To what extent will the banking industry be globalized? A study of bank nationality and reach in 20 European nations ☆

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Abstract

We model two dimensions of bank globalization – *bank nationality* (a bank from the firm's host nation, its home nation, or a third nation) and *bank reach* (a global, regional, or local bank) using a two-stage nested multinomial logit model. Our data set includes over 2000 foreign affiliates of multinational corporations operating in 20 European nations and over 250 banks that serve them. We find that these firms frequently use host nation banks for cash management services, and that bank reach may be strongly influenced by this choice of bank nationality. Our results suggest limits to the degree of future bank globalization.
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1. Introduction

Recent years have seen a drastic reduction in global barriers to competition in the financial services industry. Deregulation around the world has permitted consolidation across more distant and more different types of financial institutions. Improvements in information processing, telecommunications, and financial technologies have facilitated greater geographic reach by allowing institutions to manage larger information flows from more locations and to evaluate and manage risks at lower cost without geographic proximity to the customer. Moreover, growth in cross-border activities of non-financial companies has spurred greater demands for institutions that can provide financial services across borders.

Despite these forces, the financial services industry in general, and the commercial banking industry in particular, currently remain far from globalized. While there has been considerable bank consolidation within individual industrialized nations in recent years, cross-border bank mergers and acquisitions (M&As) among these nations have generally been much less frequent (Group of Ten, 2001). In most other nations as well, market shares of foreign-owned banks are generally below 10% (Levine, 1996).

We argue here that the banking industry may never become fully globalized, even after adjusting to the full effects of deregulation, technological progress, and increased cross-border non-financial activity. Some banking services – such as relationship lending to informationally opaque small businesses – may always be provided primarily by small, local institutions operating in the nation in which the services are demanded. Other services, such as syndicated loans to large borrowers, are more likely to be provided by large, global institutions for which the home nations of these institutions are of much less consequence to the demanders of the services. In our view, the better question is not when or if the banking industry will be globalized, but rather *the extent to which* it will be globalized.

To address this question, we examine how more than 2000 foreign affiliates of large multinational corporations choose banks for cash management services in each of 20 European nations. The term *cash management* covers a variety of core banking services, with an emphasis on services that require frequent turnover, including liquidity management, short-term lending, foreign exchange transactions, and assistance with hedging. In effect, cash management refers to virtually all short-term banking needs, and generally requires a physical presence in the nation in which the services are provided.

The provision of cash management services to foreign affiliates of large multinational corporations represents a crucial "middle ground" of financial services that could be provided by (1) small local banks that operate only in the host nation, (2) global banks headquartered in a few financial centers, but with offices in many nations around the world, or (3) institutions between these two extremes. Moreover, because cash management services to foreign affiliates of large multinational corporations represent a significant portion of the potential market for global banks, they may be influential in determining the extent to which the banking industry will become globalized. To our knowledge, there is no prior research on the choice of bank for cash management services by these firms.

Europe provides an excellent laboratory for studying the globalization of the banking industry. It has many developed nations that are geographically proximate, virtually no formal regulatory restrictions on cross-border bank entry within the EU, and substantial variation across nations in banking sector size and financial development. Our sample includes information from nations with large banking sectors and relatively well-developed financial systems (e.g., the UK and Germany), nations with smaller banking sectors, but well-developed financial systems (e.g., Austria and Norway), countries with small banking sectors and less-developed financial systems (e.g., Portugal and Greece) and former socialist nations with developing financial systems (e.g., the Czech Republic and Hungary). This variation allows us to test for the effects of banking sector size, financial development, legal structure, and other factors that might influence the extent to which the banking industry becomes globalized.

We identify two distinct dimensions of globalization – bank nationality and bank reach. *Bank nationality* refers to the location of a bank's headquarters relative to the host nation where the affiliate operates and the affiliate's corporate home. A *host nation bank* is headquartered in the nation in which the affiliate operates, a *home nation bank* is headquartered in the same nation as the multinational corporation's headquarters, and a *third nation bank* is headquartered in neither the host nor the home nation. A foreign affiliate of a multinational corporation may prefer a host nation bank for the "concierge" services that it can provide. That is, a host nation bank may best know the local market, culture, language, and regulatory conditions in the host nation, and have superior information about local non-financial suppliers and customers. An affiliate may instead prefer a home nation bank that can offer the "home cookin'" advantages of knowing the market, culture, language, and regulatory conditions of the affiliate's home nation. A home nation bank may also be the bank that serves the headquarters of the corporation, which may yield an informational advantage in providing services to the firm and relationship benefits to the corporation as a whole. Alternatively, the firm may choose a third nation bank based on other factors if neither the concierge benefits of a host nation bank nor the home cookin' benefits of a home nation bank is of great consequence.

Bank reach refers to the geographic scope and size of the chosen bank. A *global bank* operates in many nations and is among the world's largest institutions, a *local bank* operates in a single nation, and a *regional bank* lies between these extremes. Some firms operating in a foreign country may prefer a global bank that offers the broadest range of financial services, expertise within many foreign markets, and the ability to facilitate large deals. Global banks may also provide superior stability because of their risk diversification and/or implicit government protections against closure. Other firms may prefer a local bank that may be more focused on establishing a close relationship with the firm or may be better able to offer specific information about doing business in the local market. Still other firms may find that the tradeoff between services offered by global and local banks leads them to choose the intermediate reach of a regional bank.

We empirically investigate bank nationality and reach using a two-stage nested multinomial logit (NMNL) model. In the model, firms first choose bank

nationality – a host nation bank if the concierge benefits dominate, a home nation bank if the home cookin' benefits dominate, and possibly a third nation bank if neither set of benefits is very important. We assume that this choice depends on host nation characteristics, geographic, cultural, and financial differences between the home and host nations, and attributes of the corporation itself. These variables are designed to reflect both the demand of the firms for cash management services from banks of different nationalities and the willingness and ability of these banks to supply the services. Conditional on bank nationality, firms then select bank reach based on preferences for the range of services, financial stability, relationship services, and local knowledge offered by global, regional, and local banks. We model this decision directly as a function of corporate attributes, but note that within the structural model, the choice also depends indirectly on host nation characteristics and home nation–host nation differences through the determination of bank nationality.

We model bank nationality and reach in this way – with the choice of bank nationality potentially affecting the degree of bank reach – for several reasons. First, we argue that choice of bank nationality – i.e., the tradeoff between concierge and home cookin' benefits – is of primary importance in choosing a bank for cash management services. Second, the dependence of bank reach on the choice of bank nationality logically follows from the observation that banks can only expand across international borders to the extent that customers are willing to purchase services from foreign-owned banks. For instance, in the extreme case in which all customers preferred host nation banks for all services, banks might not cross any borders, and all services might be provided by local banks. Third, as described below, the raw data on bank nationality and reach are consistent with this model structure.

