

# Centralization in International Financial Intermediation: Theory, Practice, and Evidence for the European Community

## 1. Introduction

This paper analyzes the location of international financial centers. The geographical dimension characterizes international financial intermediation. Pringle (1974) regards this dimension as a market imperfection. Here, we aim at investigating one way in which financial intermediaries try to overcome, at least to some extent, this imperfection. We analyze what motives are important in establishing an international financial center and what constitutes a particular place as a financial center.

The location of the main international financial centers in the world has changed remarkably over time. From the thirteenth to the fifteenth century, it was located in northern Italy, thereafter, the central location in finance moved north. First, southern Germany, then Flanders and, later on, Amsterdam, became financial centers. Amsterdam kept this position throughout the seventeenth century. In the eighteenth century London overtook Amsterdam as the main financial center. Throughout the nineteenth century, London was the most prominent international financial center. At the end of this century, Paris and Berlin became international financial centers too, though not as important as London. After World War I, the position of London gradually weakened and New York's position in international finance rose. The interwar years saw a significant reduction in financial activity. After World War II, New York strengthened its position as the world's financial center. London seemed to become only a second grade center. The emerging Euromarkets put London

in the picture as a financial center once again in the 1960s. London's reemergence was so impressive that in the sixties and seventies it became as important as New York in many respects. In the 1980s, Tokyo joined in and today one generally qualifies the financial geography as tripolar (see also Kindleberger, 1983 and 1984).

In explaining location patterns, nature generally is regarded as an important determinant. Many great cities lie on major rivers at fords or at crossroads of trading and transport routes. However, factors other than natural resources are thought to explain the spatial pattern of activities as well (see Lösch 1944; Heinritz, 1979). Especially economic factors that relate to financial intermediation will be investigated in this paper to analyze the centralization pattern in international financial intermediation.

The first part of the paper deals with theoretical and conceptual issues, the second part evaluates empirical evidence. In section 2, we investigate the characteristics of an international financial center and the economic functions performed by such a center. Here, the aim is to develop a definition of the international financial center. In section 3, we try to argue why financial intermediaries might concentrate at specific locations on the globe. Then, we provide empirical evidence on financial centers. The focus in section 4 is on characteristics and determinants of financial centers. In section 5, we try to answer which financial center might suit Europe best. A brief conclusion is in section 6.

## 2. Defining the International Financial Center

In his seminal paper on the locational characteristics and the determinants of financial centers Kindleberger (1974: 8) describes the function of financial centers as follows:

"Financial centers are needed not only to balance through time the savings and investments of individual entrepreneurs and to transfer financial capital from savers to investors, but also to effect payments and to transfer savings between places. Banking and financial centers perform a medium-of-exchange function and an interspatial store-of-value function. [...] the specialized functions of international payments and foreign lending or borrowing are typically best performed at one central place that is also the specialized center for domestic interregional payments".

Thus, the matching of liquidity preferences, the enacting of payments, and brokerage, characterize a financial center. As such, it can be concluded that a financial center is a spatial reflection of financial intermediation. However, there is no clear definition of the international financial center. In this section, we firstly review some typologies of financial centers. Secondly, we examine general characteristics of these centers. Then, we aim at a definition of the international financial center.

Domestic or regional financial centers must be separated from international financial centers. According to Johnson (1976), the center is regional if it derives its role purely from its proximity to customers, and from safety and ease of the operation of foreign banks' branches. On the other hand, the international financial center serves as a magnet for financial intermediaries whose financial, banking, and insurance activities serve the world or a major part of it (*ibid.*). International financial centers are classified in various distinct ways. Essayyad (1989) provides a review of this literature. Reed (1981) classifies international financial centers into three distinct groups: host, international, and supranational centers. Host centers enhance their own financial infrastructures and capabilities by attracting relatively large numbers of foreign financial institutions from a large number of countries. International centers are headquarters for large internationally active banks which influence events that pertain to global portfolio management. Supranational centers, according to Reed (1981), are managers of large amounts of foreign financial claims and liabilities; net suppliers of foreign direct investment capital to the rest of the world; located close to a large number of large industrial corporations; active users of global communication facilities; and management centers. Park (1982) describes four types of financial centers: primary, booking, funding, and collecting centers. Primary centers serve worldwide clients and possess predominant sources and uses of funds within their market area. Booking centers act as the location for shell branches to book both outside sources and uses of funds. Funding centers channel offshore funds collected from outside their market region into their own market area through inward intermediation. Collection centers intermediate the channeling of surplus funds collected inside their regions to outside users.

A frequently made distinction among international financial centers is that between booking and functional centers (*e.g.* see Johnson, 1976; McCarthy, 1979; Reed, 1980, 1981, 1983 and 1989;

Park, 1982; Lewis and Davis, 1987; Essayad, 1989; Khoury, 1989; Park, 1989b; Tschoegl, 1989; Campayne, 1990). The booking center is the legal home of record of transactions conducted elsewhere (Tschoegl, 1989). The Bahama's, the Cayman and Virgin Islands, the Netherlands Antilles, Guernsey, and Jersey, are examples of this type of financial center. Lewis and Davis (1987) point out that among this center type another species can be distinguished, namely, onshore offshore banking centers. These merely consist of a separate set of books maintained within existing banking institutions operating in the home economy (Lewis and Davis, 1987). Examples are the International Banking Facilities in the U.S., the Japanese Offshore Market in Tokyo, and the International Banking Centers in Montreal and Vancouver. The functional center is a central marketplace for financial services (Tschoegl, 1989). There are headquarters for large international active financial institutions which involve global asset and liability management, supply foreign direct investment capital to the rest of the world, and advise firms and wealthy individuals all over the world. Thus, all types of financial activities are undertaken by financial institutions in a functional center. Cross-border and Cross-Currency financial claims and liabilities as well as transactions with foreign clients are involved. Important is that these activities are concentrated at a specific location. The volume of financial activity at the center is much greater than outside the center. Of course, there is no rule-of-thumb as to how much. Most countries offer one financial center, with the remarkable exception of Switzerland. Frequently cited examples of functional centers are London, New York, Tokyo, Frankfurt, Amsterdam, Paris, Zurich, and Luxembourg.

Many definitions have been provided for financial centers. They vary in the characteristics used to qualify a location as a financial center. Nadler *et al.* (1955) attach importance to the stability and the convertibility of the currency, smooth adjustment of balance of payment disequilibria, financial expertise, and the presence of multinational banks. McRae and Cairncross (1973) emphasize the importance of regulation, especially taxes, and of the skills of the local financial industry. Kindleberger (1974) stresses the importance of the number, the size, and the expertise of local banks in building up a reputation for an international financial center. Johnson (1976) and Dufey and Giddy (1978) focus on the presence and the activities of non-residents. The latter point out that international financial centers develop as extensions of domestic centers. McCarthy (1979),

Dufey (1983), and Johns (1983) attach importance to the conscious and deliberate efforts to attract foreign financial institutions and business. Reed (1980, 1981, 1983 and 1989) emphasizes clearing activities, portfolio management and communication. Giddy (1983) focuses on the transferability of funds. Choi *et al.* (1986) stress the regulatory and the fiscal incentives by authorities, the presence of non-residents, and the sheer size of financial markets and institutions in defining an international financial center. Pagano and Roell (1990) emphasize the crucial role of financial market size as well as market sophistication and liquidity as determinants of the relative position of financial centers. Transaction costs, market liquidity, and simply tradition which permeates the behavior of international investors, are regarded as relevant by Pagano and Roell (1990). Swoboda (1990) argues that if a country is to become an international financial center, its financial system must be embedded in a national system that offers guarantees of stability, freedom of transaction, and endowments in physical and human capital required to sustain a competitive financial industry. O'Brien (1992) emphasizes the listing of foreign companies on stock exchanges.

Reed (1980) discusses over forty characteristics which are identified in the literature and which are thought to be relevant in considering the definition, the eminence, and the emergence of international financial centers. Chang (1989) and Park (1989a) provide an updated review of the literature. In all, there appears to be no consensus on the exact definition of an international financial center. The various definitions refer to a whole range of characteristics that may be categorized into four distinct groups: economic factors, political factors, financial sector specific factors, and a rest-group. With respect to the economic factors, most attention is paid to economic activities with a cross-border and/or a cross-currency element, such as the balance of payments, imports, exports, foreign direct investment, etc. As to political factors, elements of tax policy and prudential supervision attract most attention. The most prominent elements of the financial sector specific characteristics are the size and quality of the financial firms and of the financial markets as well as the presence of foreign financial institutions. In the rest-group, most important seems the presence of multinational firms and the availability of industries that may provide their services to the financial industry, such as lawyers, airports, education, etc. To some extent these characteristics are interrelated and they can be mutually reinforcing. The establishment of foreign offices by financial interme-



diaries, the international currency use, the amount of trade, financial market volume, international financial transactions, and government intervention are mostly seen as relevant characteristics that determine the qualification of a specific location as an international financial center and its relative position *vis-à-vis* other locations.

Given the various taxonomies of financial centers and their general characteristics we define the international financial center as a locus where financial activities are performed that to a great extent involve cross-currency and cross-border elements. The center effects international payments and matches international liquidity preferences. It is fully fledged with the newest financial intermediation techniques. Foreign financial firms have a prominent place in the center and in the financial markets. The center controls most of the sources and uses of funds within its domestic market area.

### 3. Internationalization and Centralization in Finance

Finance seems to be concentrated more than industry, residents or commerce (see Kindleberger, 1983). This contrasts with the concept of entry deterrence that is thought to exist in non-financial firms' location choice (Bonanno, 1987). Generally, financial intermediaries try to be conveniently located to serve their customers (Towey, 1974). Customers not only establish themselves throughout the home country of the intermediary but spread all over the world. This section investigates why it is rational for financial intermediaries to concentrate at specific centers.

#### 3.1 Internationalization

Two general motives are put forward with respect to the internationalization of financial intermediaries (see Bryant, 1987; Casson, 1990). First is to continue servicing already established client-relationships when the client is going to operate abroad. Both finance and commerce involve the overcoming of distance. Because of the characteristics of many financial products, especially long-term relationships and confidentiality, it is likely that the geographic

pattern of finance is linked to commerce. A second general motive is to make profits by operating in foreign financial markets. Here, the link with commercial geography is less straightforward. The regulatory environment is much more important because it structures the profitable opportunities of financial firms. Thus, the financial industry may be more footloose with respect to the second general motive in internationalization than with respect to the first. From empirical examinations of financial intermediaries' internationalization, it becomes clear that foreign direct investment and trade, characteristics of the intermediary and the financial sector, and regulation are the most important determinants of the internationalization of financial intermediaries, especially banks (see, *e.g.*, Goldberg *et al.*, 1989; Terrell *et al.*, 1989; Goldberg and Johnson, 1990; Dohner and Terrell, 1991; Grosse and Goldberg, 1991).

