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What factors cause foreign banks to remain in London?

Andrew Clare[**]
Cass Business School

Mohamed Azzim Gulamhussen
University Institute of Lisbon

Carlos Pinheiro
Caixa Geral de Depósitos

Abstract

The banking literature focuses extensively on the phenomenon of bank entry and pays less attention to the factors driving the continuation of banking activities in foreign markets. In this paper, we analyze this important, but overlooked, issue by constructing a unique database of foreign banks that continue operating and those that have withdrawn from arguably the world's most international banking center – London. This new data set comprises information on 408 offices from 77 countries spanning the period from 1945 to 1999, giving us 4,643 observations, of which 2,795 represent offices that continue operating and 1,848 that withdrew from London during this period. Our empirical work shows that the continuation of international banking activity in London is positively related to: the initial organizational form; the experience in the local market; and the size of local operations. We also find that continuation of banking activities is negatively related to the presence of domestic competitors and to the geographical distance of the home country to London. We also find that higher global economic activity increases the likelihood of international banking operations continuing in London; however, the more volatile the global economic environment, the greater the prospect of a cessation of this activity.

Keywords: International investment; financial institutions and services

JEL Codes: F21, G20

[**] Corresponding address: Andrew Clare, Cass Business School, 106, Bunhill Row, London. Phone +44 (0) 20 7040 5169, Fax +44 (0) 20 7040 8699, Email a.clare@city.ac.uk

1. Introduction

Many researchers have studied the phenomenon of foreign bank entry (see, amongst many others, Manlagñit, 2011); however, the factors determining the continuation of these operations have received much less attention. Perhaps one of the main reasons why this phenomenon has received less attention is the unavailability of suitable data on the incidence of international bank withdrawals (Hryckiewicz and Kowalewski, 2011). The main contribution of this paper is to fill this important gap in the literature. We do this by assembling a new bank dataset on the continuations and withdrawals of foreign banks present in different organizational forms in, arguably, the world's most international banking center – London.[1] Our novel dataset consists of a rich set of information on 408 foreign banks from 77 countries spanning the period from 1945 to 1999, providing an unbalanced panel of 4,643 observations; 2,795 of these represent survivals and 1,848 represent withdrawals from London.[2]

Multinational banks are special corporate entities. They differ from other corporate enterprises because of the informational intensity of their products (Gray and Gray, 1981). The costs of transacting largely non-tradable information-intensive products tends to inhibit banks from entering into licensing and franchising arrangements, that is, banks tend to appropriate greater rents by internalizing their information flows across borders (Grubel, 1977).

The extensive literature on bank entry places significant emphasis on the informational processing advantages that banks derive from their domestic customers. The empirical evidence largely supports this follow-the-customer hypothesis, that is, the informational advantage with respect to their domestic customers drives banks to set up international banking activities where their home customers are present (see, amongst many others, Hultman and McGee, 1989; Yamori, 1998). There are a few studies, however, that do not find support for this hypothesis. For example, Seth and Quijano (1993) did not find an empirically significant relationship between loans booked by U.S. operations of Japanese banks and loans contracted by Japanese manufacturing firms. Seth et al. (1998) find that foreign banks in Canada, Japan, the Netherlands and the U.K. lend more to local customers than to domestic customers. Moreover, Focarelli and

[1] As well as being a leading international banking center with a rich history of international banking, London is also suitable for our purposes because regulatory authorities have treated both domestic and overseas banks impartially for a number of years (Goldberg and Saunders, 1980).

[2] We do not include in our study consortium banks due to the different motivations surrounding their establishment and closure.

Pozzolo (2005) and Goldberg and Johnson(1990) find that banks not only follow domestic customers but also seek new customers in markets that offer growth opportunities. In other words, banks possess other strengths that enable them to compete with local banks, aside from the informational advantage they may have with respect to their own domestic customers. These strengths comprise intangible technical, market-making and/or managerial skills that take the form of public goods and can be applied to new markets at very low marginal cost and high marginal benefit equivalent to the size of the market (Williams, 1997). These intangibles are particularly useful in providing deposit-lending services, financial advisory services, participation in the syndicated loan market, portfolio management services, the management of Eurobond issues and complex financial instruments to global customers demanded at financial centers (Ursacki and Vertinsky, 1992). Unlike information flows on bank-customer relationships that are independent of the presence of other banks, the demand for these services is enhanced by proximity to other multinational banks operating in financial centers (Choi et al., 1986; Kindleberger, 1974).

Despite possessing significant strengths to service local and global customers at financial centers, foreign banks may still have to overcome other barriers associated with: local business practices; societal and cultural aspects; the functioning of the monetary and financial markets; local supervisory and regulatory entities; and coping with volatile demand conditions over time. The operation of offices over time reduces these barriers to the extent that local experience becomes a key driver of future expansion (Johanson and Vahlne, 1997). Ball and Tschoegl (1982) and Qian and Delios (2008) find that multinational banks internalize their advantages through nascent operations that over time act as footholds in exploiting different growth opportunities in overseas markets.

The possession of internalization strengths and experience with doing business in the local market can lead banks to expand to a point of holding a diversified portfolio of both upstream and downstream activities, signaling asset and service quality demanded by customers seeking international banking relationships (Berlin, 1987). A well-diversified portfolio of activities also enables banks to deal with changing demand conditions, as long as the costs of switching between different activities (opening and closing desks or hiring and firing staff) are not too high.

A less-diversified portfolio may lead banks to specialize in offering tailor-made financial packages, leaving them vulnerable to changing demand conditions (Buckley and Casson, 1998).

Banks originating from some countries may be endowed with privileged conditions at home, which may make them better equipped to continue their operations abroad. In early studies of the benefits of internalizing home-country advantages, Fisher and Molyneux (1996) and Grosse and Goldberg (1991) find that geographic distance discouraged foreign entrants in both the U.S. and the U.K. Of the several other home-country-related advantages, in particular, regulatory quality has been found to have a significant influence on bank entry because it appeals to international customers due to the potential safety net that their banks can access in difficult conditions (see above). The presence of domestic competitors, however, has hindered expansion in the foreign market (Ball and Tschoegl, 1982).

Our findings show that the continuation of overseas banking operations in London is influenced by bank characteristics, domestic market-related advantages and global market conditions. Specifically, we find that continuation is positively related to the initial organizational form, the experience and size of the local operations and global economic demand; furthermore, it is negatively related to geographic distance and the presence of domestic competitors in the foreign market. We also find that the volatility in global economic demand has a positive influence on the chances of continuation when interacted with the size of the overseas operation. The remainder of this paper is organized as follows: in Section 2, we define and relate our main hypotheses to previous research. Section 3 presents our methodology, the dataset and the variables used to estimate the model. In Section 4, we present and discuss our results for the decision to continue in London or, conversely, withdrew from London. Finally, in Section 5, we summarize the main conclusions of our study.

2. Defining the hypotheses

Based on the preceding discussion, it is clear that a variety of factors probably influence the continuation or otherwise withdrawal of overseas banks. In this section of the paper, we define the hypotheses that we address and test in our empirical work.

First, multinational banks internalize their ownership advantages across borders in different ways (see also Nachum, 2003). The different internalization advantages are likely to figure in the organizational form adopted to operate abroad (see, amongst others, Heinkel and Levi, 1992). Parent banks possessing advantages in the form of information flows on domestic customers will service them through organizational forms integrated into the parent–representative offices, branches or agencies–because these customers are monitored more effectively by organizational forms integrated into the parent (Cerutti et al., 2007; Du, 2003). Parent banks possessing other intangible assets that assume the form of public goods will service local and global customers through locally incorporated subsidiaries because local and global customers are monitored more effectively by locally integrated subsidiaries (Cerutti et al.; 2007; Du, 2003).[3] These subsidiaries are likely to be more committed to the market than other organizational forms integrated into the parent bank. For example, Ursacki and Vertinsky (1992) do not find a statistically significant relationship between the presence of customers and foreign banks from the same country in Tokyo, indicative of a lack of demand for services by multinational corporations with whom banks have information processing advantages.

Hypothesis 1a: *There is a negative relationship between ownership advantages stemming from information flows about domestic customers (serviced through organizational forms integrated into the parent bank) and continuation of foreign banks in the same market, and a positive relationship between ownership advantages useful in servicing local and global customers (serviced through subsidiaries and locally incorporated banks) and continuation of foreign banks in the same foreign market.*

Another bank characteristic that is likely to influence continuation in the foreign market is experience. The early formulation of the sequential expansion model advocated incremental commitment to overseas markets to enable firms to gather information on local business conditions before sinking significant resources into the overseas market (Johanson and Vahlne, 1977). Ball and Tschoegl (1982) applied this theoretical framework to the internationalization of

[3] Representative offices, branches and agencies are legal extensions of parent banks. They are subjected to minimal regulation, and business conducted through these offices can be booked elsewhere in the network of the parent. Subsidiaries and locally incorporated banks are separate entities belonging to the parent bank. They have to comply with local regulation and governance. Most business conducted by subsidiaries in financial centers is with local and global customers, placing them on equal footing with other domestic banks. Compared to representative offices, branches and agencies, subsidiaries are costlier to set up and operate. The choice between organizational forms integrated into the parent and organizational forms with local incorporation involves trading off parent and home central bank support and local regulatory control and the costs of local incorporation and improved governance (see, amongst many others, Du, 2003; Tschoegl, 2004).

banking activity and showed that Japanese and U.S. banks expanded their overseas operations in the U.S. and Japan after acquiring significant experience of doing business in these markets. Subsequent extensions of the sequential expansion model show that the experience of operating overseas plants reduces the costs of doing business in those markets (Kostova and Zaheer, 1999) and facilitates the search for new opportunities (Luo and Peng, 1999). Qian and Delios (2008) used these extensions to study the internationalization of Japanese banks and showed that the experience acquired by these banks in servicing local markets enabled them to augment their business with local customers. Tschoegl (2002) also finds that the experience acquired by overseas banks in Norway increased their propensity to continue operating there.