Our approach to examining the extent of bank globalization makes several contributions. First, to our knowledge, this is the first study to examine bank nationality and bank reach together and view these as joint determinants of bank globalization. Bank reach is usually viewed in isolation as measuring bank globalization, but we argue that bank nationality is also important. Second, we provide a set of stylized facts on the choice of bank for cash management services made by the foreign affiliates of large, multinational corporations. These services provided to these firms constitute a significant portion of the potential market for global banking services and lie in the crucial middle ground of financial services that could be provided by banks of virtually any nationality and reach. Third, we investigate some of the potential determinants of bank nationality and reach, including host nation characteristics, home–host nation differences, and attributes of the corporations themselves.

Our investigation yields a number of interesting findings, three of which we briefly preview here. First, we find that foreign affiliates of multinational companies choose host nation banks for cash management services more often than home nation or third nation banks. This result is consistent with concierge benefits dominating home cookin' benefits, and may be surprising given that firms might be expected to prefer their home nation banks. Second, we find that bank reach is strongly associated with bank nationality. For example, if a host nation bank is the choice of nationality, then the firm is much less likely to choose a global bank. Third, we find that bank nationality and bank reach both vary significantly with the legal and financial development

of the host nation. For example, firms appear to be much less likely to choose a host nation bank and more likely to choose a global bank when operating in the former socialist nations of Eastern Europe. Overall, our results suggest that the extent of future bank globalization may be significantly limited as many corporations continue to prefer local or regional banks for at least some of their services.

The paper proceeds as follows. Section 2 reviews previous research on bank nationality and reach. Sections 3 and 4 describe our data set and methodology, respectively. Section 5 presents the findings from our main empirical model and some robustness checks. Section 6 concludes with some implications of the findings and some important caveats.

2. Related literature on bank nationality and reach

The extant research on bank nationality has been confined primarily to the study of one component of what we term the home cookin' effect. In particular, previous investigations have found that some banking organizations engage in a "follow-your-customer" strategy of setting up offices in nations where their home nation customers have foreign affiliates (e.g., Goldberg and Saunders, 1981; Grosse and Goldberg, 1991; Ter Wengel, 1995; Brealey and Kaplanis, 1996). However, more recent work finds that foreign-owned banks lend mostly to borrowers other than customers from the home nation (Seth et al., 1998) and tend to have high proportions of their assets invested in business loans to domestic borrowers (Stanley et al., 1993). These findings suggest that while some banks do follow their customers abroad, this often may not be the dominant motivation behind cross-border expansion.

Along another dimension, researchers have studied how bank nationality influences the ability to provide services. For example, large, foreign-owned banks appear to have problems supplying credit to informationally opaque small businesses (e.g., Berger et al., 2001; Clarke et al., 2001). Moreover, foreign-owned banks – that is, home and third nation banks – tend to be less efficient on average than host nation banks in developed nations, with the possible exception of US banks operating abroad (e.g., DeYoung and Nolle, 1996; Berger et al., 2000).

Much of the prior research on bank reach has focused on cross-border bank consolidation. One general finding is that the reach of banks is not as global as might be expected given the significant reductions in barriers to competition discussed earlier. Cross-border M&As in banking are considerably rarer than in other industries (e.g., Focarelli and Pozzolo, 2001a) and, for much of the 1990s, paled in comparison with bank M&A activity within individual nations, including M&As in individual European nations (e.g., Berger et al., 1999; Group of Ten, 2001). Another general result is that cross-border mergers, when they occur, tend to be relatively unprofitable. Although the frequency of cross-border consolidations in Europe has increased since the late 1990s, the combined bidder and target value increases from these mergers are generally zero or negative, compared with domestic mergers, where combined values are positive on average (Beitel and Schiereck, 2001). A recent study of domestic and cross-border M&As involving US banks finds that value is created by

cross-border M&As, but the study also finds that more concentrated geographic and activity focus has positive effects on value (DeLong, 2001).

The low frequency and profitability of cross-border bank consolidation likely reflects some remaining explicit or implicit cross-border barriers. These may include problems in serving informationally opaque small businesses or in operating efficiently abroad, as already discussed. Moreover, recent research on cross-border bank M&As suggests that banks in highly regulated markets are less likely to be acquired and that information costs, as proxied by distance and cultural differences, tend to deter cross-border M&As (e.g., Buch and DeLong, 2001). Finally, a growing body of literature argues that while explicit barriers to cross-border reach within Europe have been removed, consolidation across borders may be deterred by political factors, differences in institutions and cultures, the use of different payment and settlement systems, and differences in capital markets, taxes, and regulations across the nations (e.g., Giddy et al., 1996; Lannoo and Gros, 1998; Boot, 1999; Blandon, 2000; Goddard et al., 2001).

Recent research has also examined the expansion of bank reach through methods other than consolidation. One set of studies examines purchases of equity stakes in foreign banks. These papers find that banks take equity positions in foreign banks in nations where expected economic growth rates are high, the banking system is inefficient, banking markets are unconcentrated, and regulations are lax. Banks that take equity stakes in foreign banks tend to be relatively large, profitable, and from nations with more developed banking markets (e.g., Focarelli and Pozzolo, 2001a,b). Another group of studies analyzes cross-border lending in which banks lend across borders without necessarily establishing a significant physical presence in the foreign nations. [1] One such study shows that cross-border financial asset flows are driven by the same factors as international M&As, and that the distance at which banks lend internationally has not increased over time with deregulation, technological advances, and expansions in cross-border non-financial activity (Buch, 2001, in press). [2]

Overall, the literature on bank nationality is not very definitive as to the advantages and disadvantages of host nation banks, home nation banks, and third nation banks, and the evidence on bank reach suggests that banks have expanded less than might be expected based on the declines in explicit barriers to competition. Importantly, the prior literature does not provide specific evidence on the nationality and reach of banks that provide cash management services to the foreign affiliates of large, multinational corporations, which is studied here. As described above, the provision of these services to these firms lies in the crucial middle ground of fi-

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[1] Cross-border bank lending can be quite large. For example, international syndicated bank lending to firms in developed countries averaged 11% of total gross domestic product (GDP) in the 1990s, roughly equivalent to the level of corporate bond issuances, and over five times the amount of equity issued during the same period (Davies and Smith, 2001).

[2] This latter result contrasts with research showing that the average distance from US banks to small business loan customers within the US has increased over time (Cyrnak and Hannan, 2000; Petersen and Rajan, 2002).

nancial services that could be provided either by local host nation banks, global banks headquartered in a few financial centers, but with offices in many nations, or by institutions between these extremes.

3. Data description

Our source of information for connecting foreign affiliates of multinational corporations with their banks is GlobalCash-Europe96, a survey of cash management and electronic banking practices conducted in 1996 across 20 European nations by The Bank Relationship Consultancy and the School of Management at the University of Bath. The survey consists of a 12-page questionnaire containing 60 questions, made available in 10 different languages. The questionnaire was mailed to cash managers in 5800 companies and completed by 1129, for a response rate of 19.5%. For verification purposes, all responses were followed up with phone interviews. [3]

The term cash management, as it is applied here, may be a misnomer. The services covered in the survey relate to all short-term banking services including lending, deposit-taking, liquidity management, foreign exchange management, and other financial services. According to survey respondents, one of the most important cash management services provided by banks is short-term financing. For example, in response to the question, "What operations come under the heading of cash management in the company in which you are working?," 90.2% of the sample firms listed at least one of three "lending-related" activities – short-term lending, trade finance, and creditor management – as part of their cash management operations. These choices as a group are second only to the group "liquidity-related" activities. Because short-term credit is the predominant form of bank financing in Europe (Rajan and Zingales, 1995), it is likely that cash management banks are often the firms' primary lending banks. Importantly, many of the cash management services require a physical presence of the bank. As a result, these services can only be performed by a host nation bank or a physical office of a home nation or third nation bank. Thus, the lending across borders without establishing a significant physical presence in the foreign nations discussed above does not apply to these banks chosen for cash management services.