The financial industry is characterized by product differentiation and multi-product firms. The approach that is used most to analyze financial institution's internationalization is Dunning's eclectic theory. This theory focuses on ownership, internalization and locational advantages. By vertical as well as by horizontal integration, economies of scale and scope in consumption and production can become available to the producer. Foreign direct investment by financial firms is regarded as an adequate means to gain these economies (see Dunning, 1989; Casson, 1990; Neave, 1991). Especially ownership and internalization advantages structure the vertical integration of financial firms. The comparative locational advantages of countries and cities remain external to the firm. Then, the concentration of individual financial firms at specific foreign locations too may be regarded as a means to reap the benefits of especially the locational advantages. However, the eclectic theory is hard to test, mainly because the advantage types are difficult to operationalize. Furthermore, the data needed to perform statistical testing seldom are available. Therefore, we examine the internationalization and the centralization of financial intermediaries at a more abstract level by investigating the transformation functions of financial intermediaries and especially by examining how the determinants of these functions are affected in international centralization.

### 3.2 Centralization

The efficiency of the financial industries' centralization is analogous with the contribution to welfare of a single numeraire (Kindleberger, 1974). Each point in space deals not with each of the other points in making and receiving payments (or loans, deposits, etc.) but with one single center. With only one location,  $n - 1$  conduits are needed to effect payments. Without centralization  $[n(n - 1)]/2$  conduits would be needed.

Clustering or centralization develops when the high risks of an activity can be reduced by continuous interchange of information (Robbins and Terlecky, 1960). Proximity, then, is a means to reduce risks. As information gathering and monitoring are crucial elements in a great part of financial intermediaries' production, the comparatively high degree of centralization of the financial industry seems rational. However, the idea does not seem to account for the widespread use of information technology in the financial industry. New information technologies, especially in data communication, has resulted in diminishing per unit information costs and increases in the amount and quality of information available. Thus, new data communication technology is a factor that stimulates decentralization. The decreasing costs of data communication allow experts to be located at different places (O'Brien, 1992). However, these new information technologies may result in the location decision to be less confused with communication issues. Other determinants of this decision, therefore, rise in relative importance. Thus, additional arguments are necessary to explain the emergence and existence of international financial centers.

The Christaller-Lösch framework in regional economics holds that, apart from natural-resource factors, other factors too play an important part in explaining the spatial patterns of activities. Especially economies of geographical concentration as well as transport costs are put forward as determining location choices (see Heinritz, 1979). Krugman (1983) regards foreign direct investment as a response to market failures, especially imperfect competition. Multinationalization is a means to internalize costs (Krugman, 1983). Helpman and Krugman (1985) illustrate that international trade may lead to a concentration of the production of each increasing-returns industry in a single country. When there are country- and industry-specific economies if factor prices are equal or when markets are contestable, Helpman and Krugman (1985) argue that concentration

will arise. In their view, concentration results in a larger scale of production worldwide than individual countries would have in autarky. As a result, prices of the products of the industry may fall.

### 3.3 International Financial Centralization

How can these general ideas be applied with respect to the financial industry? Financial intermediation involves the transformation of financial claims and liabilities, intangibles and contingent assets, with respect to place, scale, maturity, and risk (see Gertler, 1988; Hellwig, 1991). Activity types that generally are undertaken by financial intermediaries are the matching of liquidity preferences of the public, portfolio management, the operation of an accounting system, pure brokerage, and the provision of intangible assets such as advice, collateral, guarantees, etc. (e.g. Dermine, 1990; Smith and Walter, 1990). The regulatory environment, asymmetric information, and cost structures generally are the market imperfections held responsible for the emergence of financial intermediation (see Gertler, 1988; Hellwig, 1991). Mankiw (1986) and Stiglitz (1991), for example, show how regulation affects the process of financial intermediation and how it structures the financial system. Delegated monitoring may result in the emergence of financial intermediaries (Boyd and Prescott, 1986; Williamson, 1987; Hellwig, 1991). Fama (1985), Shaffer (1985), and Hannan (1991) discuss the relationship between the cost structure and the operation of specialized financial institutions. The international financial center matches liquidity preferences from all over the world, effects international payments, and acts as a middleman for international firms, foreign sovereigns, and wealthy individuals both residential and non-residential. In general, the determining factors of financial intermediation are cost, information, and regulation structures. Here, the focus is on how these determining factors are related to centralization in international finance.

First is the cost structure. This refers to the cost per unit of financial activity. Because of indivisibilities and inconvexities in the production functions of financial products, economies of scale are present in financial intermediation. Economies of scope may be available too within the financial industry, which essentially is a multi-product industry. The centralization of financial intermediaries can be regarded as a specific reaction with respect to the market and



the regulatory environment. By sticking together, the suppliers of financial services offer their (potential) clients a wide range of products. The simultaneous offering of financial products by a huge number of financial institutions reduces the clients information, search, monitoring, and transaction costs. The realization of scope economies with respect to the consumption of financial services is made possible by centralization too. Furthermore, scope and scale economies can be gained with respect to the production of financial services as well. Within a specific location, financial intermediaries may gain from sharing a communicative infrastructure, education facilities, transport facilities, and services industries that otherwise would not emerge because the servicing of an individual firm might be too costly. Rauch (1991) argues that the average level of human capital must be seen as a local public good. Human capital externalities can be gained by locating in cities with higher average levels of human capital, be it expected or actual. Thus, centralization of the financial industry may result in reduced costs for the financial firm and industry as well as in an increased (perceived) product quality.

Second is asymmetric information. This refers to the quality and the amount of information available at the financial intermediary with respect to debtors, creditors, other financial intermediaries, and risk in intermediation. Financial intermediation is regarded as a result of delegated monitoring by non-financial entities. The surge in communications technology has decreased the costs per unit of information, both within the financial firm and between the intermediary and the client (Revell, 1986; Bourke, 1989). Together with increasing deregulation of the financial industry and harmonization of prudential supervision, this has resulted in increased competition among financial intermediaries. As a result, price has decreasingly become a factor to discriminate among suppliers of financial services and, therefore, other elements have increased in importance, especially non-tangible factors. In the 'computer-age', personal advice has become a very distinctive and relevant element in many financial products. Many financial services require negotiation and intensive communication, which calls for the physical proximity between the intermediary and the customer in order to reduce transportation costs and to enhance confidentiality (Khoury, 1989; Park, 1989b; Tschögl, 1989). The concentration in international financial centers can be regarded as a means to lower information and monitoring costs and as

a means to disperse the available information to reduce informational asymmetries. This is relevant with respect to the relationship between the intermediary and its client as well as the interrelations among the (competing) financial intermediaries themselves. Furthermore, client relationships can be maintained more conveniently and, thus, the quality of the intermediary's services is improved. By concentrating, financial institutions in part overcome the informational asymmetries inherent to financial intermediation.

Third is regulation. This refers to the chartering and controlling of financial intermediaries by some monetary and financial authority. Regulations of these authorities very much structure the activities of the financial intermediaries, e.g., tax policy, fiscal policy, prudential supervision, monetary policy, all affect the intermediating role of the financial firm to a great extent. Here too, two contradictory forces are at work. First, the financial firm and the financial industry may benefit from the reputation and the credibility of the regulatory authorities to whose regime it is subject. Strict and adequate supervision of the financial system within a specific jurisdiction may result in lower funding costs of the financial firms operating in this system. If the financial firm proves to behave well according to the rules of a respected regulator, it gains a reputation and thereby credibility as well *vis-à-vis* intermediaries operating under less strict rules. This reputation effect is extremely relevant in the ongoing relationship with (potential) clients. In contrast, lack of rules or very simple rules being in force, as well as low taxes and negligible requirements to establish an office abroad, are less costly and therefore more profitable to the financial firms relative to places where regulation is more strict. Especially with respect to booking centers, this is an important motive for financial intermediaries to enact operations within such a center. The intermediary must weigh the reputational benefits of the strictly regulated countries with higher costs there because of more stringent liquidity and solvency requirements against the benefits of a much less regulated environment with a lower or even negative reputation. As the financial firm essentially is a multi-product firm, it need not necessarily face the location question as a dichotomy: establish an office in an environment with strict regulation or in one with more lax rules? It can establish representative offices, agencies, branches, etc. within a certain environment according to the relative importance of the reputation and cost dimensions in the operations that can be enacted through that establishment.

### 3.4 Conclusion

Thus, the three main determinants of financial intermediation affect the location decision of intermediaries. Though their specific configuration is extremely relevant, it must be doubted if it is sufficient because the real financial world does not fit the ideal locational pattern promised by the Christaller-Lösch framework (Howells, 1988). For example, even the financial centralization within countries has not always occurred, as is evidenced by the case of Switzerland. Kindleberger (1974 and 1983) lucidly illustrates that economic factors are not the single determinants of the location of international financial centers. Deliberate politics of authorities who champion a specific location, and a history and tradition in international financial servicing seem to be relevant too in the existence of major financial centers.

The financial center is a locus where financial activities are concentrated. Both the determinants of financial intermediation and the locational characteristics determine where this center is established. Especially costs are important. The concentration of financial intermediaries is a means to reduce per unit costs of financial services production. It can increase profitability by exploiting economies of scale and scope in consumption. Additionally, it is a means to overcome, at least to some extent, informational asymmetries in financial intermediation by face-to-face contacts of the intermediary and its clients which may enhance confidentiality in their on-going relationship. Regulation specifically affects intermediaries' locational behavior. Especially, tax policy, prudential supervision, and capital controls determine whether or not a location might prove attractive to financial intermediaries to establish an affiliate.

Of course, there are diseconomies too in centralization. Information costs with clients which are not established in the center, time zone differences and crowding are common problems of international financial centers. The first of these diseconomies to some extent is overcome by the reduction in information cost per unit due to increased technology use, especially data communication services (e.g. O'Brien, 1992). Differences in time zones are overcome by establishing affiliates of the financial firms in strategic locations in different time zones in such a way that 24-hour trading is possible (see Thrift and Leyshon, 1988). In contrast, crowding and congestion are problems that become greater and greater and that cannot adequately be dealt with at present (Newman and Kenworthy, 1989).

### 4. The Structure of International Financial Centralization

It is clear that New York, London, and Tokyo are generally regarded as the world's major financial centers (see Hamilton, 1986; Shigehara, 1991; O'Brien, 1992). But it is much less clear to what extent these cities are true financial centers and whether or not they are predominant with respect to all types of (international) financial intermediation. For example, New York and Tokyo are located in economic superpowers while London is more like a turning plate of international capital flows. In this section, we focus on the main characteristics of international centers which have been identified in section 2, that is, the establishment of foreign financial firms, the use of currencies, international trade, financial markets, international finance, international payments, and regulation. To evaluate the position of the respective financial centers, we examine basic facts and figures on these characteristics. Furthermore, we investigate a characteristic which can be seen as a *portmanteau* variable: country creditworthiness. The focus is on recent developments, especially in the G-10 countries. There are some peculiarities about the data discussed in this section. Firstly, it should be noted that the data are not presented with respect to the same reference years or the same reference periods. Secondly, despite the fact that we aim at presenting information based on primary sources the data sources to some extent do differ. Furthermore, in some instances, we use secondary sources. Thirdly, the banking data do not include the positions of non-US banks located in offshore centers nor is the same subset of countries used in all the material presented. Fourthly, trustee funds held with banks in Switzerland cannot be allocated according to the nationality of the banks administering the accounts. Fifthly, the data do not provide a full picture of the international financial activities of banks and other financial institutions since they do not include local-currency business of foreign-owned affiliates with residents of their host countries and since adequate statistics on the behaviour of non-bank financial institutions lack. Sixthly, especially banks active in international markets have, to different degrees, shifted part of their operations off balance. Differences in financial institutions' actual intermediary role in the international markets are not captured fully by data that cover only on-balance-sheet financial activity. Moreover, the increasing use of over-the-counter markets hampers the drawing

of our picture. As an overall result, the conclusions we derive from the analysis must be tentative.