Hypothesis 1b: *There is a positive relationship between the experience of local operations of foreign banks and their continuation in the same foreign market.*

The size of the local operation, another bank characteristic, is also likely to influence continuation in the foreign market.[4] The size of the operation is likely to be determined via a combination of internalization advantages possessed by banks to service local and global customers and experience acquired over time in counteracting the deterring effects of a lack of familiarity with local business, markets and regulatory conditions. Strong internalization advantages and experience allow banks to operate large concerns involved in servicing several markets in the vicinity, preferably exhibiting uncorrelated demand, and in providing a portfolio of products (most often in the form of desks). These large concerns are likely to give banks the flexibility to deal with fluctuating demand over time and to reap the advantages of contiguity to other multinational banks but, at the same time, lock them into the financial center. Small concerns operating in niche segments may be more vulnerable to fluctuating demand conditions and less committed to the market, making them more likely to leave (Buckley and Casson, 1998). The size and scope of the activity of foreign banks in several financial centers is documented by Brealey and Kaplanis (1996). Their regressions relating the level of presence of domestic customers with whom banks might have information processing advantages and the size of the

[4] The main tangible assets owned by foreign banks include offices and equipment, often rented on short leases, and staff (Khoury, 1979). The main intangibles include costs sunk in hiring and training staff, establishing contacts, putting procedures and routines in place and acquiring reputation (Casson, 2000). The overall size of the operation is likely to be a combination of the expenses related to the early termination of lease contracts; severance staff; the cessation of procedures and routines; loss of reputation; and the costs sunk in hiring and training staff. Because all these elements are extremely difficult to assemble, we follow Brealey and Kaplanis (1996), Khoury (1979), and Ursacki and Vertinsky (1992) in estimating the potential size of the operation through the staffing level.

financial market could not alone explain the staffing levels of foreign banks in several financial centers, leading them to conclude the involvement of these banks over a wider geographic space and products.

Hypothesis H1c: *There is a positive relationship between the size of local operations of foreign banks and their continuation in the same foreign market*.

Second, there is evidence that suggests the benefits of internalizing home-country advantages. First, the geographic distance to the host country can influence the continuation of overseas operations. On the one hand, the lower monitoring costs of offices in nearby locations might lead one to expect that banks from countries relatively close to the host country should find it easier to continue operating offices in nearby countries. However, on the other hand, banking requires a local presence to provide many non-tradable services; therefore, the farther from the home market a foreign destination is, the more likely a local office is required to service those overseas customers. Both Fisher and Molyneux (1996) and Grosse and Goldberg (1991) formulated similar hypotheses in their studies of the entry decisions of foreign banks in the U.S. and the U.K. They both identified a negative relationship between geographic distance and the entry of overseas banks in the U.S. and the U.K. However, Esperanca and Gulamhussen (2001) found a positive relationship between distance and the assets of foreign banks in the U.S. and a negative relationship between distance and the number of offices of foreign banks in the U.S. The mixed evidence for the relationship between geographic distance and the entry decision suggests that distance may well matter for the exit decision but gives us an indeterminate sign for this relationship.

Hypothesis H2a: *There is a negative/positive relationship between geographic distance and continuation of foreign banking operations.*

Analogous to geographic distance, banks also benefit from internalizing domestic regulatory quality, which can also influence the continuation of foreign operations of multinational banks. Customers intending to establish international banking relationships value banks headquartered in robust and efficient regulatory jurisdictions, as this signals asset and service quality and also support of the domestic central banking system (Berlin, 1987). In a recent study spanning several

countries Chen and Liao (2011) show restrictive regulation and supervision in the domestic market significantly increases margins of the foreign operations of banks from these countries.
Hypothesis H2b: There is a positive relationship between the quality of domestic regulation and the continuation of foreign banking operations in financial centers.

Banks originating from the same domestic market possess country-related internalization advantages that are shared by their direct peers but not by other multinational banks. The presence of several banks from the same home country place them in direct competition, as country-related advantages internalized by banks may no longer act as a differentiating factor in services provided to local and global customers. It is thus possible that the more banks there are from the domestic market in the foreign market, the stiffer the competitive conditions will be that banks will have to face to continue operating in the overseas market. Ball and Tschoegl (1982) find a positive relationship between the number of banks from the domestic market and the propensity of Japanese and U.S. banks to expand their operations in the U.S. and Japan, respectively.
Hypothesis 2c: *There is a negative relationship between the presence of competitors from the same domestic market and the continuation of foreign banking operations.*

Third, major international financial centers offer banks the possibility of internalizing their advantages by offering services that are independent of the presence of other multinational banks, for example, services provided to domestic customers with whom banks have information processing advantages and dealings in domestic monetary and capital markets as well as services whose demand is enhanced by the presence of other multinational banks through the reduction of search costs for customers and concurrently increasing demand for all banks at the financial center (Jones, 1992; Kindleberger, 1974). Thus, while the presence of competitors from the same home market places banks under increased competitive pressure, reducing the propensity to continue operating; the presence of banks from other markets increases the propensity of continuing operations in the overseas market. For example, Choi et al. (1986), in a study spanning several markets, find a positive association between the number of multinational banks operating in a financial center and other similar prospective entrants, leading them to conclude that there are potential benefits from such a multinational banking presence.

Hypothesis 3a: There is a positive relationship between the presence of other foreign banks and the continuation of their foreign banking operations.

Finally, following previous studies of financial centers (see, for example, Brealey and Kaplanis, 1996; Ursacki and Verstinky, 1992), we assume that banks service both local and global markets from financial centers. It is thus possible that both the level of global economic activity and its volatility can play an important role in determining the continuation or withdrawal of an overseas bank venture (see also Rugman and Li, 2007). However, and again following the previous discussion (see *Hypothesis 1c*), it is equally likely that the volatility of global demand will have a disproportionate impact on small compared to larger bank operations. Larger operations, almost by definition, will tend to have a more diverse range of activities, making them potentially immune to volatile economic environments.

Hypotheses H3b: There is a positive relationship between global economic conditions and the continuation of operations of foreign banks in financial centers.

Hypotheses H3c: There is a negative relationship between the volatility of the global economy and the continuation of operations of foreign banks in financial centers.

Hypothesis 3d: The influence of volatility of the global economy on the continuation of large and small operations of foreign banks in financial centers will be different.

3. Data and methodology

3.1. Data

To address the hypotheses outlined above, we have constructed a unique dataset. The database was constructed using the annual listings produced by *The Banker* magazine.[5] This publication enabled us to gather information about the survival of overseas bank offices operating in London between 1945 and 1999. The sample period ends in 1999 because *The Banker* stopped publishing this information at this time. The richness of our data can be observed in Figures 1 to 3. In Figure 1, where we summarize the entries and closures of bank offices during an extensive sample period spanning 1945 to 1999. The figure shows a general decline in the number of new entrants and a steady flow of closures during the sampled period (1970-1999): in 1999, the last year of the

[5] The Banker has recently been used in other empirical studies on banking. For example, Brewer et al. (2008) use this source as an auxiliary database to identify the largest banks operating around the world. Morck et al. (2011) also rely on this source to update their database on bank ownership compiled by Caprio et al. (2007).

sampled period, 32 banks left London, and only 2 banks entered. In the 1990s, 113 entries were recorded versus 132 departures, compared with 158 entries versus 74 departures in the 1980s. Figure 1 also shows how variable the entries and exits are from year to year. It is this variability that we seek to understand in this study. Approximately 43% of banks in the sample are European; Asian banks comprise 35% of the sample; North and South American banks account for 10% and 6% of the sample, respectively, while 6% are banks from Africa or the Caribbean. In Figures 2 and 3, we chart the continuation and closure of London operations on a country-by-country basis. Japan, Switzerland and the U.S. have higher shares in both banks that continue operating in London and banks that have withdrawn from London.

In a recent study, Hryckiewicz and Kowalewski (2011) use Bankscope to compile data on bank withdrawals from foreign markets. Their data contain information on only 145 subsidiaries that withdrew from 54 countries during the period 1997-2009. They identify an important limitation of their source, in that they are able to compile only data on withdrawals; that is, they could not compile from Bankscope data on benchmark cases of banks that continued operating in the market and other organizational forms, namely, representative offices, branches and agencies. Our sources enable us to overcome these difficulties and extend their innovative work. [6]

Our data relate exclusively to the London operations of foreign banks. Our original sample of data consisted of information on 616 foreign banks operating in London. However, we had to exclude 64 banks because they did not have data for any one of three key variables: organizational form, experience or staff size (as a proxy for operational size, as explained earlier). We also had to exclude 53 banks with more than one operation in London, e.g., the multiple operations of West LB in the U.K. We further excluded 36 banks that engaged in merger and acquisitions as such cross-border activity has different motivations (see, for example, Wilson et al., 2010).[7] Examples of such mergers include the British Bank of the Middle East (Hong Kong and Shanghai Banking Corp) and the Hong Kong Bank, which merged to become HSBC

[6] The authors caution the reliability of accounting ratios used to proxy parent-bank advantages (p. 93). We attempted to collect data on accounting ratios as well, but this would have led us to drop the number of observations in the study drastically, additionally hampering our study due to the reliability of such historical data. We follow Buch and DeLong (2004), who avoided using accounting data due to similar concerns in a study on cross-border mergers and acquisitions in banking. Berger et al. (2004) and Focarelli and Pozzolo (2001) also study cross-border mergers and acquisitions in banking as a different phenomenon.

[7] We intend to analyze these mergers in future research.

Holdings in 1993. Finally we excluded 55 banks that set up operations in London before 1945 because the establishment of these banks was motivated more by colonial ties (for example, the Bank of Adelaide entered the London market in 1890 and left in 1980). The final data consist of 408 banks headquartered in 77 countries, yielding an unbalanced panel of 4,643 observations. Of these 408 banks, 2,795 entered and continued in London during our sample period, while 1,848 banks entered and subsequently withdrew from London.

