United States foreign direct investment in the banking industry

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This article attempts to develop a model to explain the pattern of transnationalization of banking. It concentrates on the factors that determine the geographical pattern of United States foreign direct investment in the banking industry. The hypothesis is advanced that a feasible set of relevant factors is composed of the host country's level of protectionism in banking, United States investment in that country's non-banking industries, the host country market size and the level of competitiveness of its domestic banks. The empirical results lend support to the relevance of the three former variables. Conclusions concerning the impact of the level of competitiveness of the host country's domestic banks on the geographical pattern of United States investment in the banking industry abroad cannot be drawn. A distinct characteristic of the study is the use of principal components to capture the key features of the host country's regulatory framework and produce relevant measures of protectionism.

Introduction and objective

In the past two decades, the expansion of banking across frontiers has been explosive. In the case of United States banking, for instance, Bryant (1987) estimated that, at the end of 1962, the total assets of foreign branches of United States–chartered banks amounted to $4.3 billion; at the end of 1990, according to the Federal Reserve Board, this figure had increased to $314.6 billion. Overall, during the 1980s, international cross-border banking assets roughly doubled.

The rapid growth of banks across national borders has confronted regulators with serious policy questions with respect to both the regulation of domestic institutions and the regulation of entry and operations of foreign banks. The entry of foreign banks is expected to increase competition and the level of services available to host-country clients. At the same time, it has often inspired requests for protection by local banking interests and others who fear foreign domination of that pivotal industry. In developing countries, the overall theme of the concerns voiced by government officials and other interested parties is the impact of foreign bank operations on domestic financial markets. Specific issues include access to local savings by transnational banks (TNBs), the effects of foreign bank presence on the ability to execute monetary and credit policies, and the desire to promote national institutions. The Uruguay Round of Multilateral Trade Negotiations has brought renewed interest to cross-border activities in banking.[1]

As a contribution to the research efforts in that area, this article attempts to develop a model to explain some specific characteristics of the transnationalization of banking. It concentrates on the geographic pattern of United States foreign direct investment (FDI) in the banking industry through a comparative analysis of the amount of such investment across countries.[2] The objective is to provide a theoretical and empirical analysis of those factors which determine the level of attraction of a specific country in relation to others as a host to United States FDI in banking.[3] The hypothesis is advanced that a feasible set of relevant factors is composed of the host country's level of protectionism in banking, United States FDI in that country's non-banking industries, its market size and the level of competitiveness of its domestic banks. The empirical results lend support to the relevance of the three former variables. Conclusions concerning the impact of the level of competitiveness of domestic banks of the host country on the geographical pattern of United States FDI in the banking industry abroad cannot be drawn. A distinct characteristic of the study is the use of principal components to capture the key features of the regulatory framework of a host coun-

[1] Gelb and Sagari (1990) discussed various policy issues and concerns associated with the topic.

[2] The choice of the United States was largely owing to the relatively easier access to relevant data.

[3] This article does not attempt to provide a rationale for the expansion of United States banks abroad, a phenomenon which is taken as given. That issue has been covered extensively in the literature; see, for example, Aliber (1976); Bryant (1987); Giddy (1983); Goldberg and Saunders (1982); Gray and Gray (1981); Grubel (1977); Metais (1979); Walter (1985, 1988).

try and produce relevant measures of protectionism, that is, inequality of competitive opportunities for domestic and foreign banks.

The following section is devoted to the theoretical framework for the analysis. The subsequent section presents the hypotheses concerning those factors that might explain the geographical distribution and the volume of operation of United States foreign banking affiliates. This is followed by a discussion of the empirical analysis and the conclusion.

The applicability of the eclectic paradigm

For purposes of this article, banking is defined (Walter, 1985) as the provision of the following services:

- Domestic- and foreign-currency deposit-taking and lending to Governments, domestic corporations, transnational corporations (TNCs), private individuals and others;

- Specialized forms of lending, including trade financing, ship and aircraft financing, loan syndications and participations;

- Domestic- and foreign-currency trading and dealing; and

- Securities brokerage, underwriting and dealing, private placements, financial advisory services and various other services.

Transnational banks are defined as banks that supply some or all of these services through offices located outside the country in which they are incorporated.

The analysis of the location-specific factors affecting the pattern of United States investment in the banking industry abroad draws upon Gray and Gray (1981) and applications of the eclectic paradigm of international production to transnational banking by Yannopoulos (1983). That paradigm, originally developed by Dunning (1977, 1981), attempts to explain the transnationalization of firms on the basis of location-specific, ownership-specific and internalization advantages. Gray and Gray (1981) and Yannopoulos (1983) applied the conceptual framework provided by this paradigm to elaborate a descriptive analysis of transnational banking. Within that context, the extent to which a bank provides services through offices located outside its home country depends on the comparative location endowments of home and host countries, its ownership advantages with respect to the banks of the host country and on its ability to internalize its ownership advantages.

Ownership-specific advantages are a prerequisite for transnationalization. In fact, location-specific factors cannot, by themselves, explain the transnationalization of banking, since markets for banking services can be supplied alternatively by indigenous rather than by foreign banks. The theory of transnational banking must therefore incorporate the ownership-specific advantages that enable those banks through their internalization to compete successfully with indigenous banks in their own indigenous markets. In this sense, Dunning's theory provides an analytical framework since it allows for consideration of both sets of issues.[4] The next sections discuss this theoretical framework, focusing on those issues that, in the author's opinion, are the most significant determinants of the pattern of United States FDI in the banking industry.[5]

Location-specific factors

Banking is a market-oriented business. Direct and personal contact with both actual and potential clients, wherever they are located, is essential. The specific location characteristics that might determine a country's level of "attraction" as a host for FDI in banking are the host country's foreign bank regulatory framework, the presence of non-banking TNCs and the market size of the host country.[6]

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[4] A related issue of interest in the case of financial services is that of the complementarity rather than the substitutability of trade and FDI. Trade in financial services tends to differ significantly from international trade in goods, in terms of the linkages that exist between the producer and the consumer of the "product". In fact, services trade is more dependent on the existence of a "direct-connect" mechanism that most frequently implies an established presence of the supplier of the product in the country of the consumer. Physical presence in the importing country provides contact for the customer, without which most transactions would be extremely difficult, if not impossible (Walter, 1985). In that context, FDI in financial services can then be seen as fostering rather than substituting for trade in those services.