#### 4.1 *The Establishment of Foreign Financial Firms*

Table 1 presents the establishment of foreign banks in OECD-countries. It turns out that the UK, the US, and Germany host most foreign banks at the end of 1960, 1970 and 1986. Apart from Luxembourg, the Netherlands, and Switzerland, the steepest increase in the number of foreign banks hosted was in the years 1970-1986. Table 2 provides a more detailed view of the establishment of foreign banks in the major financial centers in the 1980s. During the 1980s, the number of foreign offices of Japanese banks almost doubled, that of EC banks has increased by one-fifth, and that of US banks has decreased by one-fifth. The number of representative offices has been reduced and that of branches and subsidiaries, from where much more financial services can be undertaken, has increased. Most offices are in London but in the 1980s the number of foreign offices has grown most in New York.

TABLE 1  
INTERNATIONAL BANKING NETWORKS, 1960 AND 1986

| Host country | Foreign banking presence in OECD-countries |                 |                  |
|--------------|--|-----------------|------------------|
|              | end 1960                                   | end 1970        | end 1986         |
| Australia    | 3  | 3               | 18 <sup>5</sup>  |
| Belgium      | 14 <sup>1</sup>                            | 26              | 57 <sup>4</sup>  |
| Canada       | 0  | 0               | 57 <sup>4</sup>  |
| France       | 33   | 58              | 152              |
| Germany      | 24   | 77              | 283 <sup>4</sup> |
| Italy        | 1  | 4               | 36               |
| Japan        | 34   | 38              | 115              |
| Luxembourg   | 3  | 23              | 110              |
| Netherlands  | 1  | 23              | 42               |
| Sweden       | 0  | 0               | 12               |
| Switzerland  | 8  | 97              | 125              |
| UK           | 51 <sup>2</sup>                            | 95              | 293 <sup>2</sup> |
| US           | -  | 79 <sup>3</sup> | 243              |

<sup>1</sup> = 1958; <sup>2</sup> = 1962; <sup>3</sup> = 1975; <sup>4</sup> = end June 1985; <sup>5</sup> = 1988.  
Source: BRÖKER, 1989, p. 147.

TABLE 2

NUMBER OF BRANCHES, SUBSIDIARIES, AND REPRESENTATIVE OFFICES OF FOREIGN BANKS IN MAJOR FINANCIAL CENTERS

|                                      | 1980 | 1989 |
|--------------------------------------|------|------|
| <i>Japanese banks</i>                | 51   | 99   |
| Branches in New York                 | 22   | 37   |
| Branches in London                   | 22   | 23   |
| Subsidiaries in New York             | 0    | 1    |
| Subsidiaries in London               | 1    | 8    |
| Repr. offices in New York            | 4    | 12   |
| Repr. offices in London              | 2    | 18   |
| <i>U.S. banks</i>                    | 112  | 89   |
| Branches in Tokyo                    | 22   | 21   |
| Branches in London                   | 41   | 32   |
| Subsidiaries in Tokyo                | 0    | 6    |
| Subsidiaries in London               | 14   | 13   |
| Repr. offices in Tokyo               | 14   | 10   |
| Repr. offices in London              | 21   | 7    |
| <i>EC banks</i>                      | 238  | 286  |
| Branches in New York                 | 43   | 69   |
| Branches in London <sup>1</sup>      | 39   | 70   |
| Branches in Tokyo                    | 21   | 28   |
| Subsidiaries in New York             | 5    | 10   |
| Subsidiaries in London <sup>1</sup>  | 8    | 5    |
| Subsidiaries in Tokyo                | 0    | 1    |
| Repr. offices in New York            | 49   | 33   |
| Repr. offices in London <sup>1</sup> | 35   | 29   |
| Repr. offices in Tokyo               | 38   | 41   |
| Total branches                       | 210  | 280  |
| Total subsidiaries                   | 28   | 44   |
| Total repr. offices                  | 163  | 150  |
| Offices in New York                  | 123  | 162  |
| Offices in London                    | 183  | 205  |
| Offices in Tokyo                     | 95   | 107  |
| Total affiliates                     | 401  | 474  |

<sup>1</sup> excludes UK banks.

Source: SHIGEHARA, 1991, p. 96.



## 4.2 International Currency Use

Table 3 gives the currency composition of official holdings of foreign exchange. The US dollar is held mostly as a reserve currency by the authorities during the 1980s. However, the reserve role of the dollar steadily declines. The Deutsche Mark and, to a lesser extent, the Japanese yen saw an increase in their importance as a reserve currency. The position of the European Currency Unit (ECU) deserves some special attention. The value of ECU reserves of monetary authorities of EMS-countries is linked to the value of their gold and dollar reserves. Once every three months these values are recalculated and the amount of ECU reserves is adjusted. Predominantly as a result of the declining value and use of the US dollar, the position of the Ecu as a reserve currency too has decreased in the 1980s. Table 4 presents basic figures on the currency composition in foreign exchange markets in the major financial centers in April 1989. As regards local currency business, more than half of the transactions involves the US dollar. The Deutsche Mark accounts for one-fifth and the Japanese yen for some 15 per cent of the total gross daily average of \$ 932 billion. In these markets, the US dollar gives some way to the mark and the yen. This is the case with respect to third countries business as well. Table 5 presents evidence on the currency breakdown of G-10 banks' cross-border claims. In domestic

TABLE 3

CURRENCY COMPOSITION OF OFFICIAL HOLDINGS OF FOREIGN EXCHANGE  
(in percentage)

|                                   | 1981 | 1985 | 1990 |
|-----------------------------------|------|------|------|
| US dollar                         | 58   | 53   | 45   |
| British pound                     | 2    | 3    | 3    |
| Deutsche Mark                     | 11   | 13   | 17   |
| French franc                      | 1    | 1    | 2    |
| Swiss franc                       | 2    | 2    | 1    |
| Dutch guilder                     | 1    | 1    | 1    |
| Japanese yen                      | 4    | 7    | 8    |
| ECU                               | 15   | 11   | 8    |
| Total official holdings in SDR bn | 293  | 348  | 594  |

Source: IMF, *Annual Report*, 1987, p. 61; *Annual Report*, 1991, p. 81.

TABLE 4

CURRENCY COMPOSITION OF FOREIGN EXCHANGE  
MARKET ACTIVITY IN MARCH 1986 AND APRIL 1989:  
NET AVERAGE DAILY TURNOVER IN UK, US, JAPAN AND CANADA

|                                | March 1986 |     | April 1989 |     |
|--------------------------------|------------|-----|------------|-----|
|                                | \$ bn      | %   | \$ bn      | %   |
| Local currency business        |            |     |            |     |
| US\$ / local                   | 72.5       | 61  | 134.1      | 57  |
| DM / local                     | 20.7       | 18  | 47.0       | 20  |
| Yen / local                    | 13.9       | 12  | 34.1       | 15  |
| £ / local                      | 11.0       | 9   | 18.0       | 8   |
| Total                          | 118.1      | 100 | 233.2      | 100 |
| Major third countries business |            |     |            |     |
| \$ / DM                        | 30.1       | 34  | 54.9       | 26  |
| \$ / Yen                       | 13.0       | 15  | 30.0       | 14  |
| \$ / £                         | 2.0        | 2   | 5.6        | 3   |
| Other                          | 42.8       | 49  | 122.2      | 57  |
| Total                          | 87.9       | 100 | 212.7      | 100 |

Source: BIS, 1990a, p. 18.

TABLE 5

CURRENCY BREAKDOWN OF REPORTING BANKS' CROSS-BORDER  
ASSETS VIS-À-VIS ALL SECTORS  
(in percentage)

| Currency      | end December 1987    |                     | end September 1991   |                     |
|---------------|----------------------|---------------------|----------------------|---------------------|
|               | domestic<br>currency | foreign<br>currency | domestic<br>currency | foreign<br>currency |
| US dollar     | 39.5                 | 58.4                | 34.1                 | 52.3                |
| Belgian franc | 1.1                  | 0.6                 | 1.3                  | 0.6                 |
| Deutsche Mark | 12.7                 | 13.9                | 13.6                 | 13.2                |
| French franc  | 4.0                  | 1.2                 | 4.5                  | 2.9                 |
| Dutch guilder | 2.0                  | 0.8                 | 2.5                  | 1.0                 |
| Italian lira  | 0.4                  | 0.5                 | 0.5                  | 2.5                 |
| British pound | 6.2                  | 2.2                 | 5.6                  | 3.9                 |
| Swiss franc   | 6.9                  | 6.6                 | 6.8                  | 4.2                 |
| Japanese yen  | 24.8                 | 7.0                 | 28.8                 | 6.4                 |
| ECU           | -                    | 3.7                 | -                    | 5.3                 |
| Other         | 2.3                  | 5.1                 | 2.4                  | 7.8                 |
| Total US\$ bn | 1163                 | 2115                | 1466                 | 3052                |

Source: BIS, 1992, p. 14.

currency, the dollar and the yen are relatively most important at the end of the third quarter of 1991. In foreign currency, more than half of the claims is in US dollars. Here, the role of the yen is relatively unimportant. The Deutsche Mark holds a share of some thirteen per cent, both in domestic and in foreign currency. Table 6 is derived from Tavlas (1991). It presents the currency denomination of world exports in 1980 and 1987. Tavlas (1991) shows that the position of the US dollar as a measure of account shrank in this period: the share of world exports denominated in US dollars fell by 10 percentage points over the period. The rise of the shares denominated in marks and yens did not completely counteract this decline. It seems likely that the use of domestic currencies as the invoicing currency increased. From Tables 3-6, it can be concluded that the US dollar is used most as the international currency in industrialized countries. However, this position gradually declines to the benefit of the Deutsche Mark and, to a somewhat lesser extent, the Japanese yen.

TABLE 6

CURRENCY DENOMINATIONS OF WORLD EXPORTS  
AS A PERCENTAGE OF WORLD EXPORTS

|               | 1980 | 1987 |
|---------------|------|------|
| US dollar     | 34.5 | 24.8 |
| Deutsche Mark | 10.2 | 12.4 |
| British pound | 5.5  | 5.0  |
| French franc  | 4.1  | 5.0  |
| Japanese yen  | 2.0  | 3.5  |
| Italian lira  | 1.7  | 2.6  |
| Total         | 58.0 | 53.3 |

Source: TAVLAS, 1991, p. 26.