Dependent variable: Our analysis focuses on the decision to continue operating in London or, conversely, the decision to cease operating there. We construct a time-varying dependent (y) variable that takes the value of 1 if an overseas bank continues operating in London and a value of 0 if it withdraws from London (which we refer to as a closure).

The independent variables: We construct the independent variables following the literature identified in each of the hypotheses developed in the previous section.

Variable 1a: Bank characteristics - organizational form. We used *The Banker* to create dummy variables for each of five types of organizational form, adopting a self-explanatory taxonomy: *representative office* (*rep. office*), *agency* (used as the control variable in the regressions), *branch*, *subsidiary* and *U.K. incorporated*. The Japanese bank Nomura opened a subsidiary in 1986 and continues operating in London, whereas another Japanese bank, Hyakujushi, began operating in London in 1987 with a representative office that it withdrew in 1998. WFC Ltd. from the US operated an agency in London from 1973, which it withdrew in 1977. The Saudi International Bank from Saudi Arabia has operated in London as a U.K. Incorporated Bank since 1990. Our sample includes 49% representative offices, 1% agencies, 34% branches, 13% subsidiaries, and 3% U.K incorporated banks.

Variable 1b: Bank characteristics – experience: We define *experience* as the logarithm of the number of years that a bank had been present in London before its closure or until 1999 if it is still present in that year. We constructed our variable from *The Banker*. The Japanese bank Nomura has 14 years of *experience* in our sample because it arrived in 1986 and continued operating past 1999. However, Okobank from Finland collects only 13 years of experience

because it entered London in 1986 but withdrew in 1998. Our sample also contains the Overseas Union Bank; it entered the London market in 1963 and continued operating, yielding an experience of 37 years.

Variable 1c: Bank characteristics – size: We use the logarithm of the number of staff employed by the bank in London, which we denote by *size*. Within our dataset, we know, for example, that the Saudi International Bank entered the London market with a staff of 245, staff levels peaked at 250 between 1993 and 1996, but had fallen to 208 by 1999. By contrast, the Swiss bank, Sarasin & Cie., which entered in 1980, operated with a staff of 3 people and continued operating in London, whereas United Overseas Bank, also from Switzerland, operated with 32 people at its peak in 1992 and withdrew in 1996. In terms of size, the Solali Bank from Bangladesh operated with only 1 employee in London from 1974 to 1975, while at the opposite end of the scale, Goldman Sachs' headcount reached 3,000 in 1999, and, of course, the bank was still operating in London in 1999.

Variable 2a: Country characteristics – distance: We define *distance* as the logarithm of the number of kilometers between London and the capital city of the bank's country of origin. The average value of this variable for the sample is 2,000km, approximately the distance between London and Athens. For instance, despite the considerable distance between Tokyo and Japan (9,558km), Japanese banks populate the London market in significant numbers (from 15 in 1970 to a maximum of 58 in 1996 and 41 by the end of 1999); on the other hand, French banks whose capital is only 342km from London had 9 banks in London in 1970, which rose to a high of 25 in 1990 but had fallen to 18 by 1999. The most distant country capital from London in our sample is Australia (16,973km), and the closest is Brussels (322 km).

Variable 2b: country characteristics - regulatory quality: We use a measure of the quality of domestic regulation, *regulatory quality*, which we collected from the World Bank database (Worldwide Governance Indicators, available at http://www.worldbank.org/wbi/governance, Kaufman et al., 2009). This measure indicates how authority in a country is exercised and captures regulatory changes in the period of analysis. Higher values of regulatory quality pertain

to better governance at the country level. Iran had the lowest score of -1.60, while Singapore had the highest value of +1.88.

Variable 2c: country characteristics – same origin: We construct a time-varying variable denoted by *same origin* with *The Banker* data. We construct this variable for each foreign bank by adding up the number of banks operating in London that have the same origin. For example, Taiwan had only 2 banks operating in London from 1981 to 1992, while the US had 90 in 1979 and between 1981 and 1983. Thus, for a US bank, the *same origin* variable would be 89 in 1979 and between 1981 and 1983 and would have a value of 1 for Taiwanese banks in 1979 and between 1981 and 1983.

Variable 3a: Global market conditions – total: To capture the influence of agglomeration, we construct another time-varying variable denoted by *total* using *The Banker*. This variable represents the total number of foreign banks operating in London. Agglomeration has a maximum value of 488 in 1990 and a low of 187 in the beginning of the period of analysis in 1970.

Variable 3b, 3c and *3d: Global market conditions: world GDP and volatility*: Finally, we use *world GDP* to gauge the strength of the world economy as well as its *volatility* (σ(GDP)), on a yearly basis. The *world GDP* variable peaks in 1999 at $31.20trn. The volatility of world GDP is computed as the standard deviation of world GDP using a three-year rolling window and peaks during our sample at 2.41% in 1995; its lowest value is 0.12% in 1998. Finally, the interaction of *volatility* and *size* is measured as $\sigma(GDP)$ x *size* (as defined earlier).

In Table 1, we present some basic descriptive statistics of the variables used in this study, separating the ones used to test the hypotheses defined earlier (as well as the ones used in robustness tests). Table 2 presents estimates of the correlation between the variables discussed in the definition of the variables.

3.3. Methodology

We hypothesize that the continuation of a foreign bank's operations in the City of London is positively related to: (a) bank characteristics (initial organizational form, experience and size); (b) home-country characteristics (distance, regulatory quality and presence of domestic competitors); and (d) global market conditions (agglomeration of other multinational banks, global GDP and its volatility).

Given the existence of observations on i banks for t years, the general specification is as follows:

$$Y_{it} = \alpha + \beta_j \text{ bank characteristics}_{it} + \gamma_j \text{ home country charcateristics}_{it} + \phi_j \text{global market conditions}_{it} + \varepsilon_{it} \quad (1)$$

where Y_{it} refers to bank i and time t; it is a two-state dependent variable, which is assigned the value 1 when bank i remains in London and a value of 0 if it leaves London; α is the intercept; β, γ, and Φ are the unobserved coefficients for the unknown parameters, and ε_{it} is an error term not suffering from the strict assumption of normality.

Our database comprises information on 408 banks for the period 1945-1999, a typical unbalanced panel design with 4,643 usable cases. Observations in the panel, for the same bank and for a number of banks from the same home country, can exhibit heterogeneity and be correlated. The standard logistic models suited for binary outcomes, for cross-section or pooled data, are inappropriate to test our hypotheses, as these do not capture the unobserved heterogeneity and intra-clustered correlations, leading to inconsistent parameter estimates. For this reason, we use mixed-effects logistic regressions, as these recently developed techniques capture the unobserved heterogeneity and relax prior independence of irrelevant alternatives (Cameron and Trivedi, 2009).[8] We estimate the model following the procedures described in Cameron and Trivedi (2005), Hensher and Jones (2007), Hensher et al., (2007) Jones and Hensher (2004), and Train (2003). Mixed models comprise fixed effects and random effects and consider parameter heterogeneity by allowing parameters to be stochastic, which translates in our specification into simply considering the whole set of 408 banks as a random sample and modeling the unobserved within- and between-bank variability as a random effect. In this sense, mixed-effects logit is an improvement of the standard logit model, as it adds a number of random parameters poised to

[8] For the importance of relaxing prior independence of irrelevant alternatives in logistic models, also referred to as non-iid models, see Hensher and Greene (2003), and Train (2003).

capture the unobserved heterogeneity. A duration-based formulation, most commonly known as survival analysis, would be an alternative method. However, research has shown that duration and logistic models are equivalent and produce very similar results (Lee and Urrutia, 1996).

4. Empirical findings

4.1. Baseline specification

We present the results relating to the estimation of a version of expression (1) in Table 3, denoted hereafter as the baseline specification. Amongst other relevant information, Table 3 contains coefficient estimates, *p*-values and odds ratios. Odds ratios are more informative than coefficient estimates because the former gauge the probability of survival compared to the probability of closure.

For the initial setup, holding *agency* as the control group, the results reveal a significant negative coefficient on the dummy for *rep. office* at the 99% level of confidence but a positive coefficient for *U.K. incorporated* at the 99% level of confidence. This suggests that the mode of entry may be important with regard to ultimate continuity of operations: bank operations that begin with the aim of serving the local and global customers have a greater propensity to continue operating (*Hypothesis 1a*). Both *experience* and the *size* of operations have positive coefficient estimates significant at the 99% level of confidence (*Hypotheses 1b, c*), reflecting the importance of acquiring knowledge of local business, market and regulatory conditions and the potential flexibility to source different markets and products in the continuation of overseas operations. Insofar as d*istance* is concerned, it is negatively related to continuation at the 99% level of confidence, which reflects the importance and influence of the costs of monitoring distant offices (*Hypothesis 2a*). Finally, *world GDP* and its *volatility* are both significant at the 90% level of confidence. *GDP* is positively correlated with continuation (*Hypothesis 3a*), while the estimate for *volatility* is negatively related to continuation (*Hypothesis 3b*). A buoyant global economic environment increases the likelihood that overseas bank operations will continue, while an increase in global economic volatility–something that tends to occur during times of recession–generally reduces the likelihood that a foreign bank will continue operating overseas.

Given that large banks may incur higher leaving costs than small banks, it is possible that a slighter change in *volatility* might have a larger impact upon smaller, less well-established banks. We address the eventual non-linearity by interacting *volatility* and *size* (column 2 of Table 3). The coefficient on the interactive variable is positive and significant at the 99% level of confidence, which highlights the greater likelihood of continuation of large offices compared to small ones (*Hypothesis 3c*).

In both specifications, columns 1 and 2 in Table 3, we take *size* and *same origin* as random-effects parameters. The likelihood ratio test comparing the fit of our model with the fit of a standard logit model is significant at the 99% confidence level. This suggests that the mixed-effects logit specification is a more appropriate technique for our dataset compared to the standard logit specification.

