activities are subject to strong "synergies".[4] Obviously the analogy is imperfect; there is no strong central management of such centres (though government and central bank play a part), and centres cannot decide autonomously to raise external funds, while time zone differences may limit somewhat the degree of competition, particularly in the case of certain continuously-traded secondary markets such as forex.

(a) The importance of increasing returns to scale

(57) First, such a "market" is typically *difficult for smaller centres to penetrate*, given they lack the benefits of size and diversification in terms of average costs which result from increasing returns to scale and scope. Unless they can attain an (extremely high) minimum efficient scale, they will find that all business for which there is a free market may tend to gravitate to major centres. The advantages in terms of average costs are reinforced by intertemporal dependencies on the cost (expertise) and demand (reputation) sides, and by what are implicitly strategic investments—research by institutes or firms on the cost side and product differentiation on the demand side. The sunk costs of financial firms already established in major financial centres, as well as uncertainty, lack of information and other obstacles to movement of firms outlined in Section 2, will also tend to act as barriers to entry of new international centres.

(58) A related argument—implicitly an aspect of increasing returns to scale—is the *degree to which fixed costs are shared* between markets or institutions. This includes not merely infrastructure investment such as payments and settlements systems, but also shared research, training of the skilled labour force, and even the central bank. This reinforces the major centres' dominant positions—variable costs of markets and institutions are shared over lower fixed costs than if they stood alone. Alternatively, high fixed costs of superior technology, which increases competitiveness, may more easily be financed

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(1) More than three markets may of course be sustained in certain non-homogeneous products such as oil. Sunk costs arising from historical development may also lead to multiple centres in one time zone, if they are accompanied by specialisation [eg New York (banking and securities) and Chicago (futures and options)] though the equilibrium may be unstable.

(2) Indeed, given the restrictions on competition arising from time zones, they almost qualify as "natural monopolists" given current technology (unique maxima and minima of space—revenue and space—cost, respectively).

(3) ie capital specific to the industry, the presence of which prevents other centres setting up in the industry rapidly and costlessly [the conditions for pure contestable markets, see Baumol (1982), Mayer (1985) thus do not obtain].

(4) These synergies comprise external economies of scale for the individual institutions; economies of scale (size of markets) and of scope (diversity of linked markets) for the centre as a whole.

when activity is greater. Lower fixed costs or superior technology enable penetration of new markets to be carried out more easily. The latter is also, of course, facilitated by the dominance of many financial markets by conglomerates, who can cross subsidise market penetration from earnings on other activities.

(59) In the light of these advantages to major centres, if smaller centres are to survive, government financial incentives may be required (for example lower taxes or easier regulations)—though the structural analysis suggests such "infant industry" assistance may be unavailing. More generally, it is of interest to note that increasing returns to scale imply it may be *economically efficient for financial activity to be concentrated in major centres.*[1]

(b) Limits to collusion

(60) If market penetration is difficult, it is nevertheless the case that the *major financial centres have been unable to exert strong market power*, exploiting customers by charging high mark-ups over cost. Several explanations can be offered. First, although other centres have been unable to gain a large market share they nevertheless offer a degree of actual or potential competition to global centres—a threat which has increased with the growing liberalisation of markets and improved technology.[2] Second, the customers of international financial concerns have gained stronger market power in terms of ability to switch between centres, information about different centres, and the relative importance of ongoing relationships between final users and financial centres. In general, financial intermediaries in each centre now have larger sunk costs in such relationships than the end-users, so the latter can no longer be "exploited". This has been linked to the process of institutionalisation of financial markets and the growing size and sophistication of corporate clients. Third, the major centres have not reached collusive agreements on price fixing, in contrast to industrial oligopolies where such agreements are often present (one exception may be international agreements on prudential standards).

(61) Indeed, the major centres often act in a directly non-co-operative manner. Taxation or other costs may be lowered in order to gain or avoid losing business—which may lead to a level of taxation or regulation below the social optimum. Given an interest in market penetration of other centres by their own firms, centres often apply threats and counter threats, where the threats tend to be in terms of establishment rights (reciprocity) rather than pricing as is more typical of industrial oligopolies (predatory pricing). There is, of course, a dichotomy between the interests of the financial centre itself and of national firms. The former may not be best served by reciprocity arguments but instead by openness to establishment of all comers and low costs (in terms of regulation, taxation, local costs etc).