[5] The approach of Gray and Gray (1981) is somewhat different in the sense that they choose to focus their analysis on internationalization efficiencies and location-specific considerations. There is no discussion of ownership-specific advantages accruing to the established position of a banking firm in the industry. In their work, such advantages are *assumed* to exist.

[6] Yannopoulos (1983) discussed the first two factors and included basically three additional aspects that the author has considered of secondary importance in the context of this analysis, and has therefore omitted. The latter are the desire on the part of some investors to separate currency risk from the political risks associated with the national origin of a currency, the extensive international labour migration that took place in the post-war period and the availability of skilled personnel with expertise in foreign exchange management and in international credit analysis. Gray and Gray (1981), on the other hand, discussed the following three location-specific considerations: the need to preserve established customer accounts, the desire to enter into a growing or high-growth market and the need to ensure access to indigenous supplies of key currencies.

Regulatory framework

Banking is one of the most heavily regulated industries. The often fiduciary nature of the business, its pivotal role in the execution of monetary and credit policies, and its susceptibility to recurring crises are the main factors determining regulatory concerns. The same characteristics that provide for the identification of banking as a very sensitive, public-interest industry make it a fertile ground for protectionism, defined for the purposes of this article as inequality of competitive opportunities for domestic and foreign banks. Since the extent to which foreign banks can operate in a given domestic banking system depends largely on the legal framework pertaining to foreign bank presence in the country concerned, significant differences in the level of protectionism in banking across countries are expected to be relevant to the geographical distribution and volume of operations of United States banking affiliates abroad.[7] In fact, the treatment afforded by host-country regulatory authorities to foreign banking affiliates may well be one of the most crucial issues in the Uruguay Round of Multilateral Trade Negotiations which has, for the first time, included negotiations on a framework for international transactions in services.

Presence of non-banking transnational corporations

The transnationalization of production by non-bank TNCs is a factor applicable to the expansion of all TNBs (Grubel, 1977; Pastre, 1981a and 1981b; UNCTC, 1981; Walter, 1985; Yannopoulos, 1983). That factor has been singled out by previous researchers as particularly relevant for the expansion of United States banks abroad: as United States TNCs grew abroad, United States banks servicing them attempted to match that growth and began to establish their presence in the major financial centres and around the world.

What accounts for this customer-following behaviour? To start with, there is a historical reason related to United States regulation (Frankel, 1980). During the period 1964-1965, in an effort to improve the balance-of-payments position of the country, the Government of the United States implemented a set of programmes restraining capital outflows. As a result of those programmes, it became more difficult for foreigners—including foreign affiliates of United States corporations—to finance their capital requirements in the United States market. United States corporations thus had to

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[7] Gray and Gray (1981) viewed regulation as generating imperfections in product markets, which in turn might give rise to internationalization efficiencies.

rely on foreign sources of funds to finance their investment abroad. To provide their customers with the loans and other banking services required by their overseas operations, United States–chartered banks followed their customers abroad and established foreign affiliates.

Frankel's view of customer-following behaviour, however, is not totally satisfying in the sense that it does not explain earlier United States FDI in banking, or why, after controls were lifted in 1974, United States banks did not retreat to their home country; it also does not explain non–United States FDI in banking. A complementary motive for customer-following behaviour lies in the complexity characterizing financial services (Walter, 1985). This complexity makes it increasingly necessary for banks to be close to the corporate customer in order to tailor their services to particular corporate needs. Thus, decisions can be made faster and transactions done more efficiently than through the traditional correspondent banking links or links from the home office of the bank.

That same aspect can be identified as giving rise to ownership-specific advantages. Through continuous dealing with its customers, a bank acquires a good deal of specific knowledge about the business of its clients, and the two parties may develop an ongoing relationship based on trust that lowers the cost of contracting and the risks of opportunistic behaviour.[8] If the bank has such a quasi-contractual relation with a parent TNC, it enjoys a transactional advantage for supplying the same service to the foreign affiliates of that TNC from its own affiliates abroad.

The intangible-asset hypothesis, which has proved so fruitful in explaining the existence of horizontally integrated manufacturing TNCs, can thus be expanded to analyse the case of banking. In this case, the intangible asset is the ongoing relationship between a bank and its non-banking transnational corporate customers (Caves, 1982). In fact, the ability to draw on the information and personal contacts between the bank's and its non-financial corporate clients' respective parents in their home country at very low marginal cost has been viewed as the main source of competitive advantage that

[8] Along similar lines, Gray and Gray (1981) discussed the advantage of TNBs derived from imperfections in factor markets through the possession of information relevant to the individual corporations and industries they serve. Moreover, information provides opportunities for a TNB to internalize a firm-specific advantage as long as the bank-client relationship remains intact. Preserving established accounts by opening foreign affiliates then becomes the means for protecting that information. Consequently, the location of affiliates of the corporate client becomes a consideration in the process of transnationalization.

the bank's foreign affiliate has in dealing with the firm's affiliate abroad in comparison with the local banks (Grubel, 1977). Clearly, that analysis could lend some rationale to the penetration of banks of all developed and many developing countries into each others' markets, along with their national manufacturing corporations.

Market size

Market size is generally recognized as an important determinant of FDI (UNCTC, 1992). Everything else being constant, a larger market should provide more profit opportunities and, therefore, be more attractive to TNBs than a smaller one. The link is further strengthened if consideration is given to the complementarity between trade and FDI in financial services.

Ownership-specific factors and their internalization

As indicated above, location-specific factors cannot, by themselves, explain the transnationalization of banking, since markets for banking services can be alternatively supplied by indigenous rather than by foreign banks. Ownership-specific factors concern those aspects that would give United States foreign banking affiliates a competitive advantage with respect to domestic banks of a host country in the local market. It is the ability to internalize these factors that ultimately drives transnationalization.[9]

Product differentiation

A major source of competitive advantage of foreign banking affiliates over local banks is the extensive product differentiation in financial services. As Chamberlin (1950) established, product differentiation creates an independent element of monopoly in an industry. Within the framework provided by Dunning's eclectic paradigm, this monopolistic factor can be classified as ownership-specific. Product differentiation can be either apparent or perceived.