The survey asks corporations to identify the banks used by their foreign affiliates for cash management within each of the 20 nations. For expositional ease, we refer to these foreign affiliates as the "firms" in our sample. Our sample starts with the operations of 2118 firms associated with the 1129 respondents, or about two affiliates per responding corporation on average. Although we only track the operations of these corporations within the 20 survey nations, their headquarters may be anywhere. Most of these corporations are headquartered in other European nations, although many are headquartered in the US, Japan, and Canada.

A respondent can identify up to two banks – a "primary" and "secondary" bank – that it uses for cash management services in a given country. Correctly classifying the

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[3] See Ongena and Smith (2000) for a detailed description of the survey.

nationality and reach of the sample banks requires that we link banks that share a common parent corporation or holding company. To do this, we first collect ownership information from the Fitch IBCA database on all banks listed by survey respondents. Next, we identify all ownership positions in which one bank (the "parent") owns at least 51% of equity of another bank (the "subsidiary") and assume that such subsidiaries are effectively controlled by the parent bank. In other words, subsidiaries that are majority owned by their parent bank take on the nationality and reach of the parent. Under these criteria, 255 different banks provide cash management services for the 2118 sample firms. To avoid biases associated with double counting, we report all sample statistics using only the firm's primary bank choice (although we explore robustness using an alternative definition that may include the secondary bank).

For each firm-bank observation, we identify bank nationality based on the location of the headquarters of a bank relative to the firm it serves. A host nation bank is headquartered in the country in which the firm operates, a home nation bank is headquartered in the same country as the firm's multinational corporate headquarters, and a third nation bank is headquartered outside of the home and host countries.

We define a bank's reach in terms of its geographic scope and size. Banks with the widest reach, global banks, provide services to sample firms in at least nine of the 20 European nations and have at least $100 billion in consolidated assets as of year-end 1995 (assets taken from the *American Banker*). These criteria imply that eight of the 255 sample banks are global. Local banks are defined to have limited reach. These banks only provide services to sample firms in the European nation of their headquarters and have assets of less than $100 billion. By definition, all local banks serve only as host nation banks and never as home nation banks or third nation banks, which require a cross-border presence. There are 174 local banks in our sample. A regional bank lies between these extremes, operating in more nations or being larger than a local bank, and operating in too few nations or being too small to be a global bank. Regional banks are either mid-sized European institutions or non-European banks that have fairly limited European reach. There are 73 regional banks in our sample.

We acknowledge that our definitions of global, regional, and local banks are somewhat arbitrary and Eurocentric. We may classify some banks as global that may not be truly global, but have broad European presence. However, our definitions should be fairly representative for two reasons. First, the eight banks are generally recognizable as true global banks in terms of size and world coverage. As shown in Table 1, five of the global banks are based in Europe and the other three are from the US. Seven are ranked among American Banker's 50 largest banks in the world in 1995, and five operate in at least 18 of the 20 nations in our sample. Second, our findings are materially unchanged when we alter the dividing lines between global and regional banks, and between regional and local banks by adjusting the number of nations or asset size requirements.

The top row of Table 2 shows the distribution of choices of bank nationality and reach across all 2118 firms. With respect to bank nationality, a surprising finding is

Table 1
The global banks in the sample

Bank name	Headquarters nation	Number of survey nations in which the bank operates	1995 worldwide assets ($ billions)	American Banker rank, by 1995 worldwide assets
Deutsche Bank	Germany	10	502.3	1
ABNAmro	Netherlands	19	339.4	12
Crédit Lyonnais	France	9	337.6	13
Société Générale	France	19	324.8	17
Banque Nationale de Paris	France	12	323.5	18
Citibank	US	20	255.3	28
Bank of America	US	18	230.2	34
Chase Manhattan Bank	US	19	120.5	62

This table lists the eight global banks in our sample, in order of descending size. These banks provide cash management services to sample firms in at least nine of the 20 European nations and had at least $100 billion in worldwide assets as of year-end 1995.

that nearly two-thirds of all firms (65.5%) choose a bank headquartered in the host nation, while the remaining firms split evenly between using a home nation bank (17.7%) or third nation bank (16.9%). This pattern suggests that the concierge effect is strong and tends to dominate the home cookin' effect. This finding also goes against the common perception from the ''follow your customer'' literature that firms will favor their home nation bank for all their banking services when operating in foreign countries. With respect to bank reach, firms choose global banks 35.1% of the time, regional banks 52.8% of the time, and local banks 12.0% of the time. These data suggest that while the vast majority of the foreign affiliates of multinational corporations prefer banks that span multiple nations (i.e., global or regional banks), only about one-third choose global banks.

The remainder of Table 2 shows the distribution of bank nationality and reach choices within each of the 20 host nations, sorted by the total size of the nation's banking sector, and grouped into one of three categories: large banking sector, small banking sector, or former socialist nation. [4] We separate the banking systems of the former socialist nations because they tend to have legal and financial systems that are underdeveloped relative to the Western European nations. The data show that choices of bank nationality can differ greatly across host nations. For example, only 26.2% of the firms operating in the former socialist countries use a host bank and 42.6% of these firms select a bank from a third nation. Variation across countries is especially apparent among the small banking sector countries. For instance, only 15.0% of the firms operating in Luxembourg use a host bank, compared with 85.3% in Sweden. The data on bank reach also show considerable variation across host nations. Interestingly, global banks are more frequently chosen for large banking sector nations (42.5%) and for former socialist nations (45.4%) than for small banking sector nations (21.9%). This observed pattern seems to indicate that global banks

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[4] The size of a nation's banking sector is measured by its 1995 total domestic bank assets and is taken from the data set accompanying Barth et al. (2001).