(c) Decline of natural monopolies

(62) Oligopolies or monopolies backed by increasing returns to scale and sunk costs are typically extremely tenacious. They can often survive changes in market conditions by virtue of their reputation, expertise or by cross subsidisation from continuing profitable activities. Some, however, have fallen. The *ways in which such "natural" oligopolies have been broken* historically gives further insight into threats to financial centres. Often they have been overtaken by technical change which renders their product obsolete (trading floors) or lowers the barriers to entry arising from sunk costs (video links and other advances in telecommunications). Alternatively, well capitalised firms in other industries (countries) may cross subsidise entry. Regulatory changes in the home country or elsewhere may facilitate entry. Entry in any of these cases will be easier if the oligopolists allow costs to rise unduly (taxation, regulation) as a result of their "secure" position.

(63) Some caveats to this analysis are, of course, in order. Smaller financial centres can survive in "niches" in the market. These include activities that require a great deal of local knowledge and contacts, such as corporate finance for smaller firms, as well as locally-protected or long-established markets (domestic bond markets in European countries fall into most of these categories). Also the benefits of dominant financial centres such as increasing returns to scale do not necessarily extend to all the markets established there. Some of these may be of sub-optimal scale and hence unable to gain world status. The futures and options markets in Europe (in competition with those in the United States) may be a case in point (see Table 1.4 in Appendix 1).

(64) To summarise, analysis of financial centres as monopolists or oligopolists with increasing returns to scale and large sunk costs offers a

(1) This argument applies most strongly when there is no deviation of private from social cost—an assumption disputed in Section 7 below.
(2) Implicitly, the market for location of financial activity has become more contestable.

number of further insights into the structure and dynamics of the "market" for location of financial activity. In particular, it shows clearly why such a market is difficult for small centres to penetrate as well as pointing out the welfare benefits of concentration of financial activity. It also offers some reasons why centres have been unable to exert market paper and how they might decline—particularly technical change and willingness to allow costs to rise.

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7 What are the net benefits of an international financial centre?

(65) The second question related to the future of international financial centres is the level of net benefits accruing to the domestic economy as a result of activity of the centre, and hence the losses should the centre cease to be of global importance. If they are low, the authorities have no reason for concern. It is thus relevant briefly to set out the main benefits and costs of an international financial centre, and suggest their likely magnitudes. Some underlying empirical evidence on the macroeconomic importance of a typical financial centre (London) is given in Appendix 2.

(a) Benefits

(66) The *benefits* include, the pecuniary benefits to the balance of payments (Table 2.3) and tax revenues. There is also a welfare gain from trade in financial services if the domestic comparative advantage leads to an improvement in the overall terms of trade. A financial centre makes a heavy contribution to employment (Table 2.2), both directly and in ancillary services, though this benefit is greatest if there was previously unemployment. One could add the benefits of a dynamic financial centre to growth, in terms of productivity, technical progress, the multiplier effect (in underemployment equilibrium) and supply of funds. Efficient capital markets should contribute to the optimal allocation of funds and hence the supply-side of the economy. On the other hand, in the absence of exchange controls it is unlikely that the presence of absence of a financial centre leads to a lower cost of capital for the corporate sector as a whole,[1] unless there is also a shift from oligopoly to competition among financial institutions.

(67) At full employment, welfare gains depend on the social productivity of finance vis-à-vis other employment. It is natural to assume they are equal; although even if social productivity is the same, *costs of adjustment* mean the decline of a financial sector cannot be viewed as a matter of indifference. On the other hand, to the extent that the analysis above, that a global centre is an oligopolist or even a natural monopoly in its own time zone, is correct, the returns to the domestic economy may partly be characterised as monopoly rent. This means that if the centre were to be dispersed, the benefits derived could not be completely replaced by redeployment of resources in a competitive industry.