Apparent product differentiation

Apparent product differentiation is, in essence, differentiation that is visible. It is associated with the characteristics — basically the quality — of the services provided. The importance of quality is pre-eminent. The ability

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[9] Gray and Gray (1981) discussed three types of internalization incentives derived from imperfections in product markets, imperfections in input markets, and economics of internal operation.

of TNBs operating in markets abroad to provide higher quality services is related to a few key issues:

- First, transnational financial corporations may be able to undertake international transactions more efficiently than a host country's competitor, even in the presence of extensive correspondent relationships. That may result not only in lower costs to the client, but also in greater transactional speed and reliability. As pointed out by Walter (1985), the advantage derived from transactions efficiency may be very strong in countries characterized by poor financial practices involving slow decision and transaction times, high error rates, lack of clarity and heavy bureaucracy.

- Secondly, Walter (1985) also emphasized the existence of product differentiation based on human capital and financial technology. Human capital, in fact, is one of the most important inputs in the production of financial services. Walter argued that TNBs are able to offer career opportunities to their employees superior to those offered by firms that operate only in one country. They are, therefore, able to attract high-quality employees. Those employees, after appropriate professional training and exposure to a rich variety of activities engaged in by a TNB, become one of the most valuable assets of the organization, directly, with respect to the quality of service offered to clients, and indirectly, in terms of product innovation and market information.

    Financial technology encompasses both process and product technologies. Process technology refers to operations and systems, communications and decision-making. It results in improved transactions efficiency, the implications of which have been analysed before. Product technology relates to the introduction of major financial innovations and the supply of specialized services. Superiority in product technology may provide a particularly significant competitive advantage in leading-edge activities, such as project financing, electronic banking and advisory work.

Perceived product differentiation

Yannopoulos (1983) identified perceived differentiation as an additional source of significant competitive performance among banks regarding their ability to sell deposits and buy loans. From the viewpoint of a borrower,

perceived differentiation is related to the probability of loan extensions and renewals according to their needs. From the viewpoint of a depositor, perceived differentiation is associated with the political and default risks investors attach to deposits held in banks with different endowments. For instance, depositors perceive foreign currency deposits at banks of one nationality to be imperfect substitutes for foreign currency deposits at banks of another nationality. Perceived differentiation is determined by factors such as the country of domicile of the parent firm, size of the bank, brand name and reputation, among others.

Proprietary information

In the financial-services industry, the importance of obtaining and treating information efficiently is obvious. An advantage possessed by TNB affiliates over domestic banks is their access to the stock of information of the parent organization's network. This advantage becomes particularly significant when dealing with affiliates of TNCs of the same home country.

The presence of United States non-banking foreign affiliates has already been identified as a locational advantage relevant to the United States presence in foreign banking markets. Given the role of information in the financial services industry, the same factor operates as an ownership advantage, giving a competitive superiority to United States banking affiliates with respect to local banks. Beyond this, TNBs are generally able to secure better information about patterns of loan and fee-based service demands, country conditions and other factors that are crucial to their operations.

Other sources of ownership-specific advantages

Yannopoulos (1983) stressed the role of different national currencies in the international monetary system, mainly in the settlement of international payments, as another source of competitive advantage of United States foreign banking affiliates over local banks. Banks with easy access to vehicle currency funds have a competitive advantage over other banks, because the use of these currencies reduces transaction costs. The predominant role of the United States dollar in international trade and payments provides United States banks with a distinct competitive advantage over other banks. More generally, evidence shows that TNBs from strong currency countries have grown faster than those from other countries(UNCTC, 1981).

Additional sources of competitive advantage are common to all TNCs. These are, basically, economies of scale, geographic diversification, easy access to international credit and money markets, cross-subsidization and adaptability to different social, political and economic environments.

Hypotheses

This section presents hypotheses concerning the determinants of the geographical pattern of United States FDI in the banking industry. These hypotheses are subjected to empirical testing in the section below.

The location-specific factors discussed before within the context of Dunning's eclectic paradigm are obviously the first candidates for inclusion in the analysis. These are the host country level of protectionism in banking, namely, the existence of inequality of competitive opportunities for domestic and foreign banks, the presence of United States non-banking TNCs and the market size of the host country. Everything else being constant, increasing levels of protectionism should increasingly deter United States FDI in the industry. Conversely, *ceteris paribus*, the correlation between United States FDI in banking and both the United States investment position in the non-banking sector, and the market size of the host country, would be expected to be positive.

The discussion above covered also those factors that give United States foreign banking affiliates a competitive advantage with respect to domestic banks of a host country in the local market, that is, the ownership-specific factors. Since the internalization of these ownership-specific advantages provides the driving force to transnationalization, they may well provide additional sources of explanation to the geographic distribution of the investment of TNBs in host countries. In fact, it seems clear that countries in which United States TNBs have stronger competitive advantage over their domestic counterparts should attract higher levels of investment in the industry, everything else being constant. In this sense, the specific characteristics of domestic banks of a country may be considered as an additional factor to be included in the analysis. The hypothesis in this respect is that United States FDI in the banking industry of a host country is negatively correlated with the level of competitiveness of the domestic banks in that country.

Empirical analysis

The test of the hypotheses on the factors affecting the geographical pattern of the United States FDI in the banking industry was conducted on the basis of a sample of 21 countries.[10] Data used for the estimation correspond to the year 1977. The selection of this year was prompted by the ready availability of information on all relevant variables. In particular, the systematic regulatory information required for an assessment of the hypothesis is not available for later years. The methodology used is a cross-section least-squares regression analysis. The dependent variable is United States FDI in the banking industry of those host countries included in the sample. The independent variables, that is the location-specific factors included in the model, are (i) levels of protectionism in banking of the host countries; (ii) United States non-bank FDI in those countries; (iii) their market size; and (iv) the level of competitiveness of their domestic banks.

Definition and measurement of variables

United States investment in the banking industry abroad

The local operations of TNBs in host countries are conducted through branch offices, subsidiaries, affiliated banks and representative offices.[11] At the time when the research was originally carried out, the latest and best available information on United States presence in foreign banking markets was contained in the publication by the United States Department of Commerce (1981), *U.S. Direct Investment Abroad, 1977*. Consequently, this study adopts the definitions laid out by that official source. Specifically, the United States Department of Commerce defines FDI as "the ownership or control, directly or indirectly, by one U.S. person of 10 per cent or more of the voting securities of an incorporated foreign business enterprise or an equivalent interest in an unincorporated foreign business enterprise" (United States Department of Commerce, 1981, p. 2).