Table 2
Distribution of firm choice of bank nationality and reach, by host nation

Nation	Number of firms	1995 total bank assets ($ billions)	Bank nationality (%)			Bank reach (%)		
			Host	Home	Third	Global	Regional	Local
All firms	2118		65.5	17.7	16.9	35.1	52.8	12.0
Large banking sector nations								
Germany	240	3041	73.3	14.2	12.5	40.0	49.2	10.8
France	223	1527	76.7	12.1	11.2	66.8	17.0	16.1
UK	224	1278	52.2	29.0	18.8	25.9	71.9	2.2
Italy	119	831	70.6	17.6	11.8	27.7	43.7	28.6
Switzerland	103	557	76.7	15.5	7.8	13.6	78.6	7.8
Spain	126	552	57.9	26.2	15.9	26.2	54.8	19.0
Netherlands	166	457	78.3	11.4	10.2	76.5	21.1	2.4
Total	1201	8241	69.1	17.9	13.0	42.5	46.1	11.4
Small banking sector nations								
Belgium	150	389	59.3	21.3	19.3	35.3	64.0	0.7
Austria	79	297	79.7	8.9	11.4	20.3	72.2	7.6
Sweden	109	106	85.3	9.2	5.5	11.0	79.8	9.2
Norway	83	95	74.7	15.7	9.6	10.8	80.7	8.4
Portugal	54	89	51.9	20.4	27.8	27.8	29.6	42.6
Finland	48	88	77.1	12.5	10.4	16.7	68.8	14.6
Denmark	100	75	85.0	7.0	8.0	12.0	79.0	9.0
Greece	40	47	40.0	20.0	40.0	45.0	32.5	22.5
Ireland	73	26	56.2	19.2	24.7	21.9	74.0	4.1
Luxembourg	40	13	15.0	17.5	67.5	27.5	57.5	15.0
Total	776	1224	67.0	14.8	18.2	21.9	67.7	10.4
Former socialist nations								
Czech Republic	49	43	28.6	28.6	42.9	42.9	28.6	28.6
Poland	60	36	28.3	26.7	45.0	50.0	21.7	28.3
Hungary	32	16	18.8	43.8	37.5	40.6	40.6	18.8
Total	141	96	26.2	31.2	42.6	45.4	28.4	26.2

This table reports the sample distribution of bank nationality and bank reach across the 20 European nations hosting the sample firms. Sample firms are foreign affiliates of large multinational companies, and sample banks are those identified by the firms as providing cash management services within each nation. A host nation bank is headquartered in the nation in which the affiliate operates, a home nation bank is headquartered in the same nation as the multinational corporation's headquarters, and a third nation bank is headquartered in neither the host nor the home nation. A global bank provides services to sample firms in at least nine of the 20 European nations and had at least $100 billion in worldwide assets as of year-end 1995, a local bank provides services to sample firms only in the European nation of the bank's headquarters and had assets of less than $100 billion, and a regional bank is neither global (too few nations or too small) nor local (too many nations or too large).

prosper best in markets open to bank competition (large banking sector nations) and in markets that lack an established banking system (former socialist nations). We explore this possibility later in the paper. There is also notable variation in reach among the large banking sector nations. For example, more than two-thirds

Table 3
Distribution of firm choice of bank nationality and reach, by home nation

Nation	Number of firms	1995 total bank assets ($ billions)	Bank nationality (%)			Bank reach (%)		
			Host	Home	Third	Global	Regional	Local
All firms	2118		65.5	17.7	16.9	35.1	52.8	12.0
Large banking sector nations								
Germany	177	3041	76.8	7.9	15.3	31.6	55.4	13.0
France	50	1527	60.0	26.0	14.0	32.0	54.0	14.0
UK	364	1278	79.1	6.3	14.6	30.5	57.1	12.4
Italy	84	831	54.8	9.5	35.7	36.9	51.2	11.9
Switzerland	84	557	63.1	3.6	33.3	48.8	40.5	10.7
Spain	12	552	66.7	25.0	8.3	41.7	25.0	33.3
Netherlands	121	457	47.1	26.4	26.4	48.8	45.5	5.8
Total	892	8241	69.3	10.8	20.0	35.8	52.5	11.8
Small banking sector nations								
Belgium	4	389	100.0	0.0	0.0	0.0	100.0	0.0
Austria	39	297	64.1	28.2	7.7	17.9	51.3	30.8
Sweden	164	106	73.8	12.8	13.4	21.3	67.7	11.0
Norway	65	95	63.1	7.7	29.2	23.1	63.1	13.8
Portugal	12	89	25.0	25.0	50.0	58.3	33.3	8.3
Finland	177	88	83.1	4.5	12.4	21.5	63.8	14.7
Denmark	134	75	70.1	17.9	11.9	17.2	62.7	20.1
Greece	5	47	40.0	20.0	40.0	80.0	20.0	0.0
Ireland	100	26	58.0	9.0	33.0	43.0	47.0	10.0
Luxembourg	16	13	81.3	0.0	18.8	18.8	62.5	18.8
Total	716	1224	70.9	11.5	17.6	24.4	60.8	14.8
Former socialist nations								
Czech Republic	2	43	100.0	0.0	0.0	0.0	50.0	50.0
Poland	2	36	100.0	0.0	0.0	50.0	0.0	50.0
Hungary	0	16	n.a.	n.a.	n.a.			
Total	4	80	100.0	0.0	0.0	25.0	25.0	50.0
Other nations								
Japan	9	6746	77.8	0.0	22.2	33.3	44.4	22.2
US	470	5012	49.1	41.7	9.1	51.1	41.7	7.2
Canada	22	408	72.7	0.0	27.3	18.2	59.1	22.7
Other	5	422	60.0	0.0	40.0	40.0	40.0	20.0

This table reports the sample distribution of bank nationality and bank reach according to the nation of the firm's corporate headquarters. Sample firms are foreign affiliates of large multinational companies, while sample banks are those identified by the firms as providing cash management services within each nation. A host nation bank is headquartered in the nation in which the affiliate operates, a home nation bank is headquartered in the same nation as the multinational corporation's headquarters, and a third nation bank is headquartered in neither the host nor the home nation. A global bank provides services to sample firms in at least nine of the 20 European nations and had at least $100 billion in worldwide assets as of year-end 1995, a local bank provides services to sample firms only in the European nation of the bank's headquarters and had assets of less than $100 billion, and a regional bank is neither global (too few nations or too small) nor local (too many nations or too large).

of sample firms operating in France use a global bank, most of the firms operating in Switzerland and the UK use regional banks, while more than two-thirds of the firms operating in Italy use local banks. In our econometric model, we test for the effects of the variation across European nations in banking sector size, financial development, legal structure, and other factors on the extent of bank globalization.

Table 3 reports the distribution of bank nationality and reach sorted by the home nation of the firm, including home nations other than the 20 European nations. Foreign affiliates with corporate headquarters in both large and small banking sector European nations select a host nation bank 70% of the time and opt for their home nation only about 11% of the time. This result holds despite the close proximity of European nations. Of course, these averages mask significant variation across nations. The four foreign affiliates headquartered in the former socialist nations all choose host nation banks, perhaps reflecting a lack of domestic bank development within the nations, although this is a very small sample. In contrast, firms that are headquartered in the US choose home nation banks more than 40% of the time, much more often more than firms from other nations. This finding may reflect the relatively high efficiency of US-owned banks when operating in other nations already discussed, greater desires for control of foreign affiliates by US corporations or their home nation banks, or other explanations. Finally, it is notable that many firms from other developed nations rarely choose home nation banks. Firms headquartered in Canada, Japan, and a few of the small-banking-sector European nations *never* select home nation banks, although these samples are small. However, the large number of firms headquartered in Germany, the UK, and Switzerland, which have large banks at home, also very seldom choose home nation banks. [5]

4. Methodology

Given the stylized facts, we next set up our empirical model of firm choice of bank nationality and reach. We first motivate the model with a two-stage decision tree, and then introduce the NMNL procedure and define the explanatory variables employed in the regressions.