### 4.3 International Trade

Table 7 gives an overview of the relative position of the G-10 countries in world exports. In the eighties, the industrialized countries increased their share in total world exports. Especially the OPEC-countries saw a reduction in their share in world exports as a

TABLE 7

PARTICIPATION OF G-10 COUNTRIES IN WORLD EXPORTS  
AND IN INDUSTRIALIZED COUNTRIES' EXPORTS  
(in percentage)

|   | World exports |      | Industrialized countries' exports |       |
|---|---------------|------|-----------------------------------|-------|
|   | 1980          | 1990 | 1980                              | 1990  |
| Germany                                     | 10.1          | 12.4 | 15.4                              | 16.7  |
| US  | 11.8          | 11.9 | 18.0                              | 16.0  |
| Japan                                       | 6.8           | 8.7  | 10.4                              | 11.7  |
| France                                      | 7.1           | 6.5  | 9.3                               | 8.8   |
| UK  | 5.8           | 5.6  | 8.8                               | 7.5   |
| Italy                                       | 4.1           | 5.1  | 6.2                               | 6.9   |
| Netherlands                                 | 3.9           | 4.0  | 5.9                               | 5.4   |
| Canada                                      | 3.5           | 4.0  | 5.4                               | 5.4   |
| Belgium-Luxembourg                          | 3.4           | 3.6  | 5.2                               | 4.8   |
| Switzerland                                 | 1.6           | 1.9  | 2.4                               | 2.6   |
| Sweden                                      | 1.6           | 1.7  | 2.5                               | 2.3   |
| Industrialized countries                    | 65.6          | 74.3 | 100.0                             | 100.0 |
| Value exports & imports<br>in US \$ billion | 1911          | 3310 | 1254                              | 2458  |

Source: IMF, *International Financial Statistics*.

result of declining oil prices. As a result, the G-10 countries experienced an increase in their relative share of world exports, with the exception of France and the UK. However, the share of the G-10 countries in the exports of the industrialized countries shows a different pattern. Here, only Japan, Italy, Germany and Switzerland can report an increase: a relative increase of 12.5, 11.3, 8.4 and 8.3% respectively. US and UK exports as a percentage of industrialized countries' exports show a substantial decline: 11.1 and 14.8% respectively.

### 4.4 Financial Markets

We investigate stock markets, bond markets, and foreign exchange markets. Table 8 provides basic figures on the world's major stock and bond markets. The turnover on the US and Japanese stock exchange is enormous in comparison with that in other locations. It is more than twice the turnover of London or Frankfurt. These financial centers' stock market turnover in turn is more than threefold that of other European centers. Turnover in bonds is highest in London. At a

TABLE 8

TURNOVER AND MARKET CAPITALIZATION IN BOND  
AND STOCK MARKETS IN 1990

| \$ bn        | Turnover |       | Market value |       |
|--------------|----------|-------|--------------|-------|
|              | Stocks   | Bonds | Stocks       | Bonds |
| Amsterdam    | 44       | 56    | 149          | 166   |
| Barcelona    | 5        | 1     | 100          | 60    |
| Bazel        | 55       | -     | 141          | -     |
| Brussels     | 10       | 7     | 65           | 130   |
| Copenhagen   | 12       | 341   | 39           | 211   |
| Frankfurt    | 554      | 604   | 355          | -     |
| Geneva       | -        | -     | 160          | 162   |
| Hong Kong    | 35       | 0     | 83           | 1     |
| Johannesburg | 9        | 93    | 137          | 42    |
| London       | 588      | 1019  | 858          | 576   |
| Luxembourg   | 0        | 1     | 10           | 1005  |
| Madrid       | 38       | 4     | 111          | 56    |
| Milan        | 45       | 34    | 149          | -     |
| New York     | 1325     | 11    | 2692         | 1610  |
| Osaka        | 266      | 74    | 2389         | 954   |
| Paris        | 127      | 588   | 304          | 506   |
| Seoul        | 75       | 5     | 110          | -     |
| Singapore    | 21       | 1     | 34           | 99    |
| Stockholm    | 16       | 181   | 92           | -     |
| Sydney       | 40       | 11    | 107          | 46    |
| Taiwan       | 788      | 0     | 99           | -     |
| Tokyo        | 1404     | 394   | 2822         | 979   |
| Toronto      | 55       | 67    | 242          | 2     |
| Vienna       | 59       | 41    | 28           | 76    |
| Zurich       | 400      | -     | 163          | 159   |

Source: FÉDÉRATION INTERNATIONALE DES BOURSES DE VALEURS (FIBV), *FIBV Statistics*, 1990.

distance, Frankfurt and Paris rank second. Stock market capitalization was highest in Tokyo in 1990. The market value of bonds and debentures listed end-1990 is highest in New York. Here, Luxembourg, Tokyo, and Osaka rank second. An important drawback of the FIBV-data in Table 8 is that over-the-counter trade is not included in the turnover figures. Moreover, an adequate source is lacking for market value and turnover in stocks and bonds which gives an impression of the developments in these markets. From the evidence presented by Bröker (1989) it can be concluded that the market value and turnover of securities has increased especially in Luxembourg in the 1980s and, to a somewhat lesser extent, also in Madrid, Milan,

Amsterdam, and Tokyo. Table 9 illustrates the relevance of foreign companies and institutions for the securities exchanges. Most foreign firms are listed in London and a substantial number is present in the Swiss markets and Amsterdam, Frankfurt and Paris. The market value of trading volumes in foreign shares is absolutely and relatively highest in London. As to bonds, most international bonds are listed in Luxembourg. Furthermore, many international bonds are listed on

TABLE 9

FOREIGN COMPANIES AND INSTITUTIONS  
ON THE SECURITIES EXCHANGES IN 1990

|              | Foreign companies listed |                        |           |                      | International bonds listed |                        |           |                      |
|--------------|--------------------------|------------------------|-----------|----------------------|----------------------------|------------------------|-----------|----------------------|
|              | Number                   | Share of all list-ings | Turn-over | Share in total trade | Number                     | Share of all list-ings | Turn-over | Share in total trade |
|              |                          | %                      | \$ bn     | %                    |                            | %                      | \$ bn     | %                    |
| Amsterdam    | 238                      | 48                     | 0.3       | 1                    | 168                        | 14                     | 0.6       | 1                    |
| Barcelona    | 2                        | 0                      | 0.0       | 0                    | 6                          | 1                      | 0.0       | 0                    |
| Bazel        | 236                      | 61                     | -         | -                    | 942                        | 42                     | -         | -                    |
| Brussels     | 159                      | 47                     | 3.0       | 29                   | 5                          | 4                      | -         | -                    |
| Copenhagen   | 9                        | 3                      | 0.3       | 3                    | 34                         | 2                      | 16.6      | 5                    |
| Frankfurt    | 234                      | 36                     | 11.7      | 2                    | 1043                       | 8                      | 31.0      | 5                    |
| Geneva       | 249                      | 61                     | -         | -                    | 947                        | 49                     | -         | -                    |
| Hong Kong    | 15                       | 5                      | 0.1       | 0                    | 7                          | 58                     | 0.0       | 58                   |
| Johannesburg | 29                       | 4                      | 1.0       | 11                   | -                          | -                      | -         | -                    |
| London       | 613                      | 24                     | 283.5     | 48                   | 1621                       | 37                     | 50.3      | 5                    |
| Luxembourg   | 182                      | 25                     | 0.0       | 15                   | 7320                       | 99                     | 0.6       | 93                   |
| Madrid       | 2                        | 0                      | 0.1       | 0                    | 35                         | 3                      | 0.0       | 1                    |
| Milan        | 0                        | 0                      | 0         | 0                    | 19                         | 1                      | 0.1       | 0                    |
| New York     | 96                       | 5                      | -         | -                    | 203                        | 7                      | 0.0       | 1                    |
| Osaka        | 0                        | 0                      | 0         | 0                    | 35                         | 3                      | 0.0       | 0                    |
| Paris        | 226                      | 34                     | 4.9       | 4                    | 210                        | 8                      | 0.6       | 0                    |
| Seoul        | 0                        | 0                      | 0         | 0                    | 0                          | 0                      | 0         | 0                    |
| Singapore    | 22                       | 13                     | -         | -                    | -                          | -                      | -         | -                    |
| Stockholm    | 11                       | 8                      | 0.1       | 0                    | 6                          | 0                      | 0         | 0                    |
| Sydney       | 33                       | 3                      | -         | -                    | 0                          | 0                      | 0         | 0                    |
| Taiwan       | 0                        | 0                      | 0         | 0                    | 0                          | 0                      | 0         | 0                    |
| Tokyo        | 125                      | 7                      | 15.0      | 1                    | 154                        | 11                     | 0.0       | 0                    |
| Toronto      | 66                       | 6                      | 0.3       | 1                    | 0                          | 0                      | 0         | 0                    |
| Vienna       | 52                       | 34                     | 1.6       | 3                    | 16                         | 1                      | -         | -                    |
| Zurich       | 240                      | 57                     | -         | -                    | 946                        | 39                     | -         | -                    |

Source: FÉDÉRATION INTERNATIONALE DES BOURSES DE VALEURS (FIBV), *FIBV Statistics*, 1990.



the London, Frankfurt, and Swiss exchanges. Their trading volume, however, is quite negligible on all exchanges, as most of this trade is in the over-the-counter markets. Table 10 presents evidence on the scale of foreign exchange operations. The UK ranks first, before the US and Japan. These three centers account for 60 per cent of gross turnover on the exchange markets and for 58 per cent of the net turnover (BIS, 1990a). Three other centers (Switzerland, Singapore, Hong Kong) together account for a further 20 per cent of global gross and net foreign exchange turnover. Thus, six financial centers account for the bulk of foreign exchange trading. Germany and Luxembourg are relevant centers that were omitted in this BIS survey. However, on the basis of end-of-month delivery rights and obligations arising out of foreign exchange transactions, the BIS concludes an average

TABLE 10

FOREIGN EXCHANGE MARKET ACTIVITY IN APRIL 1989:  
AVERAGE DAILY GROSS TURNOVER  
(in percentage)

| Country     | Gross turnover |            |
|-------------|----------------|------------|
|             | US \$ bn       | % of total |
| UK          | 241            | 25.9       |
| US          | 174            | 18.7       |
| Japan       | 145            | 15.6       |
| Switzerland | 68             | 7.3        |
| Singapore   | 63             | 6.8        |
| Hong Kong   | 60             | 6.4        |
| Australia   | 37             | 4.0        |
| France      | 32             | 3.4        |
| Canada      | 18             | 1.9        |
| Netherlands | 16             | 1.7        |
| Denmark     | 15             | 1.6        |
| Sweden      | 14             | 1.5        |
| Belgium     | 12             | 1.3        |
| Italy       | 11             | 1.2        |
| Spain       | 6              | 0.6        |
| Ireland     | 6              | 0.6        |
| Norway      | 5              | 0.5        |
| Finland     | 5              | 0.5        |
| Bahrain     | 3              | 0.3        |
| Portugal    | 1              | 0.1        |
| Greece      | 1              | 0.1        |
| Total       | 932            | 100.0      |

Source: BIS, 1990, p. 10.

daily turnover of around \$ 100 billion in Germany (BIS, 1990a). If this estimation is accurate, Germany ranks fourth as a foreign exchange market. From Tables 8-10, it can be concluded that New York, Tokyo, and London are the world's greatest financial markets, with London at the apex. Other financial centers lag far behind these three locations.