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[10] The countries included in the sample are Argentina, Belgium, Canada, Chile, Denmark, Egypt, France, Germany, Greece, Ireland, Israel, Italy, Japan, Republic of Korea, Malaysia, Netherlands, Philippines, Singapore, Switzerland, Thailand and the United Kingdom.

[11] Branches are treated as an integral part of a bank. Subsidiaries are separate corporations wholly or majority-owned by the TNB parent firm. Associates are corporations in which a bank owns less than a majority of the equity. Representative offices are generally small agencies without a separate corporate personality and with limited powers that do not include the capacity to make loans or accept deposits (UNCTC, 1981).

In this article, foreign banking affiliates are those that have over 50 per cent of their total revenues generated by activities classified in the banking industry (Bureau of Economic Analysis (BEA) industry classification code 600). Code 600, "banking", includes those "business enterprises engaged in deposit banking, foreign branches and agencies of United States banks whether or not they accept deposits abroad, United States branches and agencies of foreign banks whether or not they accept deposits in the United States; and bank holding companies, that is, holding companies for which over 50 per cent of their total income is from banks which they hold".[12] The final concept chosen for the present analysis to measure United States presence in foreign banking markets is what the Department of Commerce calls "United States direct investment position in banking (book value)". This measures United States FDI in banking by the value of the equity of the United States parent firms in, and permanent loans to, their foreign banking affiliates. This position may be viewed as the contribution of the parent firms to the total assets of their foreign banking affiliates, or as financing provided by United States parent firms to their foreign banking affiliates in the form of permanent investment, that is, either equity or permanent debt. Examples of permanent investment are funds from parent firms that are used to establish or to acquire the affiliates, or to finance the purchase by the affiliate of property, plant and equipment of the finance affiliates.

Protectionism in banking

As indicated before, for purposes of this article, protectionism in banking has been defined as inequality of competitive opportunities for domestic and foreign banks resulting from the banking regulatory framework of the host country. The most comprehensive information available on the level of protectionism in banking across countries is contained in the *Report to Congress on Foreign Government Treatment of U.S. Commercial Banking*

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[12] "Business enterprises engaged in functions closely related to banking but not accepting deposits, such as non-deposit trust companies, credit agencies, foreign currency exchanges, clearing house associations, money order and travelers' check issuers, among others, are classified in BEA code 610" — finance, except banking (United States Department of Commerce, 1981). Code 610 should thus be included in the dependent variable, as it represents FDI in the financial services industries by non-banks. Unfortunately, because the information reported by the United States Department of Commerce collapses code 610 with, for example, investment in real estate, it has been excluded from the measurement. Indirectly owned foreign bank affiliates are also not reported in the data.

Organizations by the United States Department of the Treasury (1979).[13] The extent to which foreign banks can operate in a given domestic banking system depends primarily on the legal framework and the administrative policies or practices pertaining to foreign bank presence in the country concerned. The *Report* of the United States Department of the Treasury identifies two different dimensions of protectionism: the first refers to regulation concerning the entry of foreign banks into the banking sector of a country; the second refers to the discriminatory treatment of foreign banks once inside the country, namely, operational constraints.

Restrictions on foreign-bank entry range from prohibition of any foreign bank presence to admission of foreign banks in any institutional form they may prefer. Measurement of the level of barriers to entry for each specific country was approached through the construction of two dummy variables, D1 and D2, according to the following: D1 takes the value 1, if there exist limits in the acquisition of equity interests in indigenous banks equal to x per cent of the total equity of the bank (where x is larger than 0 and smaller than 100), and 0 otherwise; D2 takes the value 1, if the establishment of foreign-bank branches is prohibited, and 0 otherwise.

As concerns operational constraints, the data contained in the 1979 *Report* suggest a classification of these constraints in three types: intentional constraints, accidental constraints and preferential treatment measures (details are contained in table 1).[14] For measurement purposes, one dummy

[13] A very interesting characteristic of the *Report* is that the authors attempted to identify the actual situation faced by United States banks abroad as opposed to simply reporting the nominal laws and regulations in each country. In fact, as pointed out by Tschoegl (1981), actual legislation prohibiting a particular practice may be lacking, yet each foreign bank entering a country may have to subscribe to an unpublicized "gentlemen's agreement" with the local central bank, which may be as restrictive. On the other hand, regulations may be promulgated but not fully enforced. Consequently, to overcome the problem of identifying the real situation faced by the United States banks abroad, the authors of the *Report* resorted to the assessment of United States diplomatic posts throughout the world and United States banks with overseas operations. The Department of the Treasury has subsequently issued various updates of the original 1979 *Report*. The 1979 *Report* still provides, however, the best compilation in terms of coverage and easy reference for research. It is on that basis that these data were chosen for the analysis.

[14] Some Governments have deliberately reduced competitive inequities affecting foreign banking affiliates through a flexible application of regulatory requirements or by granting them privileges not extended to domestic banks. In some other cases, measures applied equally to both groups of competitors have a favourable impact on foreign banking affiliates because of the nature of their operations. For additional discussion, see Gelb and Sagari (1990).

variable has been constructed for each one of the subclassifications of the operational constraints contained in table 1. The dummy variable takes the value 1 whenever the corresponding regulatory features have been observed, and 0 otherwise.

The empirical tests were run using different linear combinations of the dummy variables representing each of the two types of barriers to entry and each of the operational constraints, where weights are the result of the application of principal component analysis to the regulatory framework matrix "R". Matrix R is such that each of its columns corresponds to one of the dummy variables constructed to account for the various banking regulatory features, namely, D1, D2, IOC1 to IOC7, AOC1 to AOC4, and PT1 to PT4.[15]

Investment position in non-banking industries abroad

This factor is measured by the variable NBDI, defined as the book value of total United States FDI in a specific country minus the book value of its FDI in banking.

Market size

This factor is measured by the dollar value of the gross national product (DGNP) of each country, computed as the local currency value of GNP times the corresponding average exchange rate (XR) for 1977. Par rates or market rates have been used according to the preference indicated in the *International Financial Statistics* published by the International Monetary Fund.