4.1. Two-stage decision tree

In the model, bank nationality is of primary importance in the choice of bank by foreign affiliates of large, multinational corporations, and the choice of bank nationality may influence bank reach. As shown in the two-stage decision tree in Fig. 1,

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[5] A possible explanation for some of the variation in the data is that corporations that tend to have exclusive banking relationships in their home nation may also be more likely to choose a home nation bank for affiliates operating abroad. However, Table 3 does not appear to support this argument. Corporations in Norway and Sweden typically maintain one domestic bank relationship (Ongena and Smith, 2000), but choose to use host nation banks outside of their country more often than firms in Italy and Portugal, where it is common for firms to maintain many domestic banking relationships.

Total sample of foreign affiliates across 20 European nations
(2,118 firms)

Bank Nationality

| Pr(host) 65.5% (1,387 firms) | Pr(home) 17.7% (374 firms) | Pr(third) 16.8% (357 firms) |

Bank Reach

Pr(global|host) 20.5% (285 firms)   Pr(regional|host) 61.1% (847 firms)   Pr(local|host) 18.4% (255 firms)   Pr(global|home) 62.3% (233 firms)   Pr(regional|home) 37.7% (141 firms)   Pr(global|third) 63.3% (226 firms)   Pr(regional|third) 36.7% (131 firms)
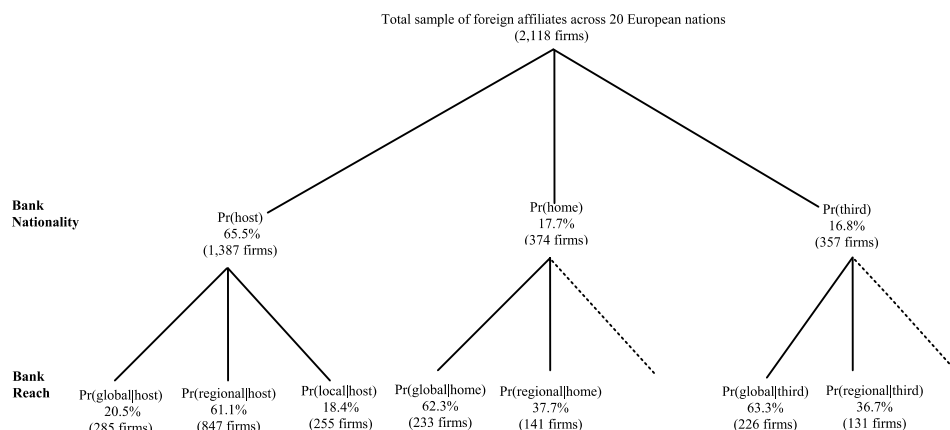
Fig. 1. Firm choice of bank nationality and reach – Firms across all host nations. This figure depicts the sample distribution of choices of bank nationality and bank reach in terms of a two-stage decision tree. The sample firms are foreign affiliates of large multinational companies operating in 20 European nations. The sample banks provide cash management services to these firms in these nations. A host nation bank is headquartered in the nation in which the affiliate operates, a home nation bank is headquartered in the same nation as the multinational corporation's headquarters, and a third nation bank is headquartered in neither the host nor the home nation. A global bank provides services to sample firms in at least nine of the 20 European nations and had at least $100 billion in worldwide assets as of year-end 1995, a local bank provides services to sample firms only in the European nation of the bank's headquarters and had assets of less than $100 billion, and a regional bank is neither global (too few nations or too small) nor local (too many nations or too large).

firms first decide on the nationality of their bank (the top "branches") and then conditional on that choice, choose bank reach (the bottom "branches"). By definition, a local bank arises as a choice only when a firm first chooses a host nation bank, as a local bank does not have a cross-border presence in our data set. Therefore, conditional on choosing a home nation or third nation bank, a firm can only select a bank that is either global or regional.

Although our discussion is couched almost entirely in terms of the decisions firms make in selecting banks, we recognize that the observed outcomes also reflect the willingness and ability of banks to supply these services. For example, a foreign affiliate of a multinational corporation operating in Hungary might prefer the services of a host nation bank with global reach, but find that no bank provides this combination of bank nationality and reach, perhaps because the size of the host nation banking market is too small, the legal structure is too undeveloped, or the barriers to cross-border banking are too high. To the extent possible, we will try to control for such supply factors in our empirical model below by including explanatory variables that reflect the banking environment in the host nation.

At the nodes of the top branches of the tree in Fig. 1, we report the sample frequencies of choosing a host nation, home nation, and third nation bank, while at the bottom branch nodes, we report the sample frequencies of choosing a global, regional, and local bank, conditional on the choice of nationality. As documented

above, almost two-thirds of the firms choose host nation banks over home and third nation banks, consistent with a strong concierge effect. The new information in Fig. 1 consists of the conditional reach frequencies. Firms' preferences for bank reach differ greatly depending on the choice of bank nationality. Conditional on choosing a host bank, firms select a global bank only 20.5% of the time. By comparison, when firms first choose a home bank, they have a 62.3% chance of selecting a global bank, and when they choose a third bank, they select a global bank 63.3% of the time. In other words, firms tend to rely on banks with global reach when they choose a home or third nation bank, but tend to prefer a regional or local bank when choosing a host nation bank.

One artifact of the data that could be driving the conditional reach probability patterns in Fig. 1 is that only three host nations – France, Germany, and the Netherlands – have a global bank headquartered within their borders. That is, firms choosing a host nation bank in any of the other 17 nations in our sample cannot also select a global bank. This could simply reflect an equilibrium outcome, i.e., the demand for global services within these countries are not great enough to induce a host nation bank to expand its reach globally or to induce an existing global bank to move its headquarters to one of these countries. As discussed above, this outcome may reflect supply conditions in the host nation, and we try to control for these conditions in our logit regressions.

To gain some insight into how the distribution of bank choices might differ in a market where all types of banks are available, we focus in Fig. 2 on Germany. Germany not only has a host nation bank that is global (Deutsche Bank), it also has a strong system of local and regional commercial banks from which firms may choose, including the nationwide systems of *Landesbanken* (state banks), *Sparkassen* (savings banks) and *Hypothekbanken* (building societies). Like Fig. 1, Fig. 2 shows that a substantial proportion of foreign affiliates of large multinational corporations operating in Germany choose a host nation (i.e., German) bank for their banking services. More important, conditional on selecting a German bank, firms still prefer a regional or local bank over a global bank by a two-to-one margin, while conditional on selecting a home or third nation bank, most firms prefer the services of a global bank.

The raw-data from Figs. 1 and 2 provide strong support for the structure of our model. The finding that 65.5% of the firms choose a host nation bank supports our argument that bank nationality is of primary importance. In addition, bank reach varies substantially with the choice of bank nationality – firms that choose a home or third nation bank are more than three times as likely to choose a bank with global reach as firms that choose a host nation bank (62.3% and 63.3% versus 20.5%).