4.2. Robustness checks

Tables 4 and 5 present the results of the following seven robustness tests. We:

a) exclude 50 banks (13% of the sample) that experienced a change in the organizational form during their stay in London;

b) exclude 37 banks that entered London between 1945 and 1969;

c) exclude influential countries (the U.S., Japan and Switzerland, one at a time and all three together);

d) use *bilateral trade* (defined below and descriptive statistics provided Table 1) as an additional control;

e) control for *banking crises* and *world failures* (defined below and descriptive statistics provided Table 1) and

f) control for the deregulation that followed London's *big bang* in 1986 (defined below and descriptive statistics provided Table 1).

Of the sampled banks, 13% changed their organizational form over the period of their stay in London (of which 10% continue operating and 3% withdrew). For example, Europaeische Hypo from Germany operated a subsidiary from 1994 to 1996 and changed to a U.K. incorporated bank in 1997. We intended to investigate the impact of change by continued replacement of the

dummies pertaining to the initial commitment in the baseline by as many dummies corresponding to the specific organizational form on a year-by-year basis, but the dummies turned out to be collinear. Thus, we ran the baseline specification excluding the 50 sampled banks that experienced changes in their organizational form and present the results in Panel 1 of Table 4. Our previous results are confirmed, namely, in that the initial organizational form dictates whether or not banks will continue operating overseas.

The exclusion of 37 banks that entered London between 1945 and 1969 left the results qualitatively unchanged (Panel 2 of Table 4), with the exception of *distance*. Panels 3 to 5 of Table 4 present the results of excluding, alternately, U.S., Japanese and Swiss banks from the sample, as they represent 14.96%, 7.98% and 5.86% of the sampled banks, respectively. The results suggest that these countries are not driving our results, as the signs and significance of the variables remain unaltered, with the exception of *Entry: subsidiary*, which becomes significant at the 95% (Panel 4, without Japan) and 95% (Panel 5, without Switzerland) levels of confidence but with mixed signs. In Panel 6, we exclude the three influential countries altogether, and our baseline results are reinforced.

In Panel 1 of Table 5, we use *bilateral trade* (computed as the sum of imports and exports on a yearly basis) to assess the post-entry role of the possession of information processing advantages with domestic customers (see amongst many others Casu and Girardone, 2010). Beugelsdijk et al. (2010) show that manufacturing FDI is an inaccurate measure for the follow-the-customer hypothesis. Bilateral trade data are available from 1985 onwards; this reduced the sample to 3,068 observations. Although significant at the 90% confidence level, *bilateral trade* has an economically non-significant coefficient estimate of 0.00 (and an odds ratio of 1.00), indicating a similar probability of continuation and withdrawal. Ursacki and Vertinsky (1992) also did not find a significant influence of bilateral trade on the entry of foreign banks in Japan as a proxy for the traditional follow-the-customer hypothesis.

In panels 2 and 3 of Table 5, and following Hryckiewicz and Kowalewski (2011), we control for *banking crises* in the domestic market and *world failures*, as they may influence the continuation or closure of foreign banks in London. We collected data on *banking crises* on a yearly basis at

the country level from Laeven and Valencia (2008). The data are available from 1970 onwards and pertain to systemic banking crises when financial sectors experience a large number of defaults and financial institutions and corporations face major solvency difficulties. We collected data on *world failures* from the same source and aggregated information on bank failures, including assistance, at a global level, computed as a fraction of failed banking institutions. Unlike Hryckiewicz and Kowalewski (2011), neither *banking crises* nor *world failures* influence continuation of operations of foreign banks in London, suggesting that such crises may influence continuation and withdrawal from less important markets but not from London due to its pre-eminence in the global financial system.

Finally, to assess the appropriateness of the specification, we also estimated the baseline specification with a dummy for the influence of the *big bang* of 1986. In the baseline model, we estimated a positive coefficient for this variable but only at the 83.9% level of significance (Panel 4 of Table 5). The signs of the other coefficient estimates and their levels of significance remain relatively unchanged with the addition of this dummy variable, thus confirming our previous findings. Nevertheless, we ran an additional regression to test for differences between 1986 (*big bang*) and the rest of the period under observation. We constructed a new dummy variable (denoted by (1 - *big bang*)), which was assigned a 1 if the year of analysis is not 1986, while keeping the dummy for 1986 (denoted *big bang*) in the set of independent variables, as defined previously. We then ran a unified regression with the right-hand side of the baseline specification entering twice: once multiplied by the dummy for *big bang* (1986) and another time multiplied by (1 - *big bang*) (see also Pozzolo and Focarelli, 2008). We performed F-tests for the equality of the coefficient estimates obtained in the unified model for *big bang* (1986) and for (1 - *big bang*). Our results indicate that we cannot reject the hypothesis of equality of coefficients, meaning that we cannot identify a structural break attributable to the regulatory events.

4.3. Endogeneity

Finding that a set of independent variables explains the continuation of banks' overseas operations is not necessarily proof of a causal effect. The decision to continue operating offices in London can precede the influence of independent variables. In particular the domestic institutional environment can induce banks to continue their activity in London. i.e. foreign

banking operations in London may reflect cross-country rather than cross-bank variation. We address this endogeneity by estimating our baseline specification using instrumental variables (IV).[9] We use *rule of law* (sources and descriptive statistics are indicated in Table 1), a composite measure of economic freedom in the home country, the enforceability of law and the absence of arbitrary action by citizens or institutions, as our instrument, as the former proxies the institutional environment in the home country, which can favor continuation. Switzerland receives a very high score, and Nigeria receives a very low score. Panels 1 and 2 of Table 6 present the results of the IV estimates. In the first stage, each variable of our baseline specification (the independent variables) is regressed on the exogenous variables of the model, including the instrument. We obtain the predicted values from this regression. In the second stage, the independent variables are replaced by their predicted values in the first-stage regression. In our case, *rule of law* enters the first-stage regression significantly at the 1% significance level. Our previous results are confirmed with the exception of distance, which becomes positive but with a lower coefficient estimate (0.02-0.03). Thus, the causal effect of our set of independent variables on survival is generally confirmed, in turn suggesting that our results are not driven by reverse causality.

We also test the problem of the self-selection of banks using a Heckman two-step regression model.[10] In the first-stage probit regression, the dependent variable is a dummy (given a value of 1 if the bank continues operating in London and 0 if it withdraws from London during the period of analysis). The first step of the Heckman procedure produces a propensity score denoted by *lambda* (inverse Mill's ratio, Greene, 2008). The propensity score pertains to survival and is a predicted value used to obtain the estimates of the self-selection correction. We then use the *lambda* to estimate the second-step coefficients together with *rule of law*, as previously described, and *regulatory restrictiveness* (sources and descriptive statistics are indicated in Table 1), that is, the degree to which national authorities allow banks to pursue non-traditional activities. For example, Indonesia has more restrictions on banking activities than Switzerland. The second-stage regression uses the baseline specification and is analogous to an OLS regression of Y (1: continuation; 0: withdrawal) on the independent variables and the

[9] See also Laeven and Levine (2007) and Mercieca et al. (2007).
[10] We could alternatively have used the bootstrap method, a computer-based form of random sampling that uses the sample itself, but we prefer to look more closely at the data (Efron and Tibshirani, 1993).

aforementioned dummy (ascribed 1 if the bank continues operating in London and 0 if the bank withdraws from London), but additionally with the self-selection correction lambda (λ). We cannot rely on the assumption of a random sample without this correction. We present the results in Panels 3 and 4 of Table 5; they show that the selection parameter λ is negative but not statistically significant. A negative coefficient of λ implies a downward bias in the estimated effect of the independent variables on survival without the self-selection correction. Our previous results are thus confirmed and even reinforced.

5. Summary and conclusions

This paper contributes to the literature in two significant ways. First, we assemble a new dataset on overseas banking operations in London. Our data consists of information on 408 foreign banks from 77 countries since 1945 till 1999, giving us 4,643 observations; 2,795 of these represent banks that continue operating, and 1,848 represent banks that withdrew from London. Second, we extend the vast literature on bank entry to study the factors driving the continuation of foreign bank activity in London. Specifically, we draw on internalization theory, with its emphasis on the role of information flows on domestic customers and intangible assets that assume the form of public goods that enable banks to compete on equal footing with their foreign peers; and the sequential entry model that advocates the progressive deepening of commitment to markets to overcome the deterring effects of being foreign, to develop a set of hypotheses that are subjected to parametric tests.

Specifically, we develop hypotheses relating to bank characteristics (initial organizational form, experience and size), home-country characteristics (distance, regulatory quality and presence of domestic competitors) and global market conditions (agglomeration of other multinational banks, global demand and volatility) to estimate a model of the decision to continue operating or withdraw from the market with the most recently developed mixed-effects logistic regression techniques. Our findings indicate that banks that established subsidiaries and locally incorporated banks exhibit higher probability of continuing operations, reflecting the initial strong internalization advantages. Local experience also significantly influences continuation, indicating that the liability of being alien in a market reduces over time. The size of local operations also determines whether banks will continue or withdraw, suggesting that survivors may well have

exploited their flexibility to address swinging demand conditions over time. Banks from distant countries exhibit a lower probability of continuing in the market. The presence of domestic competitors does not facilitate continuation in the market. The variable capturing potential economies of agglomeration stemming from the presence of banks from other countries has only a minimal impact on the probability of continuation. World demand and volatility influence continuation, although in opposite directions–positive for demand and negative for volatility–but global economic volatility interacted with size indicates a greater likelihood of continuation of large operations compared to smaller operations.

The possession of internalization advantages in the form of information flows on previously established relationships with customers is considered an important driver of bank entry. Our findings indicate that these advantages play a secondary role in the decision to continue operating overseas. Other advantages stemming from the possession of intangible technical, market-making and managerial assets alongside local experience and operations, home country related advantages and global market conditions, play a determining role in the decision to continue operating overseas. These latter advantages have received far less attention in the literature and are likely to drive the consolidation of overseas operations of multinational banks in foreign markets in the future.