Level of competitiveness

Three alternative measures have been used to capture the level of competitiveness of host-country domestic banks:

- A measure of bank efficiency, namely the ratio of banking output to number of employees. The banking literature provides various suggestions concerning the measurement of banking output. Benston and Smith (1976) and Longbrake (1974) have used the average number of deposit and loan accounts serviced per

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[15] Detailed comments on the principal component procedure and its results are available from the author upon request.

Table 1. Operational constraints[a]

A. Intentional operational constraints include:

- Regulations related to private sources of funds (IOC1)

- Regulations affecting the number or location of foreign banking affiliates (FBAs) (IOC2)

- Regulations affecting access of FBAs to central bank discount facilities (IOC3)

- Restrictions on the services which FBAs can offer, other than those related to deposit-taking (IOC4)

- Restrictions related to the loan and security portfolio (IOC5)

- Tax-related regulations (IOC6)

- Other intentional operational constraints (IOC7)

B. Accidental operational constraints include:

- Limits to the volume of assets, liabilities or size of loans to individual borrowers (AOC1)

- Credit ceilings imposed for purposes of domestic monetary policy (AOC2)

- Other restrictions resulting from general economic and balance-of-payments policies (AOC3)

- Other accidental operational constraints (AOC4)

C. Preferential treatment measures include:

- Regulations concerning reserve requirements on deposits or funding in the interbank market (PT1)

- Preferential measures related to directed lending (PT2)

- Access to swap facilities not available to domestic banks (PT3)

- Other preferential measures (PT4)

[a] The variable name used in the empirical analysis is in parentheses.

month as their unit of output to measure customer-related services, plus the average size of the account to measure the activity per customer. Alternative measures of output used in previous research have been, for instance, the sum of the number of accounts, dollars of deposits, loans, total assets, or total dollars of deposits and loans (see, for example, Benston, Hanweck and Humphrey, 1982). For this article, the only information readily available associated to bank output across countries relates to the dollar amount of loans and deposits. Banking output has thus been measured by total dollars of deposits plus loans.[16]

As regards the number of employees in banking, *The Banker* (June 1983) published such figures, per bank, for the largest 500 banks in the world. It also published, for the same banks, the dollar value of assets less contra accounts and the dollar value of deposits. The use of data corresponding to the largest 500 banks in the world implicitly assumes that, when looking at local banks in foreign countries, United States banks take as their main competitors those local banks that are in their "league", namely, banks included in the largest 500 list. For purposes of this analysis, then, one first proxy for the level of competitiveness of the domestic banks of each host country is the weighted average ratio of "assets less contra accounts plus deposits" to "number of employees", for the local banks included in the largest 500 list (WAP). Weights for this average are given by the size of each bank's output.

- The number of banks of each country included in the largest 500 list (B500).

- The ratio of B500 to EAP — the economically active population. This ratio (PB500) has been used to account for the impact of country-size effects on the number of banks in the 500 list (B500).[17]

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[16] A similar approach was used by Sagari (1989) within an international trade context.

[17] For the last two measures, the implicit assumption is that the presence of domestic banks of international stature is a good indicator of the level of competitiveness of a country in banking.

Estimation[18]

Empirical specifications and methodology

Estimation of the model was done through cross-section least-squares regression analysis. The dependent variable in the empirical specifications is the logarithm of the book value of United States FDI in banking (LFDI). The book value of the FDI in banking is bounded below by zero and, therefore, assumptions on the normality of the residuals cannot be satisfied. The logarithmic functional form is adopted to deal with this problem.

The independent variables are: (i) the logarithm of the United States FDI in the non-banking sector abroad; (ii) the logarithm of the market size of the host country; (iii) the logarithm of the level of competitiveness of the host-country domestic banks; and (iv) the level of protectionism in banking.

As indicated before, the proxy measures for the level of protectionism are the principal components extracted from the regulatory matrix. Only those principal components that might, theoretically, prove of relevance in explaining the geographic pattern of the United States FDI in banking have been included in the final specification.[19] On the basis of the interpretation

[18] Data on FDI and NBDI were obtained from the United States Department of Commerce (1981) and the *Survey of Current Business* (1978). Data on banking regulation were obtained from the United States Department of the Treasury (1979). Data on GNP were obtained from the International Monetary Fund (IMF), *International Financial Statistics*, various issues. Data on XR were obtained from IMF and UNESCO, *Statistical Yearbook*, various issues. Data on EAP were obtained from various issues of the *Yearbook of Labour Statistics* of the International Labour Office, and *FAO Production Yearbook* (1978). Data on WAP and B500 were obtained from *The Banker* (1983).

The sample excludes all those countries that prohibit any foreign banking presence other than in the form of a representative office. Also excluded are countries for which information available on the United States investment in their domestic banking sector corresponds to "grandfathered situations" (countries in which prohibition of foreign bank entry came into existence after the actual entry of some foreign banks into the sector, and where existing foreign banks were allowed to continue operations).

[19] In fact, in the regression context, the choice of principal components to include in the model should be guided by their correlation with the variable to be explained, that is, the dependent variable. Conversely, when the objective of the analysis is to explain as much of the total variation of the original matrix as possible the components to be chosen are those with the largest variances (Mardia, Kent and Bibby, 1980). The interpretation of the principal components is based on the signs and magnitudes of the eigenvectors associated to each of the variables of the matrix R.

of the contents of the principal components, the regression analysis incorporates two principal components: principal components 2 and 5.[20]

Principal component 2 is interpreted as capturing a general degree of intent in the discrimination against foreign banking affiliates. It signals the general attitude of the authorities of a host country towards the presence of TNBs. Higher values for the component indicate higher levels of opposition against foreign banking presence. The coefficient associated with this variable is therefore expected to be negative.

Principal component 5 is a bipolar dimension comparing protectionism implemented through barriers to entry and protectionism observed in the form of constraints that either explicitly or unintendedly have a negative impact on the operations of TNBs once inside a country. By construction, a higher value of this component indicates a relatively heavier reliance of the authorities of the host country on the first type of protectionism. As indicated in the 1979 *Report*, obtaining permission to establish operations in a given country is more often a problem than conducting successful operations once entry has been accomplished for banks. Operating constraints do not seem to be an overriding concern for these banks. Their typical strategy is to assess the environment in which they must operate; if business opportunities still exist, they deal with the restrictions. In fact, in a survey conducted for purposes of the *Report*, many bankers indicated a desire to enter certain countries in which foreign-bank presence was prohibited or severely limited, even though operations of established foreign banks were subject to substantial restraints. Based on these comments, the coefficient associated to this component is expected, a priori, to be negative.