4.2. Econometric model

Based on the tree structure of Fig. 1, we construct a model of the choice of bank nationality and reach and show how that model can be estimated using the NMNL methodology proposed by McFadden (1978). In the first stage, we assume that firms pick bank nationality as a function of host nation characteristics, geographic, cul-
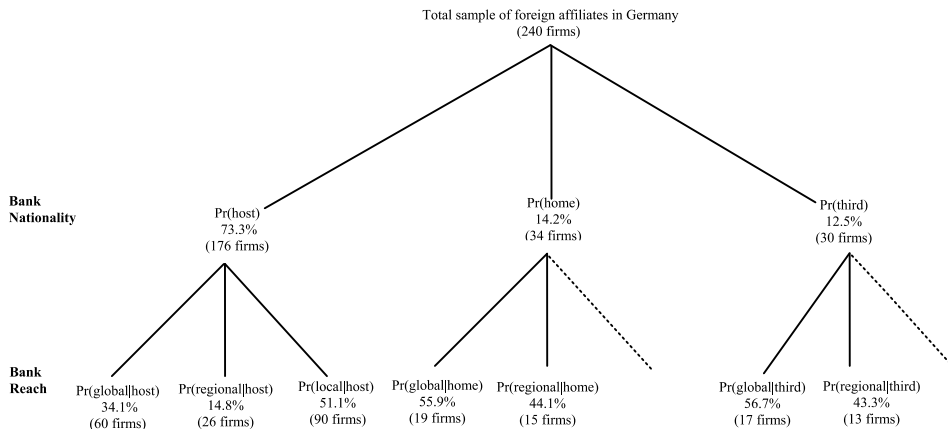
Total sample of foreign affiliates in Germany
(240 firms)

Bank
Nationality

Pr(host)
73.3%
(176 firms)

Pr(home)
14.2%
(34 firms)

Pr(third)
12.5%
(30 firms)

Bank
Reach

Pr(global|host)
34.1%
(60 firms)

Pr(regional|host)
14.8%
(26 firms)

Pr(local|host)
51.1%
(90 firms)

Pr(global|home)
55.9%
(19 firms)

Pr(regional|home)
44.1%
(15 firms)

Pr(global|third)
56.7%
(17 firms)

Pr(regional|third)
43.3%
(13 firms)

Fig. 2. Firm choice of bank nationality and reach – Firms operating in Germany. This figure depicts the sample distribution of choices of bank nationality and bank reach in Germany in terms of a two-stage decision tree. The sample firms are foreign affiliates of large multinational companies operating in Germany, and the sample banks provide cash management services to these firms. A host nation bank is headquartered in the nation in which the affiliate operates, a home nation bank is headquartered in the same nation as the multinational corporation's headquarters, and a third nation bank is headquartered in neither the host nor the home nation. A global bank provides services to sample firms in at least nine of the 20 European nations and had at least $100 billion in worldwide assets as of year-end 1995, a local bank in this figure is a German bank that provides services to sample firms only in Germany and had assets of less than $100 billion, and a regional bank is neither global (too few nations or too small) nor local (too many nations or too large).

tural, and financial differences between the home and host nations, and attributes of the multinational corporations. We hypothesize that firms base their nationality decision on the relative attractiveness of the concierge effect, which tends to push a firm towards a host nation bank, vis-à-vis the home cookin' effect, which tends to push a firm towards a home nation bank. Firms may choose third nation banks when the concierge and home cookin' effects are both relatively weak. As discussed further below, some of the explanatory variables are included in part to control for factors that affect the willingness and ability of banks to supply services in the relevant nations.

Let Y_i^N be a discrete-valued dependent variable that takes on the value of 0, 1, or 2 depending on whether firm i chooses a host, home, or third nation bank, respectively. We assume that the discrete value Y_i^N is the observed outcome from a continuously-valued, latent variable Y_i^{N*} that reflects the net benefits flowing to a firm from selecting a host, home, or third nation bank. The first stage of our model is

$$Y_i^{N*} = f(\text{Host nation characteristics, Differences between home}$$
$$\text{and host nations, Corporate attributes}). \tag{1}$$

In the second stage, the firm chooses bank reach conditional on the nationality choice and attributes of the corporation. We hypothesize that firms base their bank

reach decisions on the tradeoff between having access at the corporate level to the broad product ranges and expertise associated with banks with extensive reach versus the benefits from relationship-oriented services and country-specific knowledge associated with banks with relatively short reach. We assume the existence of a latent variable $Y_i^{R|N^*}$ that reflects the flow of benefits to firm i from choosing a global, regional, or local bank (assigned the values of 0, 1, or 2, respectively), conditional on the nationality chosen in the first stage,

$$Y_i^{R|N^*} = h_N(\text{Corporate attributes}), \quad N = (0, 1, 2). \tag{2}$$

Note that when the nationality choice is a home ($N = 1$) or third nation bank ($N = 2$), then the choice $Y_i^{R|N^*}$ is limited to either a global or regional bank because local banks do not have a cross-border presence.

Following McFadden (1978), we assume that $Y_i^{N^*}$ and $Y_i^{R|N^*}$ are linear in their regressors and that the regressions errors follow a generalized extreme-value distribution. This assumption implies that we can write the joint probability of observing a firm choosing nationality N and reach R as

$$\Pr(N, R) = \frac{\exp(\alpha_1' Z_N^{\text{Host nation}} + \alpha_2' Z_N^{\text{Differences between home and host nation}} + \beta_N' Z_{N,R}^{\text{Corporate}})}{\sum_{N=0}^{2} \sum_{R=0}^{2} \exp(\alpha_1' Z_N^{\text{Host nation}} + \alpha_2' Z_N^{\text{Differences between home and host nation}} + \beta_N' Z_{N,R}^{\text{Corporate}})}, \tag{3}$$

the conditional probability of choosing R given N as

$$\Pr(R|N) = \frac{\exp(\beta_N' Z_{N,R}^{\text{Corporate}})}{\sum_{R=0}^{2} \exp(\beta_N' Z_{N,R}^{\text{Corporate}})}, \tag{4}$$

and the unconditional probability of choosing N as

$$\Pr(N) = \frac{\exp(\alpha_1' Z_N^{\text{Host nation}} + \alpha_2' Z_N^{\text{Differences between home and host nation}}) \sum_{R=0}^{2} \exp(\beta_N' Z_{N,R}^{\text{Corporate}})}{\sum_{N=0}^{2} \exp(\alpha_1' Z_N^{\text{Host nation}} + \alpha_2' Z_N^{\text{Differences between home and host nation}}) \sum_{R=0}^{2} \exp(\beta_N' Z_{N,R}^{\text{Corporate}})}. \tag{5}$$

Define what McFadden (1978) terms to be the "inclusive value":

$$I_N = \ln \left(\sum_{R=0}^{2} \exp(\beta_N' Z_{N,R}^{\text{Corporate}}) \right), \tag{6}$$

then Eq. (5) can be expressed as

$$\Pr(N) = \frac{\exp(\alpha_1' Z_N^{\text{Host nation}} + \alpha_2' Z_N^{\text{Differences between home and host nation}} + \rho I_N)}{\sum_{N=0}^{2} \exp(\alpha_1' Z_N^{\text{Host nation}} + \alpha_2' Z_N^{\text{Differences between home and host nation}} + \rho I_N)}. \tag{7}$$

Again, when $N = 1$ or 2 (home or third nation bank), then R can be only 0 or 1 (global or regional bank).