Foreign bank entry has been explained by internalization, with its emphasis on the costs and difficulties of transacting information-intensive products in external markets, and the sequential expansion model, with its emphasis on the progressive commitment to the market to overcome hurdles associated with unfamiliarity of operating in alien markets. Our findings indicate that these two theories complement each other in the explanation of the reasons driving foreign banks to continue operating in London. Internalization with its emphasis on bank and country advantages, and flexibility explains the reasons why overseas banks can compete on an equal footing with local and other international competitors and adapt to changing demand conditions over time and geography. The sequential expansion model explains how local experience and operations further reinforce internalization, permitting long-term continuation in the overseas market.

From a bank managerial perspective, our results suggest that executives at banks' headquarters are likely to view the overseas presence of their local subsidiaries very differently than that of representative offices, agencies and branches; they are also likely to view proximate, more experienced and larger overseas offices very differently than distant, recent and small operations. Managers may be likely to pull out of these latter operations, more so if they are in the form of representative offices, agencies or branches, especially amidst global economic volatility. From a regulatory perspective, our results suggest that regulatory authorities that may be concerned about the behavior of foreign banks may want to monitor more closely the activity of subsidiaries in their markets because these banks are more likely to continue operating and, at the same time, are more likely to tap into the local markets and seek more central bank funding facilities rather than parent support amid global economic volatility.

Finally, we hope that our study will lead to similar investigations of other financial centers. Further investigations of this kind could yield different results that may ultimately help us understand better the reasons driving banks to continue operating in foreign markets.

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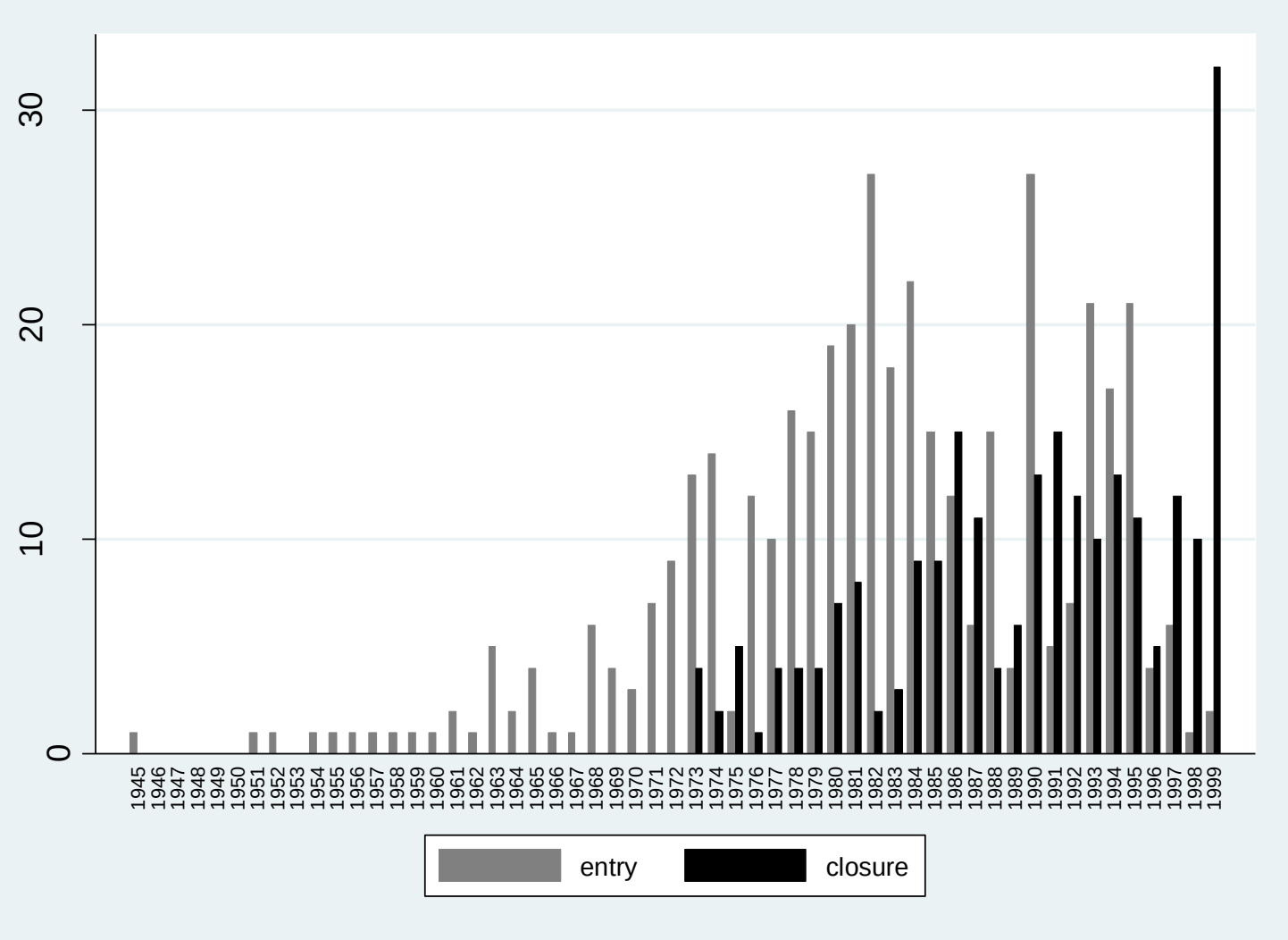
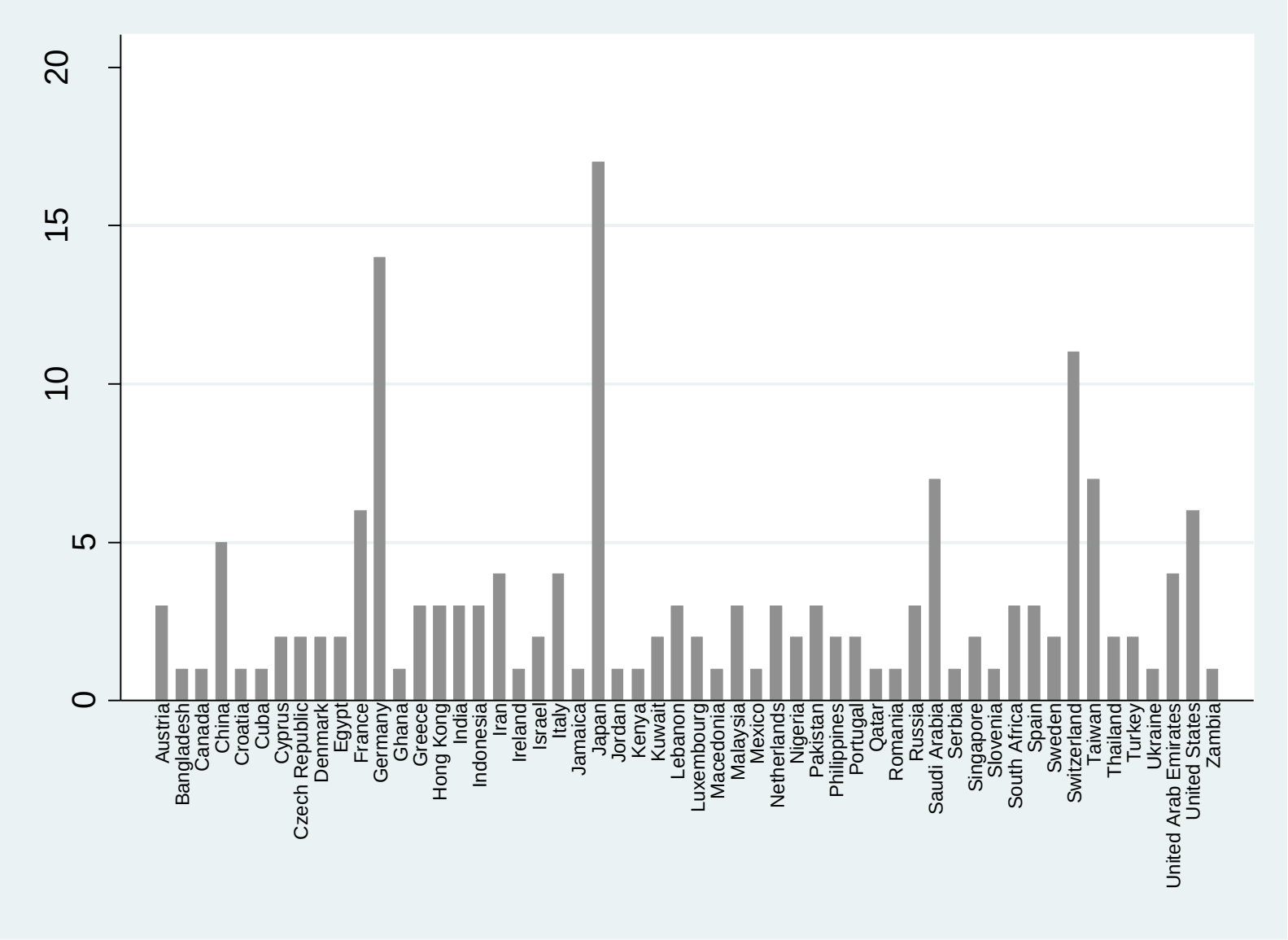
Figure 1: number of sampled foreign banks entering/leaving the City of London