All empirical specifications include also an intercept term interpreted as an average of omitted variables and an error term assumed to be uncorrelated with the independent variables included in the model.

Table 2 shows the sample used in the estimation. Also reported there are the values for United States FDI in the banking and non-banking industries, respectively, for each of the countries included in the sample, the dollar value of their GNP, the data corresponding to the different proxies for

[20] The interpretation of the remaining principal components indicates that they focus on very specific features of foreign bank regulation, which might adversely affect the intended generality of the study, or imply comparisons between features which, on the basis of the scarce literature on the issue under study, seem of secondary relevance. These components have therefore been omitted from this analysis, except for some exploratory trials using stepwise regression analysis.

the level of competitiveness of their domestic banks and the values of the two principal components.

The methodology used for the estimation of each specification was ordinary least-squares regression analysis. In all cases, residuals were analysed to check for the constancy of variance and normality.

The presence of heteroscedasticity was checked through the study of the absolute value of the residuals resulting from the original estimation. Heteroscedasticity was corrected through a "Glejser adjustment" (Glejser, 1969). That method implies the application of weighted least-squares (WLS) regression analysis, using as a weight variable for each specification the fitted absolute value of the residuals. That value results from an ordinary least-squares regression run on variables with significant explanatory power. Normality of the residuals was studied by examining the histogram of both their actual and standardized values.

Results

Table 3 shows the ordinary least-squares regression results corresponding to specifications including principal components 2 and 5 as proxies for the level of protectionism in banking.

Heteroscedasticity was tested for following Glejser (1969), that is, regressing the absolute value of the residuals corresponding to each of the model specifications in table 3 on different functions of explanatory variables a priori thought to be associated with the variance of the residuals. Table 4 shows the most significant results obtained from this analysis. The corresponding fitted values were used as weight variables in the weighted least squares (WLS) regressions yielding the final heteroscedasticity-adjusted estimations. These are reported in table 5.

In general, the fitness of the models, both in terms of the adjusted R^2 and the F-statistics, is very good. In all cases the distribution of the residuals is at least approximately normal. The resulting parameter estimates are therefore both least-squares and maximum likelihood estimators.

Before commenting in detail on these results, it seems worthwhile to review briefly the expectations as to the signs of the coefficients of the explanatory variables drawn from the theoretical framework developed earlier.

Table 2. Sample and data

Country	FDI	NBDI	DGNP	WAP	B500	PB500	PRIN2	PRIN5
Argentina	60	1 202	41 876	0.63	2	0.20	-0.66	-0.37
Belgium	175	4 437	79 740	6.10	9	2.22	-2.09	-1.86
Canada	117	34 935	196 547	3.21	10	0.94	0.79	3.74
Chile	2	157	15 282	1.37	2	0.58	-0.68	0.61
Denmark	25	743	45 903	2.02	4	1.55	-0.37	0.22
Egypt	19	625	22 088	2.96	5	0.53	1.20	-1.86
France	122	6 368	384 973	3.90	18	0.79	-1.89	1.39
Germany	509	10 680	517 531	10.49	44	1.69	-0.89	0.13
Greece	26	282	26 987	1.79	2	0.51	0.84	-0.92
Ireland	6	980	9 516	1.63	2	1.75	0.73	1.43
Israel	26	227	13 800	2.99	4	3.31	-1.08	-0.55
Italy	119	3 067	214 319	3.42	28	1.30	-2.19	1.03
Japan	142	4 451	689 536	9.55	61	1.12	1.37	-0.99
Korea, Rep. of	17	378	35 744	1.76	8	0.60	1.08	0.31
Malaysia	8	456	12 629	2.36	2	0.14	1.77	0.67
Netherlands	94	4 440	106 723	3.57	6	1.18	-0.36	-0.76
Philippines	93	744	20 828	1.21	1	0.07	1.77	-0.15
Singapore	49	467	6 450	3.11	3	3.19	1.77	-0.15
Switzerland	343	6 839	63 200	6.24	14	4.77	-0.07	-1.47
Thailand	27	210	19 168	0.68	3	0.15	0.22	0.37
United Kingdom	436	16 273	251 387	33.56	20	0.76	0.86	-1.47

Key:

FDI: United States FDI in banking, in millions of dollars.

NBDI: United States total FDI minus United States FDI in banking, in millions of dollars.

DGNP: Value of GNP, in millions of dollars.

WAP: Weighted average productivity. Weighted average ratio of "assets less contra accounts plus deposits" in millions of dollars to "number of employees" for local banks of each country in the largest 500 list. Weights are given by the amount of "assets less contra accounts plus deposits" for each bank.

B500: Number of local banks on the largest 500 list.

PB500: Ratio of the number of local banks on the largest 500 list to the thousands of workers in the economically active population.

PRIN2: Principal component 2. General degree of intent in the discrimination against TNBs.

PRIN5: Principal component 5. Bipolar dimension comparing protectionism implemented through barriers to entry, and protectionism observed in the form of operational constraints that have a negative impact on operations of TNBs once inside the country.

Table 3. Ordinary least-squares regression results. Dependent variable: LFDI[a]

Model	Constant	Independent variables					Adj.-R²	F-Stat.
		LNBDI	LDGNP	LWAP	PRIN2	PRIN5		
1	-3.346	0.704	0.216	-0.191	-0.003	-0.417		
	(-1.76)[b]	(3.11)[c]	(0.91)	(-0.59)	(-0.02)	(-2.56)[c]	0.71	10.70[c]
		LNBDI	LDNGP	LB500	PRIN2	PRIN5	0.70	10.39[c]
2	-2.635	0.638	0.173	0.019	-0.021	-0.362		
	(-1.02)	(3.20)[c]	(0.52)	(0.06)	(-0.14)	(-2.59)[c]		
		LNBDI	LDGNP	LPB500	PRIN2	PRIN5	0.71	10.66[c]
3	-3.378	0.685	0.145	-0.104	-0.052	-0.379		
	(-1.70)	(3.19)[c]	(0.59)	(-0.54)	(-0.32)	(-2.75)[c]		

[a] t-statistics in parentheses.
[b] Significance at the 10 per cent level.
[c] Significance at the 5 per cent level.