The parameters α, β_N, and ρ are estimated by working backwards on the Fig. 1 decision tree, applying multinomial logit at each stage. First, the β_N are estimated at each nationality node (N = home, host, and third) by regressing the conditional

bank reach observations $Y_i^{R|N}$ on corporate characteristics. Then, estimated values of β_N are used to construct inclusive values for each nationality node using Eq. (4). These inclusive values summarize the impact of corporate characteristics on the reach decision, conditional on a given choice of nationality. In the second step, α and ρ are estimated by regressing the bank nationality observations Y_i^N on host nation characteristics, differences between home and host nation characteristics, and the inclusive values.

4.3. Explanatory variables

The explanatory variables include characteristics of the host nation, geographic, cultural, and financial differences between the home and host nations, and attributes of the multinational corporation of which the foreign affiliate is a part. Table 4 lists these variables and their summary statistics. The continuous variables, such as dollar amounts and distance, are included in the regressions as the natural logs of the variables (denoted by ln), although we show the summary statistics for both the levels and logs.

As discussed above, firms choose bank nationality in our model based primarily on whether the concierge benefits of a host nation bank versus the home cookin' benefits of a home nation bank dominate. Firms may select a third nation bank if neither set of benefits is very important. We also control for some supply-related factors.

The host nation characteristics proxy for both the demand for concierge benefits from host nation banks and the willingness and ability of banks to supply these services within a host nation. There may be more need for concierge services in host nations with less well developed financial and legal systems, but it may also be more difficult for host nation banks to supply these services when the infrastructure of the nation is less developed. As one proxy for both financial and legal development, we include the dummy variable Former socialist nation that equals one when the host nation is the Czech Republic, Hungary, or Poland. Recent transitions to market economies imply that the financial systems of former socialist countries are likely to be significantly underdeveloped relative to other European countries. We also include two continuous measures of financial development, Bank assets/GDP and Market capitalization/GDP. Bank assets/GDP measures the importance of the host nation's banking sector in terms of the nation's aggregate domestic bank assets relative to GDP. Similarly, Market capitalization/GDP measures the importance of the host nation's capital markets by summing the value of private sector debt and market capitalization of stock market equity and dividing the sum by GDP. Exports/GDP is the value of the nation's total exports divided by GDP. It measures the degree of reliance firms within a nation have on cross-border product markets and is a measure of potential demand for cross-border banking services. Bank assets/GDP, Market capitalization/GDP, and Exports/GDP are all measured at year-end 1995 and are taken from Barth et al. (2001). As a legal development variable, we specify Creditor protection, a dummy that takes the value one when a country has both strong creditor protection laws and a good tradition of legal enforcement. This

Table 4
Summary statistics for the explanatory variables

Explanatory variables	Mean	Median	Minimum	Maximum	Standard deviation
Host nation characteristics					
Former socialist nation	0.067	0	0	1	0.251
Bank assets/GDP	0.971	0.994	0.287	1.810	0.379
ln(Bank assets/GDP)	−0.123	−0.005	−1.245	0.593	0.464
Market capitalization/GDP	1.251	1.101	0.207	1.931	0.493
ln(Market capitalization/GDP)	0.119	0.097	−1.574	0.658	0.506
Exports/GDP	0.383	0.308	0.133	1.004	0.174
ln(Exports/GDP)	−1.044	−1.177	−2.011	0.004	0.403
Creditor protection	0.302	0	0	1	0.459
Differences between home and host nations					
Distance between financial centers	1278	894	103	10,080	894
ln(Distance between financial centers)	6.750	6.796	4.650	9.218	0.947
Language difference	0.863	1	0	1	0.342
ΔBank assets/GDP	0.429	0.389	0.006	1.522	0.301
Δ ln(Bank assets/GDP)	0.530	0.457	0.006	20.513	1.600
ΔMarket capitalization/GDP	0.692	0.632	0.007	2.107	0.460
Δ ln(Market capitalization/GDP)	0.578	0.472	0.011	20.226	0.758
Corporate attributes					
Sales (billions $)	8.964	3.501	0.050	40.000	11.036
ln(Sales) ($)	8.307	8.161	3.931	10.596	1.395
Number of nations doing business	13	13	1	18	5
ln(Number of nations doing business)	2.483	2.639	0.693	2.917	0.566
Relationship importance	0.580	1	0	1	0.493
Farming and mining	0.109	0	0	1	0.311
Manufacturing	0.469	0	0	1	0.499
Services and trade	0.120	0	0	1	0.325

The table reports summary statistics on host nation characteristics, geographic, cultural, and financial differences between the home and host nations, and attributes of the corporation used as regressors in the two-stage NMNL model of bank nationality and reach decisions. The continuous explanatory variables are specified as the natural logarithm of the variable, denoted by the operator ln. The operator Δ denotes the absolute value of the difference in values between the home and host nations. We show summary statistics with and without the logs, but only the logs are included in the regressions. Former socialist nation is a dummy variable equal to one if the host nation is the Czech Republic, Hungary, or Poland, and zero otherwise. Bank assets/GDP is the aggregate value of a nation's domestic bank assets divided by GDP. Market capitalization/GDP is the value of a nation's private sector debt securities and stock market capitalization, divided by GDP. Exports/GDP is the total value of a nation's exports divided by GDP. Bank assets/GDP, Market capitalization/GDP, and Exports/GDP are all measured at the end of 1995. Creditor protection is a dummy variable equal to one when a nation provides strong protection of creditor rights and has a history of strong legal enforcement, and zero otherwise. Distance is the distance, in miles, between the financial centers of the home and host nations. Language difference is a dummy variable equal to one when a home and host nation do not share an official language, and zero otherwise. ΔBank assets/GDP is |Bank assets/GDP$_{Home}$ − Bank assets/GDP$_{Host}$| and ΔMarket capitalization/GDP is |Market capitalization/GDP$_{Home}$ − Market capitalization/GDP$_{Host}$|. Similarly, Δ ln(Bank assets/GDP) is |ln(Bank assets/GDP$_{Home}$) − ln(Bank assets/GDP$_{Host}$)| and Δ ln(Market capitalization/GDP) is |ln(Market capitalization/GDP$_{Home}$) − ln(Market capitalization/GDP$_{Home}$)|. Sales is a corporation's 1995 consolidated sales, based on reported categories in the survey. Number of nations doing business is the number of European nations in which the corporation reports doing business. Relationship importance is

Table 4 (*continued*)

a dummy variable based on the corporation's perceived importance of its banking relationships, equal to one if the response was ''important'' or ''very important,'' and zero otherwise. Farm and mining, Manufacturing, and Services and trade are dummy variables indicating the broad industry of the corporation, with all other industries excluded from the regressions as the base case. The number of observations is 2043.

variable is calculated using the creditor rights and legal enforcement indexes created by LaPorta et al. (1997). [6]