Source: The Banker

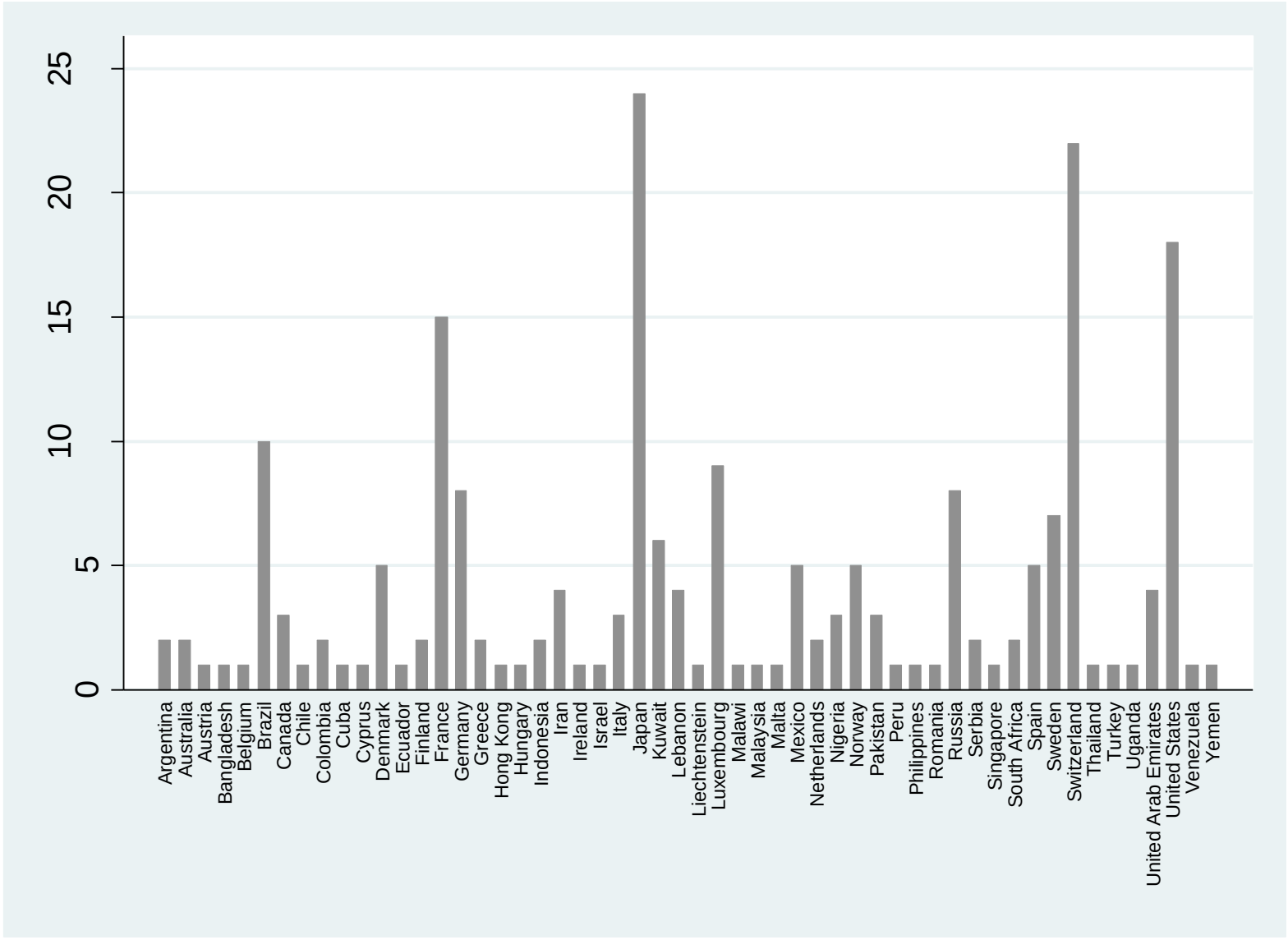
Notes: The majority of banks are European (approximately 43%), followed by Asian banks (35%). North and South Americas account for 10% and 6% of the sampled banks, respectively, and 6% are banks from Africa or the Caribbean.

Figure 2: continuation on a home-country by home-country basis



Source: The Banker

Figure 3: withdrawal from London on a home-country by home-country basis



Source: The Banker

Table 1: Summary statistics

The dependent is a binary variable that takes the value 1 if the bank continues in London and the value 0 if the bank withdraws from London. The explanatory variables (i) pertain to the bank characteristics, where *entry*: *office*, *entry*: *agency*, *entry*: *branch*, *entry*: *subsidiary*; *entry*: *U.K. incorporated* are dummy variables ascribed 1 if the entry form of organization is the one described in the variable (representative office, agency, branch; subsidiary or a U.K. incorporated financial institution); *experience* is the logarithm of the duration of the operations in London, from entry to withdrawal or to 1999 if the bank stays in London after 1999; *size* is the logarithm of the number of bank staff employed in the London operations; (ii) pertain to the home country, where *distance* is the logarithm of geographical distance; *regulatory quality* proxies how authority in a country is exercised; *same origin* is the number of banks originated in the same home country, conducting operations in London; and (iii) pertain to the world, where *total banks* is the total number of sampled banks in London; *GDP* is the gross domestic product; *σ(GDP)*, volatility, is the standard deviation of GDP in a three-year moving window; *σ(GDP)*log size* represents the interaction of σ(GDP) and size. We use additional controls in robustness tests: *bilateral trade*, the log of imports plus exports between home country and U.K.; *banking crises* is a dummy ascribed 1 if a large number of defaults of financial institutions occurred in the home country; *rule of law* is the extent to which regular power is exerted in the home country; *regulatory restrictiveness* is the degree to which national authorities allow banks to pursue non-traditional activities; *world failures* represents the percentage of bank failures around the world (including assistance). *big bang* is a dummy ascribed 1 for year 1986.

variable	Units	mean	std. dev.	min.	max.	source
A- variables used in the baseline specification						
Y	binary	0.60	0.50	0	1	The Banker
Bank characteristics						
entry: office	binary	0.34	0.47	0	1	The Banker
entry: agency	binary	0.01	0.05	0	1	The Banker
entry: branch	binary	0.23	0.42	0	1	The Banker
entry: subsidiary	binary	0.09	0.29	0	1	The Banker
entry: U.K. incorporated	binary	0.02	0.14	0	1	The Banker
experience	log(number)	2.79	0.66	0	4.89	The Banker
size	log(number)	2.59	1.55	0	8.01	The Banker
Home country						
distance	log(Km)	8.07	1.11	5.77	9.74	http://chemical-ecology.net/
regulatory quality	number	0.64	0.79	-1.60	1.88	http://www.worldbank.org/wbi/governance
same origin	number	17	20.40	1	88	The Banker
World						
Total banks	number	441	62.51	187	488	The Banker
GDP	trillions USD	18.71	8718	2.88	31.20	IMF/World Bank http://www.worldbank.org/wbsite/external
σ(GDP)	trillions USD	1.09	0.69	0.12	2.41	IMF/World Bank http://www.worldbank.org/wbsite/external
*σ(GDP)*log size*	number	2.24	2.55	0	18.98	IMF/World Bank http://www.worldbank.org/wbsite/external
B- variables used in robustness tests (*)						
Home country (*)						
log bilateral trade	log(millions USD)	6.31	1.96	0.25	11.85	OECD Statistics http://stats.oecd.org/Index.aspx
banking crises	binary	0.06	0.24	0	1	Laeven and Valencia (2008)
rule of law	number	0.83	0.96	-1.29	1.99	http://www.heritage.org/Index/
regulatory restrictiveness	number	2.28	0.74	1	3.5	Barth et al. (2001)
World (*)						
world failures	percent	0.01	0.01	0.00	0.04	Laeven and Valencia (2008)
big bang	binary	0.04	0.20	0	1	authors' calculations

(*) these variables are used in the Tables 5 and 6.

Table 2: Correlations between pairs of explanatory variables

The dependent is a binary variable that takes the value 1 if the bank continues in London and the value 0 if the bank withdraws from London. The explanatory variables (i) pertain to the bank characteristics, where *entry*: *office*, *entry*: *agency*, *entry*: *branch*, *entry*: *subsidiary*; *entry*: *U.K. incorporated* are dummy variables ascribed 1 if the entry form of organization is the one described in the variable (representative office, agency, branch; subsidiary or a U.K. incorporated financial institution); *experience* is the logarithm of the duration of the operations in London, from entry to withdrawal or to 1999 if the bank stays in London after 1999; *size* is the logarithm of the number of bank staff employed in the London operations; (ii) pertain to the home country, where *distance* is the logarithm of geographical distance; *regulatory quality* proxies how authority in a country is exercised; *same origin* is the number of banks originated in the same home country, conducting operations in London; and (iii) pertain to the world, where *total banks* is the total number of sampled banks in London; *GDP* is the gross domestic product; *σ(GDP)*, volatility, is the standard deviation of GDP in a three-year moving window; *σ(GDP)*log size* represents the interaction of σ(GDP) and size. Correlations significant at the 1% level are in bold (1-tailed).