Within that framework, it had been hypothesized that the pattern of geographical distribution and volume of operations of United States foreign banking affiliates would depend on a variety of factors. The empirical analysis considers the level of protectionism in banking; the amount of United States FDI in non-banking industries; the market size of the host country; and the level of competitiveness of its domestic banks.

Negative coefficients are expected in the variables proxying protectionism in banking. Also a negative sign should be observed in the estimate associated with the level of competitiveness of the host-country domestic banks. Conversely, positive estimates would be expected for both United States FDI in non-banking industries and the market size of the host country.

Actual final parameter estimates concur largely with the theoretical expectations. The parameter for United States FDI in non-banking industries

Table 4. Glejser's heteroscedasticity analysis[a]

Dependent variable	Constant	Adj-R²	Independent variable[b]	F-Stat.
		ILNBDI		
Absolute value residuals				
from model 1 in table 2	-0.389	6.382	0.18	5.49[c]
	(-0.98)	(2.34)[c]		
		ILNBDI		
Absolute value residuals				
from model 2 in table 2	-0.413	6.629	0.20	6.13[c]
	(-1.06)	(2.48)[c]		
		INBDI2		
Absolute value residuals				
from model 3 in table 2	0.413	19346.1	0.19	5.83[c]
	(4.46)[c]	(2.41)[c]		

[a] t-statistics in parentheses.
[b] Independent variables:
    ILNBDI = 1/1n NBDI.
    INBDI2 = 1/(NBDI)^2.
[c] Significant at the 5 per cent level.

is consistently positive, as expected, and significant at the 5 per cent level in all models.

These results are consistent with those in Fieleke (1977). As reported there, his interviews with United States bankers both in the United States and in branches abroad suggested that the principal advantage United States banks operating in foreign countries have over their domestic competitors is their detailed knowledge of how to service the banking requirements of the United States firms located in those countries. The results are also consistent with the findings of Nigh, Cho and Krishnan (1986), which show a positive impact of total United States FDI on United States branch-banking involvement in foreign companies. Within this framework, foreign investment in the banking industry can be interpreted as an effort to profit further from their original investment in learning the banking requirements of their customers in the United States and in designing and marketing ways of servicing those requirements.

Table 5. Weighted least-squares regression results. Dependent variable: LFDI[a]

Model	Weight variable	Constant	Independent variables					Adj.-R²	F-Stat.
1	Fitted value		LNBDI	LDGNP	LWAP	PRIN2	PRIN5		
	of res. on	-2.949	0.630	0.213	-0.032	-0.085	-0.353	0.77	14.42[c]
	ILNBDI	(-1.65)	(3.53)[c]	(1.18)	(-0.12)	(-0.72)	(-2.78)[c]		
2	Fitted value		LNBDI	LDGNP	LB500	PRIN2	PRIN5	0.78	14.81[c]
	of res. on	-1.762	0.620	0.0081	0.161	-0.09	-0.324		
	ILNBDI	-(0.77)	(4.34)[c]	(0.29)	(0.55)	(-0.82)	(3.92)[c]		
3	Fitted value		LNBDI	LDGNP	LPB500	PRIN2	PRIN5	0.72	11.44[c]
	of res. on	-3.489	0.647	0.171	-0.120	-0.087	-0.349		
	INBDI2	(-1.93)[b]	(3.35)[c]	(0.86)	(-0.70)	(-0.65)	(-3.11)[c]		

[a] t-statistics in parentheses.
[b] Significant at the 10 per cent level.
[c] Significant at the 5 per cent level.

The parameter associated with the market-size variable is always positive as expected, but insignificant. The correlation between adjusted LDGNP and LNBDI is very high (around 0.78). It is therefore possible that the insignificance of the coefficient of the market-size variable is mostly a result of this collinearity rather than an indication of the irrelevance of the variable.[21]

The parameter estimates associated with the proxies for the level of competitiveness of the domestic banks of the host country behave in a mixed fashion. For the weighted average productivity (LWAP) and the per capita number of banks in the world's largest 500 list (LPB500), the estimators are negative. For the variable number of banks in this list (LB500), the estimator is positive.

As indicated before, in principle it would be expected that relatively high levels of competitiveness of the host country domestic banks are associated, *ceteris paribus*, with relatively low levels of United States FDI in the banking industry of that country. If it is true that the measures used in this study are adequate indicators of the level of competitiveness of a country in

[21] Fieleke (1977) reported similar results.

banking, those measures should show a negative correlation with the level of FDI in the industry.

The variables LWAP and LPB500 behave according to expectations. Conversely, the variable LB500 presents a positive parameter estimate. In the author's opinion, however, this contradictory result strongly suggests that the chosen variable does not adequately measure the level of competitiveness of a country in banking. Moreover, the variable might be more reasonably associated with the size of the banking industry of a host country or, more generally, with the market size of the host country. In fact, the correlation between the latter and LB500 is very high (around 0.76). On this basis, the economic meaning of a positive estimate for the number of banks in the 500 largest list becomes intuitively clear. Estimates are, in all cases, statistically insignificant, which would suggest either that the level of competitiveness of the host-country domestic banks is not a crucial determinant of the geographical distribution of United States TNBs, or that the adopted proxies do not capture that factor adequately. Unfortunately, as discussed before, data limitations made the use of any better measures impossible.

Finally, the proxies for the level of protectionism, namely principal components 2 and 5, have the expected sign in all models. Principal component 2 is always insignificant; principal component 5 is significant at the 5 per cent level.

To explore further the impact of regulation on the level of United States FDI in banking, another set of estimations was obtained on the basis of a modified version of model 1 in table 3. This modified model excludes principal components 2 and 5 as explanatory variables. The absolute value of the heteroscedasticity-adjusted residuals resulting from this estimation was then analysed according to the following. First, for each of the original regulatory variables, the countries in the sample were classified in two groups: a group in which the relevant regulatory feature is observed, that is, the associated dummy variable takes the values of 1; and a group in which the relevant regulatory variable feature is not observed, that is, the associated dummy variable takes the value of 0. Then, the equality of the means of the absolute value of the adjusted residuals (for each of the two groups) was tested through a t-statistic.