(68) It is inappropriate to measure the benefits of a financial centre merely by summing value-added (the measure shown in Appendix 2 Table 2.1). For the benefits of a centre are unequal to the measured market value of services provided for at least three reasons. First, some of the benefits (and costs) constitute externalities, which are not paid for directly. Second, the benefits to users of goods or services may exceed the price paid because this is determined by the price needed to attract the marginal user (consumer surplus). Third, as noted above, the factors could be employed in other ways (opportunity costs).

(b) Costs

(69) Some of the *disadvantages* of hosting a major financial centre relate to the diseconomies of agglomeration. Congestion in transport systems may become endemic, necessitating sizable expenditures of public funds. House prices, wages and rents may be higher than desirable, (landlords or wage earners expropriate producers' surplus, which may be seen as undesirable) especially if comparability sets off inflation in the rest of the economy. Regional imbalances of poverty and prosperity may be exacerbated. Finance may cream off some able individuals, who may be more socially productive in manufacturing. More generally, there can be no presumption that the level of financial activity in a country will be socially optimal [see Mayer (1986)].

(70) Even if there is no market failure,[2] the economy may face risk due to greater

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(1) There may nonetheless be distributional effects. Large firms may be indifferent to their location in respect to centres, but small firms and households may benefit from the nearby location of financial centres.

(2) In the economic sense that a system of market pricing fails to allocate resources optimally.

specialisation (in finance). There are other concerns of particular relevance to central banks. There may be undesirable macroeconomic effects from the free availability of credit (by removing liquidity constraints on consumers it reduces the leverage of macroeconomic policy—particularly fiscal policy—on consumers' expenditure). Monetary management of the economy may become more difficult. Financial instability and the danger of systemic risk may increase with a more complex financial structure. It should be noted that most of these costs are externalities, ie there is no pecuniary compensation paid. However, they must also be evaluated and set against the benefits.

(71) Some of the costs may be discounted. Diseconomies of agglomeration and regional imbalances would probably arise for any growing sector. The macroeconomic consequences could probably arise without a financial centre, given an absence of capital controls. Systemic risk does not necessarily cease to have an effect at national boundaries, either.

(72) Given these consideration, a global financial centre is likely to be of considerable benefit to the domestic economy. Nevertheless, although it can be suggested that the costs are, on balance, far below the benefits, it would be equally inappropriate for them not to be taken into account and reduced wherever possible.

8 Conclusions

(73) This paper has discussed in detail the determinants of financial firms' location decisions, thus providing a framework for the analysis and evaluation of factors thought to influence the development of international financial centres.[1] The key points may be summarised briefly. The main influences on the location of firms are factor costs and demand for the product of an individual firm, together with any external effects, sunk costs and indivisibilities. For financial firms, external economies of scale are likely to be particularly important, though regulation and technology (which affect costs and demand) are also likely to be of relevance. The importance of such external economies means growth of major financial centres may be self sustaining, to the detriment of smaller centres. Such a process may be visualised in terms of the development of an industry whose technology exhibits increasing returns to scale at all levels of activity. This analysis has the important corollary that concentration of finance in major centres offers a global gain in terms of economic efficiency.

(74) The importance of sunk costs is likely to mean that a significant deterioration in market conditions is needed to stimulate relocation, though a much smaller adverse shift may deter firms from moving to financial centres. In addition, markets may be more footloose than firms, though a market shift may eventually lead firms to shift. However, reversing the process of development, once a move away from a financial centre begins, it could easily become cumulative, given the nature and importance of external economies. Technological change could start and perhaps accelerate such a process, though regulatory changes or declines in political stability could equally be the spark beginning such a move. Given the net benefits of an international financial centre to the domestic economy, such a shift would be at considerable cost.

(75) This analysis offers various considerations relevant to the pattern of financial activity in EC countries after 1992. Equalisation of regulation between countries and free entry to all markets should in principal make location of financial activity more fluid. On the other hand, the importance of external economies to scale in the London market may make it hard for other centres to compete—they may even lose business, given abolition of restrictions on cross-border sale of financial services. (This raises the concern that they could become "impoverished" in terms of financial skills.) The United States may provide an illustration of the future pattern of financial activity in the absence of regulatory and fiscal differences—one global centre, with smaller "satellite" centres in each region (country).