	variable	*entry: office (dummy)*	*entry: agency (dummy)*	*entry: branch (dummy)*	*entry: subsidiary (dummy)*	*entry: U.K. incorporated (dummy)*	*experience*	*size*	*distance*	*regulatory quality*	*same origin*	*total banks*	*world GDP*	*world σ(GDP)*	*world σ(GDP) x log size*
		V1a	*V1a*	*V1a*	*V1a*	*V1a*	*V1b*	*V1c*	*V2a*	*V2b*	*V2c*	*V3a*	*V3b*	*V3c*	*V3d*
V1a	*entry: office (dummy)*	1													
V1a	*entry: agency (dummy)*	**-0,05**	1												
V1a	*entry: branch (dummy)*	**-0,40**	**-0,04**	1											
V1a	*entry: subsidiary (dummy)*	**-0,23**	-0,02	**-0,18**	1										
V1a	*entry: U.K. incorporated (dummy)*	**-0,10**	-0,01	**-0,08**	**-0,04**	1									
V1b	*experience*	**-0,11**	-0,02	**0,06**	-0,03	**0,04**	1								
V1c	*size*	0,00	-0,03	-0,03	0,00	**0,06**	**0,43**	1							
V2a	*distance*	**-0,26**	-0,01	**0,06**	**-0,21**	**-0,04**	**0,08**	**-0,11**	1						
V2b	*regulatory quality*	**0,05**	**-0,07**	**-0,14**	**0,07**	0,04	**-0,16**	**0,05**	**-0,38**	1					
V2c	*same origin*	**-0,20**	-0,02	**-0,15**	**-0,08**	0,03	**-0,06**	0,00	**0,14**	**0,31**	1				
V3a	*total banks*	0,03	0,03	-0,03	-0,01	0,00	**-0,15**	**-0,05**	-0,03	**0,05**	0,03	1			
V3b	*world GDP*	0,01	0,03	-0,01	-0,02	0,01	**-0,19**	0,02	0,00	-0,02	0,01	**0,57**	1		
V3c	*world σ(GDP)*	0,01	0,02	-0,01	0,01	-0,01	-0,03	0,00	-0,02	0,00	**0,04**	**0,37**	**0,32**	1	
V3d	*world σ(GDP) x log size*	-0.01	-0.01	**-0.02**	0.01	0.02	**0.31**	**0.30**	**-0.02**	**0.11**	**0.12**	**0.32**	**0.38**	**0.72**	1

Table 3: Mixed-effects logit estimation – baseline specification

The dependent is a binary variable that takes the value 1 if the bank continues in London and the value 0 if the bank withdraws from London. The explanatory variables (i) pertain to the bank characteristics, where *entry*: *representative office*, *entry*: *agency*, *entry*: *branch*, *entry*: *subsidiary*; *entry*: *U.K. incorporated* are dummy variables ascribed 1 if the entry form of organization is the one described in the variable (representative office, agency, branch; subsidiary or a U.K. incorporated financial institution); *experience* is the logarithm of the duration of the operations in London, from entry to withdrawal or to 1999 if the bank stays in London after 1999; *size* is the logarithm of the number of bank staff employed in the London operations; (ii) pertain to the home country, where *distance* is the logarithm of geographical distance; *regulatory quality* proxies how authority in a country is exercised; *same origin* is the number of banks originated in the same home country, conducting operations in London; and (iii) pertain to the world, where *total banks* is the total number of sampled banks in London; *GDP* is the gross domestic product; *σ(GDP)*, volatility, is the standard deviation of GDP in a three-year moving window; *σ(GDP)*log size* represents the interaction of σ(GDP) and size. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively.

Y: Dependent (1: continuation; 0: withdrawal)								
	(1)				(2)			
	baseline				baseline with interaction term			
	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds
Bank								
entry: representative office	-0.97	***	0.000	0.38	-0.96	***	0.000	0.38
entry: branch	0.14		0.467	1.15	0.18		0.334	1.20
entry: subsidiary	0.26		0.294	1.29	0.15		0.530	1.16
entry: U.K. incorporated	3.12	***	0.000	22.55	3.12	***	0.000	22.64
experience	2.61	***	0.000	13.66	2.65	***	0.000	14.19
size	1.80	***	0.002	6.03	1.56	**	0.010	4.75
Home country								
distance	-3.17	***	0.003	0.04	-3.24	***	0.002	0.04
regulatory quality	-1.67		0.231	0.19	-1.72		0.209	0.18
same origin	-0.12		0.131	0.88	-0.04	**	0.015	0.96
World								
total banks	0.00		0.166	1.00	0.00		0.279	1.00
GDP	0.16	***	0.000	1.17	0.16	***	0.000	1.18
σ(GDP)	-0.32	***	0.000	0.73	-1.23	***	0.000	0.29
*σ(GDP)*log size*					0.35	***	0.000	1.42
intercept	15.75	*	0.084		16.70	*	0.061	
Random-effects parameters	coef.		std. err.		coef.		std. err.	
size	3.36		0.55		3.43		0.56	
same origin	0.29		0.12		0.03		0.02	
intercept	7.02		1.14		7.06		1.10	
Observations	4,643				4,643			
Wald Chi-square	521.00				560.94			
degrees of freedom	12				13			
log likelihood	-1,459.83				-1,432.37			
LR test – Chi-square	1,546.15				1,567.37			
LR test – p-value	0.000				0.000			
sensitivity (% survivals identified)	90%				88%			
specificity (% closures identified)	61%				70%			

Table 4: Robustness tests – excluding influential observations

The dependent is a binary variable that takes the value 1 if the bank continues in London and the value 0 if the bank withdraws from London. The explanatory variables (i) pertain to the bank characteristics, where *entry*: *representative office*, *entry*: *agency*, *entry*: *branch*, *entry*: *subsidiary*; *entry*: *U.K. incorporated* are dummy variables ascribed 1 if the entry form of organization is the one described in the variable (representative office, agency, branch; subsidiary or a U.K. incorporated financial institution); *experience* is the logarithm of the duration of the operations in London, from entry to withdrawal or to 1999 if the bank stays in London after 1999; *size* is the logarithm of the number of bank staff employed in the London operations; (ii) pertain to the home country, where *distance* is the logarithm of geographical distance; *regulatory quality* proxies how authority in a country is exercised; *same origin* is the number of banks originated in the same home country, conducting operations in London; and (iii) pertain to the world, where *total banks* is the total number of sampled banks in London; *GDP* is the gross domestic product; *σ(GDP)*, volatility, is the standard deviation of GDP in a three-year moving window; *σ(GDP)*log size* represents the interaction of σ(GDP) and size. In Panel 1, we exclude banks that changed their organizational form during their stay in London. In Panels 2 to 6, we exclude influential observations. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively.

Y: Dependent (1: continuation; 0: withdrawal)

	(1)				(2)				(3)				(4)				(5)				(6)			
	excluding banks that experienced changes in organizational form				excluding 37 banks entering London in 1945-1969				without banks from the U.S.				without banks from Japan				without banks from Switzerland				without banks from the U.S.., Japan or Switzerland			
	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds
Bank																								
entry: representative office	-1.22	***	0.000	0.29	-0.37	**	0.038	0.70	-0.97	***	0.000	0.38	-1.64	***	0.000	0.19	-1.37	***	0.000	0.25	-2,75	***	0,000	0.06
entry: branch	-0.43		0.122	0.65	0.27		0.154	1.31	0.14		0.469	1.15	-0.36		0.234	0.70	0.12		0.564	1.12	-0,79	**	0,023	0.45
entry: subsidiary	0.74	**	0.025	2.10	0.56	**	0.014	1.75	0.25		0.314	1.28	-0.61	*	0.079	0.54	0.57	**	0.036	1.77	-0,94	**	0,026	0.39
entry: U.K. incorporated	3.43	***	0.000	30.78	2.47	***	0.000	11.87	3.24	***	0.000	25.52	7.63	***	0.002	2.057.13	2.93	***	0.000	18.73	8,07	***	0,002	3183.27
experience	3.12	***	0.000	22.65	2.50	***	0.000	12.22	2.75	***	0.000	15.60	2.94	***	0.000	18.91	2.55	***	0.000	12.81	3,16	***	0,000	23.62
size	1.24	**	0.013	3.46	0.13	***	0.000	1.13	1.91	***	0.002	6.73	2.02	***	0.001	7.56	1.97	***	0.001	7.19	2,30	***	0,000	9.98
Home country																								
distance	-3.31	***	0.000	0.04	-0.52		0.186	0.60	-3.33	***	0.004	0.04	-3.69	***	0.001	0.02	-3.29	***	0.005	0.04	-4,19	***	0,001	0.02
regulatory quality	-2.34	**	0.038	0.10	-1.01	*	0.055	0.36	-1.86		0.216	0.16	-1.90		0.192	0.15	-1.80		0.227	0.17	-2,31		0,161	0.10
same origin	-0.03		0.218	0.97	-0.04	***	0.000	0.97	-0.16	*	0.097	0.85	-0.12		0.237	0.89	-0.14		0.142	0.87	-0,14		0,255	0.87
World																								
total banks	0.00		0.564	1.00	0.00		0.531	1.00	0.00	*	0.054	1.00	0.00		0.423	1.00	0.00	*	0.083	1.00	0,00		0,830	1.00
GDP	0.18	***	0.000	1.20	0.15	***	0.000	1.16	0.16	***	0.000	1.18	0.21	***	0.000	1.23	0.14	***	0.000	1.15	0,19	***	0,000	1.21
σ(GDP)	-0.47	***	0.000	0.63	-0.36	***	0.000	0.17	-0.32	***	0.000	0.73	-0.52	***	0.000	0.60	-0.30	***	0.001	0.74	-0,54	***	0,000	0.53
intercept	17.67		0.016		-3.31		0.332		16.44	*	0.091		20.26	**	0.037		16.98	*	0.086		23,83	**	0,031	

Table 4: Continued

	Y: Dependent (1: continuation; 0: withdrawal)											
	(1)			(2)			(3)			(4)			(5)			(6)		
	controlling for change in organizational form			excluding 37 banks entering London in 1945-1969			without US			without Japan			without Switzerland			without banks from the U.S.., Japan or Switzerland		
	coef.	sig.	p-value	coef.	sig.	p-value	coef.	sig.	p-value	coef.	sig.	p-value	coef.	sig.	p-value	coef.	sig.	p-value
Random-effects parameters	coef.	std. err.		coef.	std. err.		coef.	std. err.		coef.	std. err.		coef.	std. err.		coef.	std. err.	
size	2.61	0.47					3.54	0.58		3.75	0.61		3.49	0.58		4,18	0,70	
same origin	0.04	0.03					0.35	0.13		0.38	0.13		0.36	0.12		0,48	0,14	
intercept	5.48	0.90		-3.31	0.332		7.43	1.24		7.57	1.27		7.40	1.22		8,69	1,50	
Observations	3,040			3.842			4,374			4,056			4,339			3,483		
Wald Chi-square	326.06			600.22			484.38			443.35			451.78			345.75		
degrees of freedom	12			12			12			12			12			12		
log likelihood	-883.74			-1,496.85			-1,342.09			-1,102.52			-1,313.51			-838.32		
LR test - Chi-square	1180.91			705.78			1,555.32			1,545.02			1,567.09			1,581.13		
LR test - p-value	0.000			0.000			0.000			0.000			0.000			0.000		
sensitivity (% survivals identified)	88%			83%			96%			96%			95%			88%		
specificity (% closures identified)	72%			62%			90%			92%			90%			72%		