The means of the adjusted residuals are statistically significantly different only for those groupings of observations based on variables D2, AOC1, AOC2 and AOC3 (table 6). In principle, those results appear to suggest the irrelevance of most host-country foreign-bank regulatory features as a loca-

tion-specific determinant of United States FDI in that industry. However, their comparison with those results reported in table 5 provides an interesting insight to this issue.

As discussed earlier, this article uses principal component analysis as a technique to summarize the data in the original regulatory matrix. Moreover, each of the principal components extracted from that matrix is a linear combination of the individual variables composing the matrix. Consequently, each principal component allows by itself for the consideration of the impact on United States FDI in banking of each and all of the regulatory features weighted by the elements of the corresponding eigenvector. Thus, any particular principal component provides a comprehensive synthesis of the regulatory environment. Conversely, the individual regulatory variables are very specific and limited in their contents. Joint consideration of the t-statistics in table 6 and the statistical significance of principal component 5 in table 5, stress the ability of the principal component to capture, in one single measure, the set of regulatory features that significantly affect United States FDI decisions in banking. In that sense, the use of that component as a proxy for the level of protectionism in banking is further substantiated.

Conclusions

The above results indicate a satisfactory performance of the location factors used in this analysis as determinants of the geographical pattern of United States foreign-banking affiliates. The fit of the models, both in terms of adjusted R^2 and F-statistics, is very good. The residuals present all the desirable characteristics. The sign and significance of the independent variables are also, in general, reasonably satisfactory. An exception must be made concerning the variables proxying the level of competitiveness of the domestic banks of the host country. The poor performance of this variable is likely a result of the severe difficulties involved in its measurement,[22] although it could also be interpreted, in the context of the debate over the eclectic model, as suggesting that firm-specific advantages are not always required as a "compensating advantage" for transnational banks. A similar finding was reported in the historical studies of Jones (1990).

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[22] A desirable next step in research in this area is the development of new proxies for this variable. This might improve the explanatory power of models of the type examined here, and consequently enhance their usefulness for policy suggestions.

Table 6. Tests of equality of means

Grouping variable	t-statistics
D1	0.37
D2	-1.88[a]
IOC1	-0.07
IOC2	-1.57
IOC3	1.08
IOC4	-0.82
IOC5	0.26
IOC6	0.88
IOC7	-1.04
AOC1	2.12[b]
AOC2	1.94[a]
AOC3	1.50[a]
AOC4	0.67
PT1	1.40
PT2	1.11
PT3	1.11
PT4	0.64

[a] Significant at the 10 per cent level.
[b] Significant at the 5 per cent level.

An aspect to be stressed is the usefulness of the introduction of principal components as indicators of different characteristics of the foreign bank regulatory framework. This aspect can be regarded, in fact, as one of the most distinct and interesting features of this article. Since the data analysed in this article were published, the volume and scope of transnational bank activities have varied enormously. An interesting question is whether the findings reported here are still relevant to TNBs. While there is no basis a priori for questioning the importance of the three major variables found to be significant, further research on the determinants of banking FDI would certainly be useful.

From a policy perspective, this article indicates that, in the short- and medium-term, the *one* area on which Governments may act if they desire to attract TNBs is the regulatory framework and, in particular, those aspects having to do specifically with foreign-bank entry in all modalities. The key issue for host countries in this connection, however, has to do with the expected impact of foreign bank presence on national welfare.

One aspect of frequent concern for domestic banking authorities refers to the impact of foreign-bank presence on national monetary policy, exchange rates, capital inflows and outflows, and investment patterns.[23] Another issue of concern lies on the implications of foreign-bank presence for the domestic financial industry. Some Governments fear the effects of the competition that foreign entry may bring; others seem to be anxious to attract foreign banks precisely so as to increase domestic competition and deepen the local financial markets through the establishment of new types of institutions, or the introduction of new financial instruments (Tschoegl, 1981; Gelb and Sagari, 1990; UNCTC, 1981).

In countries with financial systems dominated by public-sector institutions, allowing foreign-bank entry may amount, in effect, to breaking a Government monopoly. Conversely, the potential benefits of foreign-bank entry may be limited by their frequent practice of concentrating their business in special niches or segments of the market. This is more likely to happen in countries with unsophisticated financial systems. Most TNBs do not develop an extensive branch network and are more likely to provide services to large urban clients than to small farmers, for example. However, and even though small savers and borrowers may be left captive of the indigenous financial institutions, practical evidence shows that "the threat of foreign competition, even if only for a limited sphere of business, may cause domestic intermediaries to improve their services and products." (Gelb and Sagari, 1990, p. 50). Another important contribution of foreign banks is on-the-job management training. In some countries, in the longer run, this infusion of skills may be the most important spin-off from the entry of foreign banks.

Frequently, the reluctance to allow foreign-bank presence is a result of the perceived need to protect financially fragile indigenous institutions. But entry of TNBs may provide an excellent opportunity to restructure and "clean" the domestic system. At other times, when Governments use the financial system to fulfill non-economic objectives (for example, distribution of subsidies through below market-rate financing, or concessional financing of the Government through forced investments), their resistance to allow foreign-bank entry stems from their recognition that it will be more difficult to persuade foreign institutions to follow those guidelines.

An analysis of some of those issues within a partial equilibrium framework is contained in Allen and Giddy (1979) and Blejer and Sagari (1987). However, a thorough understanding of the welfare implications of foreign

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[23] See, for instance, Pecchioli (1983), Tschoegl (1981) and Walter (1985).

presence in the banking industry of a country should undoubtedly be framed in a general equilibrium context that captures the interaction between financial and real sectors of the economy. Moreover, the analysis should be dynamic and consideration should be given to the path of adjustment of the financial sector and the economy in general to foreign banking presence.

Evidently, the task is very complex as recommendations need to be tailored to national peculiarities. Policy makers, however, are faced daily with decisions that may have an impact on the potential of their countries to attract foreign banking presence. This article has identified some of the critical factors determining that potential. To this extent, it should provide some useful guidelines concerning foreign-bank response to different policy measures and attenuate the complexity of the decision-making process. ■

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