(1) It should be noted that this subject can be approached from various angles; here we use location theory and oligopoly theory from industrial economics. Arndt (1988) has identified some of the same determining factors from the approach of international trade theory. Kindleberger (1974) discusses the development of global centres in terms of a key or reserve currency centre and lender of last resort in the international monetary system. Our argument suggests that although such factors help explain the genesis of some financial centres, they cannot account for their continuing development even when the initial stimulus has gone.

Appendix 1:Indicators of the relative size of financial centres

Table 1.1: International Banking Analysed by Centre

Gross Lending - percentage share of total market

	1978	1982	1987	1988	1989 Q1	1989 Q2	1989 Q3	1989 Q4
Belgium[a]	4.7	3.3	3.8	3.4	3.4	3.5	3.3	3.4
Luxembourg[a]	4.9	4.3	4.2	4.1	4.1	4.2	4.2	4.3
France	9.8	7.2	6.7	6.3	6.4	6.7	6.5	6.6
Germany Federal Republic	5.2	2.8	4.0	3.8	3.4	3.7	3.8	4.4
Italy	2.8	1.7	1.9	1.9	1.8	1.8	1.7	1.7
Netherlands	3.9	2.9	2.5	2.5	2.6	2.8	2.8	2.8
Switzerland	4.6	2.8	2.8	2.4	2.2	2.2	2.4	2.3
Swiss Trustee Accounts	2.7	3.9	3.4	3.2	3.3	3.5	3.5	3.6
UK	24.6	26.9	22.1	20.9	20.4	20.5	19.9	19.4
Canada	2.6	2.6	1.5	1.3	1.3	1.3	1.2	1.2
Japan	4.8	7.5	18.7	21.0	22.1	20.6	22.1	21.4
of which:								
JOM	-	-	4.0	6.8	7.1	7.1	8.1	8.0
other	-	-	14.7	14.2	15.0	13.5	14.0	13.3
US	9.7	14.5	9.9	10.1	10.1	10.0	9.7	9.7
of which:								
IBFs	-	-	5.4	5.6	5.7	5.8	5.6	5.6
other	-	-	4.5	4.5	4.4	4.2	4.0	4.2
'Offshore' banking centres[b]	17.5	17.7	18.0	18.5	18.2	18.4	18.2	18.4

(a) Lending by banks in Belgium to Luxembourg and vice versa is classified as lending to residents and is therefore excluded. Similarly, lending by these banks both in Belgium and Luxembourg francs is classified as domestic currency lending.

(b) Bahamas, Bahrain, Cayman Islands, Hong Kong, Netherlands Antilles and Singapore, includes also the branches of US banks in Panama.

- not available

Source: Bank for International Settlements

Table 1.2: Comparison of major stock exchanges at end-1989

Exchange	Market value of domestic equity (£ billions)	Number of listed companies Domestic	Foreign	Turnover Domestic (£ billions)	Foreign
Tokyo	2,639	1,597	119	1,436	12
New York	1,800	1,634	87	957	n/a
London	507	2,015	544	198	85
NASDAQ	241	4,026	267	249	14
German Federation of exchanges	227	628	535	218	11
Paris	227	462	223	69	3
Zurich	107	117	229	n/a	n/a
Milan	106	211	0	27	0

Source: ISE Quality of Markets Quarterly, Spring 1990

Table 1.3: Foreign exchange market turnover

$ billion per day	1986	1989
London	90	187
New York	58	129
Tokyo	48	115
Switzerland	-	57
Singapore	-	55
Hong Kong	-	49

Based on surveys conducted in March 1986 and April 1989

Source: Bank of England Quarterly Bulletin, November 1989

Table 1.4: Futures and options exchanges

Percentage share of total lots traded

Region	Exchange	1984	1988	1989
London	Baltic	0.1	0.05	0.04
	IPE	0.15	0.27	0.45
	LIFFE	0.71	2.24	2.88
	LFOX	0.87	0.57	0.51
	LME	1.13	1.12	1.21
	LTOM	0.31	1.21	1.15
	Total	**3.26**	**5.45**	**6.25**
United States	CBOE (Chicago)	33.7	16.0	14.7
	CBOT (Chicago)	18.5	20.47	16.6
	CME (Chicago)	11.8	11.22	12.59
	Total	**94.4**	**70.3**	**64.7**
Canada	**Total**	**0.55**	**1.05**	**1.09**
Europe	EOE (Amsterdam)	1.39	1.22	1.61
	MATIF (Paris)	-	2.32	3.13
	Total	**1.5**	**5.36**	**7.14**
Far East	Tokyo	-	3.01	2.71
	Total	**0.3**	**5.28**	**4.81**
Memo: World total number of contracts traded (thousands)		365,835	698,433	831,398

Source: Bank of England, based on a sample of individual exchanges.