#### 4.5 International Bank Lending

Table 11 gives the volume and composition of international bank assets by bank nationality in G-10 countries. Between end-1985 and mid-1991, international bank assets have more than doubled. One third of these assets rests with Japanese banks at mid-1991. In the mid-1980s, Japanese banks held one quarter of international bank assets. The position of US banks is remarkable too, since their share in international bank assets almost halved in the period under review. The position of UK and Canadian banks showed a retrenchment as well. Table 12 illustrates the volume and the composition of international bank lending in G-10 countries and relates to the same data as Table 11. Here too, the huge rise of Japan is clearly visible.

TABLE 11

INTERNATIONAL BANK ASSETS BY NATIONALITY OF OWNERSHIP

| Parent country<br>of banks | end-1985 |     | mid-1991 |     |
|----------------------------|----------|-----|----------|-----|
|                            | \$ bn    | %   | \$ bn    | %   |
| Japan                      | 707      | 26  | 1863     | 33  |
| US                         | 593      | 22  | 688      | 12  |
| Germany                    | 191      | 7   | 526      | 9   |
| France                     | 245      | 9   | 484      | 9   |
| Italy                      | 114      | 4   | 301      | 5   |
| UK                         | 191      | 7   | 245      | 5   |
| Switzerland                | 106      | 4   | 216      | 4   |
| Netherlands                | 72       | 3   | 167      | 3   |
| Belgium-Luxembourg         | 60       | 2   | 150      | 3   |
| Sweden                     | 27       | 1   | 122      | 2   |
| Canada                     | 117      | 4   | 109      | 2   |
| Other                      | 291      | 11  | 779      | 13  |
| Total                      | 2714     | 100 | 5650     | 100 |

Source: BIS, 1991, p. 19.

TABLE 12

## INTERNATIONAL BANK LENDING BY CENTER

| Reporting centre | end-1985 |     | mid-1991 |     |
|------------------|----------|-----|----------|-----|
|                  | \$ bn    | %   | \$ bn    | %   |
| Japan            | 338      | 12  | 1288     | 23  |
| UK               | 798      | 29  | 1246     | 22  |
| US               | 402      | 15  | 505      | 9   |
| France           | 223      | 8   | 432      | 8   |
| Switzerland      | 82       | 3   | 386      | 7   |
| Germany          | 99       | 4   | 322      | 6   |
| Luxembourg       | 128      | 5   | 306      | 5   |
| Belgium          | 118      | 4   | 238      | 4   |
| Netherlands      | 79       | 3   | 174      | 3   |
| Italy            | 68       | 3   | 138      | 2   |
| Sweden           | 22       | 1   | 99       | 2   |
| Canada           | 74       | 3   | 74       | 1   |
| Other            | 283      | 10  | 442      | 8   |
| Total            | 2714     | 100 | 5650     | 100 |

Source: BIS, 1991, p. 23.

However, the position of banks in Japan is not as predominant as that of Japanese banks. The trends with respect to international lending by banks in the UK and the US is analogous to that in Table 11. UK ranks second as an international lending center only just behind Japan. US banks ranked second behind Japanese banks in the amount of foreign claims. The steep rise in the relative position of banks in Switzerland is primarily due to the fact that the mid-1991 figures include trustee funds channeled through banks in Switzerland where the end-1985 do not include these funds. Table 13 illustrates the relative position of foreign banks in G-10 financial centers. From these figures, it can be derived that Luxembourg, the UK and Switzerland are relatively most international at mid-1991. Data for Switzerland at end-1985 did not yet include trustee funds. In the period under review, the share of foreign banks in international bank lending increased considerably as well in Canada, the US, France and, to a somewhat lesser extent, the UK. It decreased in Japan, Luxembourg, Italy, and Belgium. Table 14 shows the international net positions by nationality of BIS reporting banks. The positions of individual nationality groups of banks in the international markets changed significantly during the period under review. Especially the

TABLE 13

## POSITION OF FOREIGN BANKS IN BIS-REPORTING CENTERS

| Reporting centre     | % share of foreign banks in total international bank lending |        |
|----------------------|--|--------|
|                      | end-85   | mid-91 |
| Luxembourg           | 92.2   | 85.4   |
| UK                   | 80.0   | 84.7   |
| Switzerland          | 31.7   | 73.3   |
| US                   | 46.5   | 58.6   |
| Belgium              | 63.6   | 55.9   |
| France               | 29.1   | 36.1   |
| Netherlands          | 27.8   | 27.6   |
| Canada               | 12.2   | 21.6   |
| Germany              | 21.2   | 18.0   |
| Japan                | 10.4   | 7.8    |
| Italy                | 10.3   | 5.1    |
| Sweden               | 0  | 2.0    |
| Other                | 68.6   | 52.9   |
| Total                | 51.5   | 47.2   |
| US \$ bn             |  |        |
| Total bank lending   | 2714   | 5650   |
| Foreign bank lending | 1398   | 2664   |

Source: BIS, 1991, p. 23.

TABLE 14

## INTERNATIONAL NET POSITION BY NATIONALITY OF REPORTING BANKS

| Parent country of banks | end-85 | mid-91 |
|-------------------------|--------|--------|
|                         | \$ bn  | \$ bn  |
| Japan                   | 34     | 61     |
| US                      | 38     | -36    |
| Germany                 | 34     | 113    |
| France                  | -4     | -54    |
| Italy                   | -1     | -2     |
| UK                      | -10    | -41    |
| Switzerland             | 11     | -1     |
| Netherlands             | 4      | 14     |
| Belgium-Luxembourg      | 0      | -1     |
| Canada                  | 0      | -12    |
| Sweden                  | 0      | 2      |
| Other                   | -7     | -41    |
| Total                   | 99     | 2      |

Source: BIS, 1991, p. 24.

net claims of German banks on other banks increased. As a result, their total net position almost tripled. Japanese banks nearly doubled their net positions in the period under review. US banks went from a net creditor position to a huge net liability position. The net liability position of UK banks increased considerably. From Tables 11-14, it can be concluded that Japanese banks are most important in international lending. Japan and the UK are most important as lending centers. Especially the UK host many foreign banks that are active in international finance (see also Table 2). As regards the international net position of banks, those from Germany and Japan hold the strongest, that is net claim, position.

#### 4.6 International Payments

Data on international payment flows are not being presented on a regular basis yet by international reporting multilateral financial institutions. Therefore, we make use of two aggregates which might be regarded as suitable proxies. Table 15 presents statistics on the

TABLE 15

TRANSACTION VALUE IN LARGE-VALUE FUNDS TRANSFER SYSTEMS  
IN G-10 COUNTRIES IN 1989 AND SWIFT TRAFFIC IN 1990

| Country                | Daily average<br>transaction<br>value | SWIFT traffic<br>number of messages |     |
|------------------------|---------------------------------------|-------------------------------------|-----|
|                        | \$ bn                                 | bn                                  | %   |
| Belgium                | 2                                     | 15.3                                | 5   |
| Canada                 | 11                                    | 7.6                                 | 2   |
| France                 | 15                                    | 25.6                                | 8   |
| Germany                | 251                                   | 28.4                                | 9   |
| Italy                  | 18                                    | 18.2                                | 5   |
| Japan                  | 607                                   | 15.1                                | 5   |
| Luxembourg             | -                                     | 6.9                                 | 2   |
| Netherlands            | 25                                    | 12.2                                | 4   |
| Sweden                 | 6                                     | 6.2                                 | 2   |
| Switzerland            | 73                                    | 25.5                                | 8   |
| UK                     | 157                                   | 40.4                                | 12  |
| US                     | 1491                                  | 53.9                                | 16  |
| G-10                   | -                                     | 255.3                               | 77  |
| Total traffic in SWIFT | -                                     | 332.6                               | 100 |

Source: BIS, 1990b, p. 160; SWIFT, *Annual Report*, 1990, pp. 30-32.

transaction value of large-value funds transfer systems. These systems are the core element of a country's financial system. A large-value funds transfer system includes a settlement procedure designed to allow participating banks to discharge payment obligations to other participants by means of final value transfers with the issuer of the national currency. A large-value system generally carries a stream of payments originating in all sectors of the economy, though some systems are designed principally to facilitate international funds transfers. The bulk of the payment carried through large-value systems originates in the financial markets. They may be straight payments or payments made against the delivery of assets in the exchange-of-value markets (BIS, 1990b). The domestic large-value transfer systems are becoming increasingly internationally interdependent. However, there is no truly global payment system. Such a system in effect is created by a complex international network of financial institutions. By foreign offices or correspondents, the financial institutions have direct or indirect access to almost every country's domestic payment system to meet their payment needs. Furthermore, specialized depository and clearing and settlement institutions are present in the international securities markets which provide payment services for their member. Electronic data interchange services are used too to facilitate international transactions (BIS, 1990b). A series of communication networks links the various points of international business. These networks are operated by the banks themselves, PTT authorities or a specialized supplier such as SWIFT. Table 15 reveals that the US large-value systems, Fedwire and CHIPS, by far are the greatest. Japanese systems follow at great length. In turn, the UK and German system lag far behind the volume of the Japanese systems. Traffic via SWIFT is much more evenly spread.

#### 4.7 Regulation

Table 16 reveals the percentage of items of the OECD Code of Liberalization of Capital Movements covered by limited or full reservations in the G-10 countries. The OECD promotes liberalization of international trade in goods and services and the progressive freedom of capital movements. This objective is expressed with regard to services and capital movements in the Code of Liberalisation of Current Invisible Operations and the Code of Liberalisation of Capital Movements. The Codes have the status of binding obligations



TABLE 16

THE POSITION OF G-10 COUNTRIES WITH RESPECT TO THE OPERATIONS  
UNDER ITEMS I-IX OF THE OECD LIBERALISATION LISTS OF CAPITAL MOVEMENTS  
(percentage of items covered by reservations)

|                     | 1984                   |                         | 1990                   |                         |
|---------------------|------------------------|-------------------------|------------------------|-------------------------|
|                     | Full reser-<br>vations | Limited<br>reservations | Full reser-<br>vations | Limited<br>reservations |
| Belgium             | 0                      | 10                      | 0                      | 10                      |
| Canada <sup>1</sup> | x                      | x                       | 5                      | 5                       |
| France              | 3                      | 27                      | 3                      | 17                      |
| Germany             | 0                      | 0                       | 0                      | 3                       |
| Italy               | 35                     | 5                       | 0                      | 25                      |
| Japan               | 0                      | 5                       | 0                      | 5                       |
| Luxembourg          | 0                      | 0                       | 0                      | 0                       |
| Netherlands         | 0                      | 35                      | 0                      | 3                       |
| Sweden              | 20                     | 45                      | 0                      | 20                      |
| Switzerland         | 3                      | 12                      | 0                      | 5                       |
| UK                  | 0                      | 0                       | 3                      | 0                       |
| US                  | 0                      | 3                       | 0                      | 3                       |
| Unweighted average  | 6                      | 13                      | 1                      | 10                      |

<sup>1</sup> Canada did not adhere to the code in 1984.