Table 5: Robustness tests – additional controls (bilateral trade; banking crises; world failures; Big Bang)

The dependent is a binary variable that takes the value 1 if the bank continues in London and the value 0 if the bank withdraws from London. The explanatory variables (i) pertain to the bank characteristics, where *entry*: *representative office*, *entry*: *agency*, *entry*: *branch*, *entry*: *subsidiary*; *entry*: *U.K. incorporated* are dummy variables ascribed 1 if the entry form of organization is the one described in the variable (representative office, agency, branch; subsidiary or a U.K. incorporated financial institution); *experience* is the logarithm of the duration of the operations in London, from entry to withdrawal or to 1999 if the bank stays in London after 1999; *size* is the logarithm of the number of bank staff employed in the London operations; (ii) pertain to the home country, where *distance* is the logarithm of geographical distance; *regulatory quality* proxies how authority in a country is exercised; *same origin* is the number of banks originated in the same home country, conducting operations in London; and (iii) pertain to the world, where *total banks* is the total number of sampled banks in London; *GDP* is the gross domestic product; *σ(GDP)*, volatility, is the standard deviation of GDP in a three-year moving window; *σ(GDP)*log size* represents the interaction of σ(GDP) and size. We use additional controls in robustness tests: *bilateral trade*, the log of imports plus exports between home country and U.K.; *banking crises* is a dummy ascribed 1 if a large number of defaults of financial institutions occurred in the home country; *rule of law* is the extent to which regular power is exerted in the home country; *regulatory restrictiveness* is the degree to which national authorities allow banks to pursue non-traditional activities; *world failures* represents the percentage of bank failures around the world (including assistance). *big bang* is a dummy ascribed 1 for year 1986. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively.

Y: Dependent (1: continuation; 0: withdrawal)																
	(1)				(2)				(3)				(4)			
	with bilateral trade				controlling for banking crisis				controlling for world failures				controlling for the Big bang			
	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds
Bank																
entry: representative office	-0.64	***	0.005	0.53	-0.95	***	0.000	0.39	-0.97	***	0.000	0.38	-0.97	***	0.000	0.38
entry: branch	0.41	*	0.066	1.51	0.14		0.450	1.15	0.14		0.460	1.15	0.14		0.459	1.15
entry: subsidiary	0.89	***	0.003	2.42	0.27		0.268	1.31	0.25		0.297	1.29	0.26		0.286	1.30
entry: U.K. incorporated	2.54	***	0.000	12.72	3.04	***	0.000	20.91	3.13	***	0.000	22.94	3.12	***	0.000	22.74
experience	1.90	***	0.000	6.70	2.63	***	0.000	13.89	2.62	***	0.000	13.68	2.62	***	0.000	13.74
size	2.81	***	0.000	16.58	1.81	***	0.002	6.10	1.80	***	0.002	6.03	1.80	***	0.002	6.04
Home country																
distance	-3.24	**	0.010	0.04	-3.11	***	0.003	0.04	-3.16	***	0.003	0.04	-3.17	***	0.003	0.04
regulatory quality	-4.17	**	0.020	0.02	-1.63		0.237	0.20	-1.67		0.229	0.19	-1.66		0.234	0.19
same origin	-0.08	***	0.000	0.92	-0.11		0.177	0.90	-0.12		0.140	0.89	-0.12		0.129	0.88
bilateral trade	0.00	*	0.058	1.00												
World																
total banks	-0.02	***	0.003	0.98	0.00		0.299	1.00	0.00		0.122	1.00	0.00		0.312	1.00
GDP	0.09	***	0.000	1.10	0.17	***	0.000	1.19	0.16	***	0.000	1.17	0.17	***	0.000	1.18
σ(GDP)	-0.11		0.329	0.90	-0.39	***	0.000	0.68	-0.29	***	0.002	0.75	-0.34	***	0.000	0.71
banking crisis					-0.86	***	0.001	0.42								
world failures									-0.04		0.466	0.96				
big bang													0.46	*	0.061	1.58
intercept	30.93	***	0.005		15.32	*	0.090		15.57	*	0.087		15.87	*	0.082	0.38

Table 5: Continued

	(1)		(3)		(4)		(5)	
	with bilateral trade		controlling for banking crisis		controlling for world failures		controlling for the Big bang	
Random-effects parameters	coef.	std. err.	coef.	std. err.	coef.	std. err.	coef.	std. err.
size	3.75	0.70	3.39	0.55	3.35	0.54	3.36	0.54
same origin	0.02	0.03	0.26	0.13	0.29	0.12	0.29	0.12
intercept	8.36	1.53	7.04	1.13	7.01	1.14	7.03	1.14
Observations	3,068		4,643		4,643		4,643	
Wald Chi-square	276.63		522.57		521.84		521.38	
degrees of freedom	13		13		13		13	
log likelihood	-995.37		-1,454.62		-1,459.56		-1,458.08	
LR test – Chi-square	1,013.72		1,506.34		1,535.00		1,544.53	
LR test – p-value	0.000		0.000		0.000		0.000	
sensitivity (% survivals identified)	96%		96%		96%		95%	
specificity (% closures identified)	92%		90%		92%		90%	

Table 6: Controlling for endogeneity with instrumental variables and Heckman selection model

The dependent is a binary variable that takes the value 1 if the bank continues in London and the value 0 if the bank withdraws from London. The explanatory variables (i) pertain to the bank characteristics, where *entry*: *representative office*, *entry*: *agency*, *entry*: *branch*, *entry*: *subsidiary*; *entry*: *U.K. incorporated* are dummy variables ascribed 1 if the entry form of organization is the one described in the variable (representative office, agency, branch; subsidiary or a U.K. incorporated financial institution); *experience* is the logarithm of the duration of the operations in London, from entry to withdrawal or to 1999 if the bank stays in London after 1999; *size* is the logarithm of the number of bank staff employed in the London operations; (ii) pertain to the home country, where *distance* is the logarithm of geographical distance; *regulatory quality* proxies how authority in a country is exercised; *same origin* is the number of banks originated in the same home country, conducting operations in London; and (iii) pertain to the world, where *total banks* is the total number of sampled banks in London; *GDP* is the gross domestic product; *σ(GDP)*, volatility, is the standard deviation of GDP in a three-year moving window; *σ(GDP)*log size* represents the interaction of σ(GDP) and size. We use additional variables to run the instrumental variables regressions and the Heckman selection model: *rule of law* is the extent to which regular power is exerted in the home country; *regulatory restrictiveness* is the degree to which national authorities allow banks to pursue non-traditional activities. In Panels 1 and 2 we use the instrumental variables method to control for endogeneity, using *rule of law*. In Panels 3 and 4 we use the Heckman selection method to control for sample selection bias, using *rule of law* and *regulatory restrictiveness* as instruments. Significance at the 1%, 5%, and 10% level is denoted by ***, **, and *, respectively.

Y: Dependent (1: continuation; 0: withdrawal)

	(1)				(2)				(3)				(4)			
	Instrumental variables (IV)				Instrumental variables (IV)				Heckman				Heckman			
	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds	coef.	sig.	p-value	odds
Second-stage regressions																
Bank																
entry: representative office	-0.12	***	0.000	0.88	-0.12	***	0.000	0.89	-0.04	*	0.065	0.96	-0.04	**	0.046	0.96
entry: branch	0.02		0.432	1.01	0.04		0.256	1.04	0.01		0.577	1.01	0.01		0.615	1.01
entry: subsidiary	-0.02		0.443	0.98	0.02		0.621	1.02	-0.02		0.474	0.98	-0.03		0.378	0.97
entry: U.K. incorporated	0.10	***	0.001	1.10	0.10	*	0.088	1.10	0.22	***	0.000	1.25	0.22	***	0.000	1.24
experience	0.02		0.633	1.02	-0.03		0.755	0.97	0.28	***	0.000	1.33	0.28	***	0.000	1.32
size	0.26	***	0.000	1.30	0.68	***	0.000	1.97	0.04	***	0.000	1.04	0.01		0.324	1.01
Home country																
distance	0.02	*	0.055	1.02	0.03	*	0.073	1.04	-0.02	*	0.060	0.98	-0.02	*	0.078	0.98
regulatory quality	-0.03	**	0.013	0.97	-0.03	*	0.068	0.97	0.11	***	0.000	1.12	0.11	***	0.000	1.11
same origin	0.00	***	0.000	1.00	0.00	***	0.000	1.00	0.00	***	0.000	1.00	0.00	***	0.000	1.00
World																
total banks	0.00	*	0.078	1.00	0.00	**	0.014	1.00	0.00		0.162	1.00	0.00	*	0.062	1.00
GDP	0.02	***	0.000	1.02	0.01	**	0.033	1.01	0.02	***	0.000	1.12	0.02	***	0.000	1.02
σ(GDP)	-0.04	***	0.001	0.96	0.91	***	0.001	2.49	-0.04	***	0.000	0.96	-0.14	***	0.000	0.87
*σ(GDP)*size*					-0.36	***	0.001	1.70					0.04	***	0.000	1.04
intercept	-0.56	***	0.000		-1.75	***	0.000		-0.36	**	0.016		-0.26	*	0.083	
lambda									-0.15		0.248		-0.13		0.304	
Observations	4,643				4,643				4,917				4,917			
Wald Chi-square	2,418.22				962.02				1,456.36				1,507.73			
degrees of freedom	12				13				12				13			