Appendix 2: The macroeconomic benefits of a financial centre

Table 2.1: GDP at Factor Cost[a]

£ billions, percentages in italics

	1975	1985	1987	1988
Banking, finance, insurance, business services and leasing (BFIBsL) (including net interest receipts)	10.0	48.5	65.6	76.9
Rest of Economy	88.1	273.4	309.3	339.9
Total of above	**98.1**	**321.9**	**374.9**	**416.8**
Total after adjusting for net interest in financial services = GDP	94.7	305.9	355.7	394.6
BFIBsL (including net interest receipts) as a percentage of GDP	*10.6*	*15.9*	*18.4*	*19.5*
BFIBsL (excluding net interest receipts) as a percentage of GDP	*7.2*	*10.6*	*13.0*	*13.9*

Source: National Income and Expenditure (CSO)

(a) In the national accounts, the contribution of BFIBsL is measured before deducting net receipts of interest by financial companies and institutions. This is offset in the aggregate gross domestic product (where interest flows within the economy must net to zero) by a negative 'adjustment for financial services' equal (and opposite) to those net interest receipts.

Table 2.2: Employees in employment

Thousands; percentages of employees in employment in italics

		Sept(a) 1981		Sept 1984		Change	Sept 1987		Change	December 1989		Change
Banking and finance:	Great Britain	465	2	507	2	+42	574	3	+67	628	3	+54
	Greater London	162	5	167	5	+5	198	6	+31	...		...
Insurance:	Great Britain	224	1	223	1	-1	240	1	+17	273	1	+33
	Greater London	60	2	59	2	-1	55	2	-4	...		...
Business service:	Great Britain	849	4	1,037	5	+188	1,271	6	+234	1,532	7	+261
	Greater London	302	8	354	10	+52	450	13	+96	...		...
Other(b):	Great Britain	191	1	221	1	+30	224	1	+3	263	1	+39
	Greater London	45	1	52	2	+7	51	1	-1	...		...
Total BFIBsL:	Great Britain	1,729	8	1,988	10	+259	2,309	12	+321	2,741	12	+432
	Greater London	569	16	632	18	+63	753	21	+121	891	24	+138
All industries and services:	Great Britain	21,309		20,846		-463	21,271		+425	22,561		+1,290
	Greater London	3,567		3,463		-104	3,505		+42	3,720		+215

Source: Department of Employment.

(a) The breakdown of BFIBsL, is not available for earlier years.
(b) Renting of movables and owning and dealing in real estate.

Table 2.3: Net overseas earnings[a] of UK financial institutions

£ billions

	1975	1985	1987	1988	1989	Memorandum item: 1989 earnings from services(b)
Insurance	0.5	3.3	4.6	3.5	2.9	1.7
Banking	-	1.3	1.3	0.8	-0.7	1.5(c)
Investment trusts, unit trusts, pension funds	0.1	0.9	1.1	0.9	1.4	-
Securities dealers, brokers and leasing	0.5	1.3	1.7	2.2	2.5	2.2
Total	**1.0**	**6.8**	**9.7**	**7.4**	**6.2**	**5.4**
Memorandum items:						
Visible balance	-3.3	-3.1	-10.9	-20.8	-23.1	
Invisible balance	1.7	6.3	6.6	5.9	4.0	
Current balance	-1.5	3.2	-4.3	-15.0	-19.0	

Source: United Kingdom Balance of Payments (the Pink Book): CSO.

(a) Equals net direct contribution to UK balance of payments.
(b) Excluding net interest and other income from portfolio investment. Bank estimate based on the assumption that the contribution of investment trusts, unit trusts and pension funds to the balance of payments is entirely portfolio earnings.
(c) If income from intermediation is added, this figure rises to £3.2 billion.

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