Source: OECD, 1990, p. 66.

for OECD members. The liberalization mechanism of the Codes applies to all capital movements (including money market operations and innovative activities), cross-border services, payment services, banking and investment services, asset management, advisory and agency services, and the right of establishment of branches and agencies of non-resident financial institutions. The regulatory items being examined in Table 16 relate to direct investment, real estate, securities on capital markets, money markets, negotiable instruments and non-securitised claims, collective investment securities, credits directly linked with international commercial transaction or with the rendering of international services, and to financial credits and loans. We present the percentage of items covered by limited or full reservation with respect to the OECD Codes by the G-10 countries in 1984 and 1990. During the period under review, there was a remarkable reduction in the number of full reservations. To a somewhat lesser extent, the number of limited reservations is reduced as well.

Comparatively, the greatest reductions were experienced in Italy, Sweden, France, the Netherlands, and Switzerland. In 1990, the percentage of items covered by reservations was highest in Italy, France and Sweden. In Luxembourg, Germany, the Netherlands, the US, the UK, Japan, and Switzerland the coverage was very limited in 1990. Therefore, these countries can be regarded as those most liberalized with respect to the OECD Codes.

#### 4.8 Creditworthiness

A somewhat distinct item we treat concludingly is perceived country creditworthiness as measured by periodic interviews of the Institutional Investor. Though it is not a scientific survey, the country rating can be regarded as an indication of experts' opinion on the creditworthiness of a country. The development of the country rating in the Institutional Investor, as presented in Table 17, shows that in

TABLE 17

COUNTRY CREDITWORTHINESS:  
RATING, RANKING AND STANDARD DEVIATION - 1981-1991

| Country        | March 1981 |      | March 1991 |      | Standard deviation<br>of the scores<br>1981/91 |
|----------------|------------|------|------------|------|--|
|                | score      | rank | score      | rank |  |
| Switzerland    | 97.0       | 2    | 93.2       | 1    | 1.1  |
| Japan          | 95.2       | 4    | 92.6       | 2    | 0.9  |
| Germany        | 96.3       | 3    | 90.6       | 3    | 1.3  |
| Netherlands    | 89.6       | 9    | 87.8       | 4    | 0.9  |
| France         | 90.2       | 6    | 87.4       | 5    | 3.2  |
| United States  | 98.1       | 1    | 87.2       | 6    | 3.6  |
| United Kingdom | 89.9       | 8    | 84.5       | 7    | 1.4  |
| Austria        | 85.9       | 11   | 84.3       | 8    | 2.6  |
| Canada         | 92.0       | 5    | 83.7       | 9    | 2.6  |
| Belgium        | 84.4       | 12   | 79.8       | 10   | 3.0  |
| Italy          | 74.7       | 18   | 79.5       | 11   | 3.2  |
| Sweden         | 83.5       | 13   | 78.6       | 12   | 1.8  |
| Norway         | 89.5       | 10   | 78.2       | 13   | 4.1  |
| Singapore      | 78.6       | 14   | 77.6       | 14   | 1.6  |
| Finland        | 77.5       | 17   | 77.2       | 15   | 1.7  |
| Taiwan         | 68.7       | 29   | 77.1       | 16   | 4.1  |
| Spain          | 70.2       | 26   | 75.9       | 17   | 5.2  |
| Denmark        | 73.0       | 21   | 72.8       | 18   | 1.5  |
| South Korea    | 55.4       | 46   | 68.6       | 19   | 5.1  |
| Australia      | 90.0       | 7    | 68.1       | 20   | 8.4  |

Source: Institutional Investor.

the 1980s Switzerland, Japan, and Germany are perceived as the most creditworthy countries. The position of the US, Canada and, especially, Australia, worsened. The position of the Netherlands, Italy, Spain, and South-Korea improved. In all, the 1980s witnessed a gradual derating of almost all countries. If we look at the variation in the ratings as evidenced by the standard deviation of the country credit ratings, it can be concluded that Japan, Switzerland, the Netherlands, Germany and the UK were perceived as the most stable countries in the 1980s.

#### 4.9 Conclusion

The overall picture with respect to international financial centralization is quite diffuse. There emerges no unique or uniform picture of the centralization in international finance as we examine the main characteristics of international financial centers: the establishment of foreign financial firms, the use of currencies, international trade, financial markets, international finance, international payments, and regulation. As to the establishment of foreign financial firms, it turns out that the UK, Germany, and the US host most foreign banks. Among the cities which commonly are regarded as the main financial centers (London, New York, Tokyo), the number of offices of foreign banks is highest in London. As to currency use, the US dollar still is by far the most important currency. The relative position of the currency which ranks second, the Deutsche Mark, gradually improves. As to international trade, Germany and the US are the world's biggest exporters of goods and services. However, the relative position of the US as a trading nation has worsened in the 1980s to the benefit of Japan and, especially, Germany. With respect to financial markets, turnover at the stock exchanges is highest in Tokyo and New York. These two centers are at least two or three times as great in this perspective as the Taiwan, London, Frankfurt and Zurich stock exchanges which rank behind the former. These six centers account for four fifth of the trading volume on stock exchanges of FIBV-reporting exchanges in 1990. Bonds are traded mostly in London, Frankfurt and Paris. Tokyo ranks fourth in this respect. Bond trading in New York is of relatively little importance. However, an important part of bond dealing of the latter two centers is in over-the-counter markets on which no systematic data are being

provided (see Smith and Walter, 1990). Market value of domestic companies listed at these exchanges is highest in Tokyo, New York and Osaka. The par value of bonds and debentures listed on the exchanges is highest in Toronto, New York, Luxembourg, Tokyo, and Osaka. London is the most international securities exchange. London, New York and Tokyo account for the bulk of global foreign exchange trading. Thus, it is especially with respect to financial market volume that the three major financial centers have gained their reputation. As to international bank lending, Japan is the lending center, slightly before the UK. Here, the US position is clearly reduced in the last decade, but in effecting large-value fund transfers, the US systems rank first. However, data on this subject are rather incomplete and the prominent position of the US in this respect cannot yet be corroborated with adequate evidence. With respect to regulation it appears that Luxembourg, Germany, the Netherlands, the US, the UK, Japan, and Switzerland are most liberalized within the OECD. Japan, Switzerland, the Netherlands, Germany, and the UK generally are perceived as the most stable countries. The perception of country creditworthiness seems to reflect the overall tendencies in the reputation of countries.

In all, the picture of financial centralization definitely does not show a strict tripolar world. Furthermore, the extent to which each center performs the various financial transformation functions remarkably differs. The tripolar view emerges if one focuses on securities emission in financial markets and trade volumes. However, the literature suggests more characteristics that are relevant to qualify a particular city or country as an international financial center. If it comes to the physical presence of financial firms, international lending, payments, and currency use, other configurations clearly emerge. There emerge unipolar as well as bipolar views, sometimes there is a multipolar landscape. The structure of international financial centralization is changing. Especially the prominent position of New York as a leading center is at risk, apart from its securities exchange. In many respects Japanese financial institutions rank first. Notwithstanding, US, British, German, Swiss and French financial intermediaries make up an important part of the picture too.

## 5. Financial Centers in the European Community

Naturally, one would like to know which location is the most prominent international financial center. This is especially relevant for the European Community where a process of financial integration is under way. However, the data in section 4 do not speak for themselves. We used them to illustrate our argument that financial centralization is not complete and is not uniform. To determine which financial center is most important, a pragmatic framework is necessary. Here, we derive a framework from Kindleberger (1974) to analyse centralization within the EC.

Many rankings of financial centers are provided in the economic literature (see section 2). An important drawback of most of this literature is that it investigates only a very limited selection of the factors that were shown to be of importance and that a framework lacks. For example, Reed (1980) uses the number of foreign banks' offices within a country and the volume of foreign assets and liabilities as the basis for his ranking. Reed (1983) adds the volume of eurocurrency trade to these two elements in order to rank financial centers. Arndt (1984) regards the contribution of bank services in GDP as the factor that can distinguish among financial centers. Hamilton (1986) sees international bank lending as the most characteristic element of international finance and uses this criterion to position the respective centers. O'Brien (1992) regards the number of foreign companies listed on the securities exchange as well as the turnover in these securities as the main discriminant among international financial centers. In this literature, not surprisingly, London, New York and Tokyo generally emerge as the utmost international financial centers.

Here, we use Kindleberger's (1974) framework which is composed of ten forces that are relevant in labelling a location as an international financial center. In this paper, Kindleberger asks the following question (page 63): "Will European economic integration, and especially the formation of the European Economic Community, result, sooner or later, in geographical financial centralization?" In answering this question, Kindleberger reviews ten forces which are supposed to have led to the formation of financial centers. The forces reviewed are: currency, central bank, administrative capital, tradition, economies of scale, location, transport, multinational corporations,

culture, and policy. After considering each of these factors, Kindleberger tentatively predicts that Brussels will emerge as the financial center of the European Economic Community. Brussels serves as the headquarters for the Commission, it attracts foreign corporations and may ultimately attract foreign and European banks, and it tolerates the world intellectual medium of exchange, the English language. In all these three respects, Brussels distinguishes itself positively relative to other financial centers in the EC, according to Kindleberger. He predicts that the centralization process will be long and drawn out. He argues that, despite cultural resistance and only with difficulty, centralization will take place, but not before the late 1980s.

In the early 1990s, almost two decades after Kindleberger's prediction, we aim at evaluating the present situation within the European Community with respect to centralization. To achieve this, we examine the ten forces mentioned by Kindleberger. The performance of domestic financial centers of the twelve member states with respect to the ten factors is measured on a five-rank scale and is presented in Table 18. At the end of this section, we evaluate the overall findings. The causality between each force and financial centralization is not always made very clear by Kindleberger (1974). Therefore, we restate his arguments on each force and analyse the present situation.

### 5.1 *The European Currency*

Kindleberger regards a common currency as necessary for the development of an efficient money and financial market. If a national currency is chosen as the basis for the new currency, it might confer an advantage on the established financial center associated with the currency, according to Kindleberger. In his view, the attempt to create an entirely new currency would presumably not affect the ultimate choice of a particular financial center.

As a result of the establishment of the European Monetary System in 1978, the European Currency Union, ECU, was introduced. In the early years of the EMS, the ECU predominantly was in use as a means of accounting in the EC institutions. Furthermore, the ECU became a reserve currency for 20% of the reserves in US dollars and gold of the EC central banks and was deposited with the



TABLE 18

SCORES OF THE TWELVE DOMESTIC FINANCIAL CENTERS  
OF THE EC MEMBER STATES ON KINDLEBERGER'S (1974) TEN CRITERIA

| Country/city    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-----------------|---|---|---|---|---|---|---|---|---|----|----|----|----|
| Be - Brussels   | 2 | 3 | 1 | 2 | 4 | 2 | 5 | 4 | 2 | 3  | 1  | 4  | 28 |
| De - Copenhagen | 2 | 3 | 1 | 3 | 3 | 4 | 1 | 3 | 4 | 4  | 2  | 1  | 28 |
| Fr - Paris      | 2 | 3 | 1 | 3 | 2 | 2 | 5 | 2 | 2 | 2  | 1  | 6  | 24 |
| Ge - Frankfurt  | 1 | 1 | 3 | 2 | 2 | 2 | 4 | 2 | 1 | 1  | 4  | 4  | 19 |
| Gr - Athens     | 5 | 4 | 1 | 5 | 5 | 5 | 4 | 5 | 5 | 5  | 1  | 0  | 44 |
| Ir - Dublin     | 2 | 3 | 1 | 2 | 5 | 5 | 3 | 4 | 5 | 3  | 1  | 3  | 33 |
| It - Milan      | 3 | 3 | 3 | 3 | 3 | 3 | 5 | 3 | 3 | 4  | 0  | 0  | 33 |
| Lx - Luxembourg | 2 | 3 | 1 | 1 | 3 | 2 | 2 | 3 | 4 | 1  | 3  | 3  | 22 |
| Nl - Amsterdam  | 2 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 1  | 1  | 5  | 23 |
| Po - Lisbon     | 5 | 4 | 1 | 3 | 5 | 5 | 3 | 5 | 5 | 5  | 1  | 0  | 41 |
| Sp - Madrid     | 4 | 4 | 1 | 4 | 3 | 4 | 4 | 3 | 4 | 4  | 1  | 0  | 35 |
| UK - London     | 4 | 5 | 1 | 3 | 1 | 2 | 4 | 1 | 2 | 1  | 4  | 2  | 24 |

- 1 = Position of the currency in the exchange rate mechanism of the EMS (UNGERER *et al.*, 1990).
- 2 = Reputation of the central bank, monetary policy, prudential supervision (*The Economist*, February 10, 1990).
- 3 = administrative capital identical with financial center.
- 4 = Tradition, skills, savings (*European Economy*, No. 46, December 1990, pp. 204-205).
- 5 = Economies of scale (AMSTERDAM STOCK EXCHANGE, *Annual Report*, 1990, p. 70; PAGANO and ROELL, 1990).
- 6 = Central location within the EC.
- 7 = Transport quality (NEWMAN and KENWORTHY, 1989, p. 60; own observations).
- 8 = Multinationalization in the financial centre (HOWELLS, 1988; UNCTC, 1988 and 1989; OECD, 1991, p. 51).
- 9 = Culture (GARDENER and MOLYNEUX, 1990, pp. 209-212; OECD, 1991; BIS, 1992).
- 10 = Government policy (WALTER and SMITH, 1989, p. 123).
- 11 = Frequency of score 1.
- 12 = Frequency of score 2.
- 13 = Unweighted sum of the scores on items 1-10.

European Fund for Monetary Cooperation. These deposits are renewed every three months according to changes in central bank reserves and in the market value of US dollars and gold. As a means of payment, the ECU virtually has no role. However, in the early 1980s, it began to play a role within non-official private markets. The smaller exchange rate volatility of this basket-currency is viewed as an attractive characteristic by borrowers from high-inflation economies (Girard and Steinherr, 1989). Especially financial instruments were denominated in ECU. As a reserve instrument and as a means of payment the 'private' ECU's role is still negligible. A gradually increasing part of banks' foreign positions and of new financial market issues is in ECU. On the role of the private ECU, see Levich

and Sommariva (1987). The Delors Report and the European Commission opened way for an even more prominent role of this currency in the Economic and Monetary Union. Fluctuations between the EC currencies must become zero and the currencies of the member states may be replaced by a common currency, the ECU (see Committee for the Study of Economic and Monetary Union, 1989; Commission of the European Community, 1990). Within the exchange rate mechanism, the Deutsche Mark operates as the stabilizing anchor (*e.g.* see Mastropasqua *et al.*, 1988). The lasting and enormous balance of payments surpluses *vis-à-vis* almost all other EC-member states as well as the reputation of the Bundesbank are held responsible for this. Enhancing the role of the ECU, therefore, in Kindleberger's view, will result in an advantage of Frankfurt as the home town of the Deutsche Mark. The exchange rate mechanism of the EMS entails the bilateral exchange rate fluctuations among the currencies of the EC member states which take part in the mechanism. All member states, except Greece, are partners of the exchange rate mechanism. Only Portugal, Spain and the UK operate a fluctuation margin of 6 per cent; the other member states practice a margin of 2.25 per cent. Italy joined in the more narrow fluctuation margin at the beginning of 1990. The other eight EC-members applied the narrow margin from the beginning. Among the currencies of the countries which partake in the exchange rate mechanism, the Deutsche Mark clearly is the apex (see Ungerer *et al.*, 1990). This classification is the basis for the scores in Table 18. The result is that Frankfurt is the most prominent center from the perspective of currency use.

## 5.2 Central Bank

Kindleberger thinks a European central bank is absolutely necessary to enact common monetary policy and to develop European money. Kindleberger argues that if a single central bank were chosen as the European central bank and other banks were merged into it, its existing location might well have a positive effect on the ultimate choice by the market of a physical financial center. History, according to Kindleberger, suggests that the choice of one among a number of competing centers is normally evaded in the process of merging banks.

In all EC member states the responsibility for monetary policy rests with the central bank. However, the degree of political influence

on central bank policy and operations in this respect varies among the member states. As a result, the reputation of the various central bank authorities differs. For example, the influence of politics in the more southern member states and in the UK is much greater than in Germany, Denmark and the Benelux-countries. The reputation and credibility of the monetary authorities in the latter countries, therefore, is much greater. Prudential supervision is another task of most central banks. Here, the quality of the regulations of the financial system varies a lot among the member states. Price stability frequently is regarded as a measure for the success of central bank policy. It appears that central bank autonomy is a crucial factor in achieving stable prices (see Grilli *et al.*, 1991). In the real world, reputation is directly linked to central bank autonomy. For example, *The Economist* ranks EC central banks on the basis of their legal position *vis-à-vis* the government and politics. The findings to a great extent are in line with more scientific approaches by, among others, Banaian *et al.* (1986) and Grilli *et al.* (1991). These studies provide only slightly different rankings among EC central banks.

With respect to the monetary policy within the EC, the European System of Central Banks will gradually enact a common monetary policy in the last stage of the EMU. Furthermore, it will be held responsible for the development of an adequate currency and it must coordinate the prudential supervision on financial institution. There will be no political influence on monetary policy making by this institution (see Commission of the European Communities, 1990). Prudential supervision is being harmonized in the EC, in line with the BIS proposals on capital adequacy and the supervision of various types of financial intermediaries (BIS, 1988). Thus, at the end of the decade, it is likely that there is a more unified monetary regime as well as a more identical supervisory structure with respect to financial institutions within the EC and differences in reputation and credibility among the twelve authorities will be of minor importance. At present, central bank reputation considerably differs. The Bundesbank is regarded as most autonomous. Thus, Frankfurt is the most prominent European financial center as to central bank quality.

### 5.3 Administrative Capital

Kindleberger argues that if the administrative machinery of the European Community, including the central bank, were located in an existing financial center, it would be very likely to serve as a magnet to other financial institutions and to attract them into a single primary location.

At present, Brussels is the administrative capital of the EC. Many newly established EC institutions are being located throughout the Community. Whether Brussels will remain the administrative capital is uncertain. Quite important in this respect is that it has not yet been decided where the European Central Bank is to be established. In almost every member state, at least one city is being pushed by local authorities as an attractive location. In the member states, the location of the administrative capital not always is identical with the location of the domestic financial centre. For example, in Germany, Italy, and the Netherlands, the location of the government administration differs from the locus of the domestic financial center. In Germany the administrative center is Bonn (and Berlin) while the financial center is Frankfurt, in Italy it is Rome and Milan respectively, in the Netherlands it is The Hague and Amsterdam respectively. These three cities are ranked two ranks lower than the financial centers that are administrative capital as well. Here, there is no clear most prominent location for Europe's financial center.

### 5.4 Tradition, Skill and Savings

Kindleberger sees tradition not as a very important asset in the establishment of a European financial center. Skills in the financial industry seem to be footloose and it is especially savings that Kindleberger views as important. Savings are necessary so that dealers can make a market, lend when the rest of the market is borrowing and sell out of inventory when the rest is buying.

It might seem that Kindleberger's argument with respect to this point no longer holds. The European Commission aims at liberalized capital markets, harmonization of regulations, and mutual recognition of supervisory systems, to establish a truly common capital market (see Commission of the European Communities, 1990). However, not all member states have yet implemented the EC directives which are

relevant in this respect (OECD, 1990). Differences in regulatory regimes are still in existence and thus differences in savings rates may prove to be of importance. Throughout most of the 1980s, only Luxembourg, Germany and the Netherlands were net exporters of capital. Especially the Luxembourgian foreign position is impressive. The net export of capital as a percentage of GDP is used in Table 18 as the measure for this force. Smith (1990) argues that the most important factors affecting a country's saving level (demographic and cultural factors and the existing stock of wealth) are difficult for policymakers to influence in the short run. Therefore, the force of tradition, skill, and savings can be regarded as a 'natural' factor in the location decision within the Christaller-Lösch framework. Luxembourg clearly performs best as to tradition, skill and savings.

### 5.5 Economies of Scale

As many others, Kindleberger too argues that financial functions involving uncertainty are better performed on a face-to-face basis. Clustering might develop to reduce risks by information exchange. While communications costs steadily declined, Kindleberger expects that they are not likely to be so low as to eliminate all tendency to clustering. In new security issues, clustering is relatively unimportant. Syndicates in new issues consist of firms located virtually everywhere. However, secondary markets must be concentrated so as to eliminate the need to search over wide distances for price information or to maintain continuous interchange. But Kindleberger recognizes a strong counterforce in secondary markets. Computer links between centers reduce the need for physical concentration. However, it is far from clear what volume of security dealings would be necessary to cover the capital expense of establishing a computer-based trading system in the European Community. It seems likely that in time there will be no absolute need for a central location for secondary markets in securities. Other centripetal forces do remain in Kindleberger's opinion, especially the need for face-to-face communication with other managers and employees of financial institutions, with lawyers, securities dealers, and borrowers and lenders.

Within the EC, London's securities markets have most 'mass of manoeuvre': these markets both are broad and liquid. Especially the London stock market is gigantic in comparison with the other

European stock markets as regards market capitalization and trade in other member states' stock. On the continent, Frankfurt and Paris recently have started to recover some ground in relation to the London trade (see Bröker, 1989; Hawawini and Jacquillat, 1990). Market liquidity, transactions costs, trading mechanisms are important in the further development of secondary market trading in financial assets (Pagano and Roell, 1990; Amihud and Mendelson, 1991). The basis for our ranking of the twelve financial centers, therefore, is the turnover on the securities exchanges and market capitalization in Table 18. It turns out that London is the most prominent European financial center as to (potential) scale economies.

### 5.6 Central Location

Kindleberger supposes the Christaller view probably holds at the extremes. Therefore, he decides Copenhagen and Rome need not apply as the financial center of the EC. But it cannot count much in Europe among London, Paris, Frankfurt, Brussels or Amsterdam. The joining of the EC in the eighties by Greece, Portugal and Spain have resulted in a shift of the central geographical location toward the Mediterranean. The future geographical scope of the EC seems relevant too. Some other European countries, e.g. Austria, Sweden, Finland, Norway, Turkey, Switzerland, are likely to apply for EC membership. Furthermore, even former Comecon-members, as Poland, Czechoslovakia, and Hungary, wish to join the EC in the future. Then, Switzerland, i.e. Zurich, seems to be located most centrally in Europe. However, it is questionable whether or not the argument of a central location is that important. As there is no financial center of any member state geographically at the heart of the EC, Table 18 nowhere shows the highest score. There is no most central location.

An interesting point which is put forward by Kindleberger is the question whether or not the European financial center needs to be in Europe. It could again as well be New York or Tokyo, with London, Paris, Frankfurt, etc. linked to each other by means of their connections with Wall Street or the Nihonbashi-district. However, exchange rate fluctuations and time-zone differences make a European center, rather than one in North America or Asia, more efficient in integrating European financial markets.

### 5.7 Transport

Kindleberger regards transport facilities as an important point. But because it is usually possible to adjust transport to function, it is probably not a very distinctive factor. All centers have public transport facilities and have an airport in their direct surroundings. Therefore, Kindleberger concludes there are few limits among European cities from the perspective of transport. However, huge increases in traffic congestion and environmental degradation have led to increasing differences in the effective use that can be made of transport facilities and in location quality. For example, Athens and Milan have become notorious with respect to polluted air within their inner cities. Traffic in most cities, both private as well as public transport systems, has become overcrowded and congestion is the rule even outside rush-hours. Thus, there seem to be limits as to the transport systems within cities. Especially the level of restraint within the central city area seems relevant as an indication of transport quality. This is because all the cities offer private and public transport modes and, thus, this is no basis for discrimination among the various cities. Newman and Kenworthy (1989) developed an index of traffic restraint in their survey of transport systems in 32 cities in industrialized countries. Unfortunately, not all domestic financial centers in the EC are included in this survey and thus we must rely on our own experience. It turns out, not surprisingly, that traffic restraint in the relatively smaller cities is lowest, while traffic restraint is highest in Milan, Paris, and Brussels. This criterion indicates Copenhagen is the most efficient location.

### 5.8 Multinational Enterprises

Foreign corporations and foreign financial firms are, in the context of European integration, more mobile than 'native' corporations and financial firms. Kindleberger stresses the importance of the establishment of company headquarters within the EC. The establishment of production facilities is of minor importance with respect to the location of financial firms (native or foreign) which aim at servicing the newly established multinational enterprise. Within the EC, headquarters of multinational corporations especially can be found in London, Frankfurt, Brussels and Paris. However, the

number of foreign headquarters and foreign companies within a center is only part of the picture. Another element is the real involvement of foreign firms within the particular country. Foreign direct investment can be regarded as a representative measure of this involvement. In Table 18, our ranking is based on the presence of headquarters of multinational corporations and the stock of the liabilities in foreign direct investment. Relatively most foreign direct investment and headquarters of foreign companies are in the UK. Thus, as to multinationalization, London is the most likely location as an European financial center.

### 5.9 Culture

Strictly national cultural factors act as centrifugal forces in the process towards the establishment of a European financial center. However, there are supranational cultural forces as well which may have a centripetal effect. Firstly, according to Kindleberger, historical evidence predicts that the emergence of a true financial center would be preceded by take-overs, mergers and amalgamations. The years prior to Kindleberger's 1974 publication witnessed few of these occasions. However, the 1980s witnessed a steep increase in the volume of international mergers and acquisitions (Walter and Smith, 1989 and 1990). In European markets, merger and acquisition activity of financial institutions skyrocketed since the mid-1980s. For example, mergers and acquisitions, divestitures, and leveraged buy-outs for European corporations in the years 1985-1988 mounted to a total of \$ 170 billion (Walter and Smith, 1989, page 49). The merger and acquisition environment in Europe is affected to a great extent by EC deregulation measures that are supposed to result in increased competition. Moreover, especially the financial industry is in a process of restructuring. For example, Gardener and Molyneux (1990, pages 209-212) count sixty restructuring activities in European markets by EC headquartered banks in the 1980s. Especially banks from Germany, Spain, Italy and France are involved in this restructuring process. Secondly, Euromarkets joined the domestic money and capital markets of the EC member states effectively. In the 1980s, barriers between European capital markets have gradually been removed and interest rates on financial titles in domestic market segments and comparable titles in the Euromarkets have converged (see Ungerer *et al.*,



1990). In Luxembourg and the UK, Euro-activities are undertaken on a huge scale. German, French, Belgian and Dutch institutions too are operating in these markets. The ranking of criterion 9 in Table 18 is the result of the ranks which are derived from adding the relative positions with respect to merger and acquisition activity in the banking industry and to involvement in the Euromarkets. In this respect, Frankfurt turns out to be the most prominent financial center in the European Community. Kindleberger warns that if a European center emerges as the apex of the world hierarchical system and Europe does not achieve effective integration, sections of the capital market in Europe may even be linked to the center through outside connections as part of the world feeder system.

#### 5.10 Policy

In Kindleberger's opinion, government policy can accelerate or slow-down the emergence of a given city as the primary financial center, but it can probably not change the outcome. Pushing too hard for centralization will create resistance, while strong efforts at decentralization can be overcome by private forces. Policy requires more than governmental agreement, it necessitates real commitment as well. For example, tax policies, the regulatory environment and investing in communication, transport and education facilities seem absolutely necessary. Many cities have pushed themselves as the ideal location for the European central bank and the European financial center. In almost every member state, there is at least one city which aims at becoming the financial center of the EC. Especially London, Frankfurt, Amsterdam, Paris and Luxembourg are active in this respect. As a result of EC directives on trade in financial services and the free entry of financial institutions, there seems to remain little scope for differentiation among the respective financial centers. However, national authorities might use tax policy to attract foreign financial institutions and borrowers and lenders. In this respect, especially Luxembourg and Ireland are very attractive, and, to a lesser extent the Netherlands, Germany, Denmark and the UK. Base withholding taxes for non-residents are relatively high in Belgium, Greece, Italy and Portugal. The ranking of criterion 10 in Table 18 is based on combining the positioning of the domestic center by national authorities and the basic relevant tax rate for non-residents.

In this respect, like criterion 3, there is more than one location that may receive the highest score. Therefore, this criterion does not result in a most likely location for the European financial center. Within the EC, political factors seem to be very relevant in determining which city will be chosen as the headquarters of the European System of Central Banks. The outcome of this decision is not known at the moment of writing.

#### 5.11 Conclusion

Table 18 presents an overview of the present situation with respect to the ten criteria which have been put forward by Kindleberger (1974): currency, central bank, administrative capital, tradition, economies of scale, location, transport, multinational corporations, culture, and policy. The performance of the twelve domestic financial centers of the EC member states with respect to these factors is given on an ordinal scale. The scale ranks from 1 to 5. We used proxy variables to measure Kindleberger's ten forces. It turns out that both London and Frankfurt four times reach the highest possible score (column 11 in Table 18). Frankfurt four times ranks second on the ten criteria, where London only two times is in this position (column 12 in Table 18). It is especially with respect to monetary policy that London performs worse than Frankfurt. Luxembourg three times reaches the highest score and is three times in the second rank as well. Copenhagen shows two times rank 1 and once rank 2. Paris, Amsterdam, Brussels, and Dublin, each show once the highest possible score. But they rank second six, five, four, and two times, respectively. From this exercise, it turns out that Frankfurt and London compete for the supremacy as the international financial center of the European Community.

Of course, not all of Kindleberger's ten forces are of equal importance. For example, the reputation of the central bank, tradition, skill and savings, (potential) economies of scale, and multinationalization can be regarded of greater importance than the administrative capital of a nation being identical with its financial capital or than the geographical location within the EC. However, scores on ordinal scales should not be added. Moreover, it seems quite arbitrary to add weights to the ten forces. Nevertheless, for illustrative purposes, in column 13 we show the total score on

Kindleberger's ten forces. Implicitly, all ten factors are given the same weight. Here, Frankfurt takes the lead, before Paris, Amsterdam, London and Luxembourg. The figures in column 13 are purely illustrative and do not have any real value for it relates to scores on scales that principally cannot be compared.

In all, Kindleberger's (1974) question whether or not EC integration will result in geographical financial centralization cannot be answered in the affirmative yet. Within the EC, London and Frankfurt clearly are the most dominant international financial centers for they score highest on the items that can be regarded as the most relevant ones in the establishment of an international financial center. Paris, Amsterdam, and Luxembourg lag far behind these two centers.

## 6. Conclusion

International financial centers are locations from where a concentration of financial intermediaries services domestic clients as well as non-residents. Cross-currency and cross-border elements play a substantial role in these services. Furthermore, the international financial center effects international payments and matches liquidity preferences all over the globe. The need for face-to-face contact and the potential for economies of scale and scope are the main driving forces behind centralization in international financial intermediation. Both factors almost continuously change. Product differentiation in the financial industry is based to an important degree on personal treatment of the client. This stems from the fact that information is crucial in finance. Centralization is a means to partly overcome informational asymmetries because it reduces information and monitoring costs. Increasing returns to scale, especially those which are external to the firm, turn concentration into a rational strategy. The regulatory environment structures the financial intermediaries' activities and their profitability. However, politics, tradition and history are important as well if it comes to the formation of an international financial center.

International financial centralization in the real world is neither complete nor uniform. Furthermore, it is a dynamic process. The main characteristics of international financial centers are the presence of foreign financial firms, the use of the domestic currency, the quality and the character of regulation, and the volumes of international trade, financial markets, international finance, international payments. An examination of these characteristics reveals that the geography of finance is not as strictly tripolar as generally assumed. The hegemony of London, New York, and Tokyo is overwhelming in the financial markets and this possibly has given the impression that they are predominant in all respects. However, this is not the case with all characteristics. For example, as to currency use, the US dollar by far is the most important international currency. As to international lending, Japan and the UK are predominant. The UK, Germany, and the US host most foreign banks. Regulation of international financial intermediation within the OECD is most liberalized in Luxembourg, Germany, the Netherlands, the US, the UK, Japan, and Switzerland. As to effecting international payments, lack of adequate data hampers drawing a clear picture. Within the EC, London and Frankfurt must be regarded as the main financial centers. Kindleberger's (1974) question on geographical financial concentration within the Community as a result of economic integration cannot be answered in the affirmative. Kindleberger predicted that such concentration would take place, but not before the late 1980s. In the early 1990s, centralization of European finance in one specific location has not yet occurred.

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