The geographic, cultural, and financial differences between the home and host nations also proxy for some demand and supply effects. Demand for concierge services should be greater when the home and host nations are very different. Moreover, the ability for a home nation bank to supply home cookin' benefits may become more difficult, the more different is the home nation from the host nation. Both effects predict that when the differences between home and host characteristics are greater, a host nation bank is more likely to be chosen and a home nation bank is less likely to be chosen. We construct a variety of variables so that a higher number indicates a greater difference between the home and host nation, taking absolute values of differences where necessary. The variable ln(Distance) measures the natural log of the distance in miles between the host and home nation's financial capitals. Language difference equals one when the host and home nations do not share any common official languages, and takes the value zero if any of the official languages of the home nation match any of the official languages of the host nation. The variables Δln(Bank assets/GDP), defined as the absolute value of the log difference $|\ln(\text{Bank assets/GDP}_{\text{Home}}) - \ln(\text{Bank assets/GDP}_{\text{Host}})|$, and Δln(Market capitalization/GDP), defined similarly to be $|\ln(\text{Market capitalization/GDP}_{\text{Home}}) - \ln(\text{Market capitalization/GDP}_{\text{Host}})|$, measure the magnitude of the differences in financial development between the home and host nations.

Finally, attributes of the multinational corporation of which the foreign affiliate is a part could influence the choices of bank nationality and bank reach and are included in both sets of equations. Relatively large corporations with product reach that extends across many nations could have developed enough in-house expertise so that neither concierge nor home cookin' benefits have much value. Such corporations may rely more on third nation banks than corporations where one of the two effects is important. Large companies and companies with extended product reach may also prefer global banks because of the range of products they offer, while small companies and companies that value relationship-based financing should prefer banks that emphasize their local reach. Ln Sales, the log of the corporation's 1995

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[6] The creditor rights index summarizes a country's laws regarding creditor restrictions on other stakeholders (such as minimum dividends or consent to file for reorganization), automatic stays, guarantees of priority, and who obtains control during bankruptcy. The index ranges between 0 and 4 with a 4 corresponding to the strongest laws favoring creditor rights. The enforcement index measures the law and order tradition in a country. It runs on a scale between 0 and 10, with higher values corresponding to a stronger enforcement tradition. Creditor protection equals one if the creditor rights index is higher than 2 and the enforcement index is higher than 6.

consolidated sales, acts as a proxy for the size of the corporation. [7] Number of nations doing business is the number of European nations in which the corporation reports doing business. Relationship importance is an assessment made by the survey respondent as to the perceived importance of their relationship with a given bank, among a set of nine other specified criteria, in allocating business between existing banks. We assign a one to the variable if company managers answered that a relationship was ''important'' or ''very important,'' and a zero otherwise. We posit that foreign affiliates of companies that rank relationship importance high will be more likely to choose a local or regional bank that can offer stronger relationship services than a global bank. Finally, we include dummy variables to control for industry-specific effects. Specifically, we group companies into one of four broad industry categories: Farming and mining, Manufacturing, Services and trade, or Other industry, with the Other industry category excluded from the specification as the base case.

5. Results

Tables 5–7 contain the results of the two-stage NMNL model. For each of the tables, we compute and report estimated partial derivatives that measure the impact of small changes in each of the explanatory variables on the probability of observing a given bank choice, holding the other variables constant, evaluated at the sample mean of the explanatory variables. We write this as $\partial \mathrm{Pr}(N)/\partial Z_{\bar{z}}$ when evaluating bank nationality and $\partial \mathrm{Pr}(R)/\partial Z_{\bar{z}}$ when evaluating bank reach. The sums of the estimated derivatives equal zero across a given set of choices of bank nationality (host nation, home nation, or third nation) or bank reach (global, regional, or local) because the sums of the probabilities must equal one.

We also report all results using two different definitions of bank nationality and reach. The first definition – used in the summary statistics and shown in the earlier figures and tables – is based on the firm's primary bank and ignores the firm's secondary bank. The second definition maximizes the measured reach of the bank by replacing the primary bank with the secondary bank in cases in which the secondary bank has greater reach. That is, for the second definition, the secondary bank's nationality is used if the primary bank is a local bank and the secondary bank is regional or global, or if the primary bank is regional and the secondary bank is global. Because the results are similar across the two definitions, we focus on the findings using the first definition.

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[7] Corporations do not actually report exact sales figures. Instead, they categorize their total sales into one of eight intervals, beginning with ''less than $100 million'' and ending with ''greater than $10 billion''. To obtain a value for sales that is economically meaningful, we convert each categorical response to the midpoint dollar value in that category. A corporation that selects the category ''less than $100 million'' gets coded as having sales of $50 million. For companies reporting sales ''greater than $10 billion,'' we select the value $20 billion.

Table 5
Regression of bank nationality on host nation characteristics, differences between home and host nations, and imputed corporate attributes (estimates of $\partial\text{Pr}(N)/\partial Z_{\bar{z}}$)

	Dependent variable based on primary bank only			Dependent variable based on bank with widest reach		
	Host	Home	Third	Host	Home	Third
Host nation characteristics						
Former socialist nation	−0.373***	0.244***	0.129***	−0.366***	0.233***	0.133***
	(0.087)	(0.030)	(0.033)	(0.083)	(0.064)	(0.033)
ln(Bank assets/GDP)	−0.007	0.031	−0.024*	−0.007	0.032	−0.025*
	(0.035)	(0.028)	(0.013)	(0.033)	(0.025)	(0.013)
ln(Market capitalization/GDP)	−0.059	0.039	0.020	−0.055	0.035	0.020
	(0.046)	(0.037)	(0.018)	(0.044)	(0.035)	(0.019)
ln(Exports/GDP)	0.072*	−0.052*	−0.020	0.072**	−0.051*	−0.020
	(0.038)	(0.029)	(0.014)	(0.036)	(0.028)	(0.014)
Creditor Protection	−0.016	−0.001	0.015	−0.010	−0.006	0.016
	(0.034)	(0.027)	(0.013)	(0.032)	(0.025)	(0.014)
Differences between home and host nations						
ln(Distance)	−0.065***	0.052***	0.013***	−0.060***	0.047***	0.013***
	(0.008)	(0.007)	(0.003)	(0.008)	(0.006)	(0.003)
Language difference	−0.036	−0.035	0.071***	−0.034	−0.043	0.077***
	(0.042)	(0.031)	(0.018)	(0.040)	(0.030)	(0.019)
Δln(Bank assets/GDP)	−0.047	0.011	0.036***	−0.032	−0.001	0.033***
	(0.033)	(0.026)	(0.013)	(0.032)	(0.025)	(0.012)
Δln(Market capitalization/GDP)	0.027	−0.001	−0.026*	0.022	0.004	−0.026**
	(0.035)	(0.028)	(0.013)	(0.033)	(0.027)	(0.013)
Corporate attributes						
ln(Sales)	−0.103***	0.113***	−0.010	−0.105**	0.106***	−0.001
	(0.041)	(0.018)	(0.022)	(0.043)	(0.018)	(0.024)
ln(Number of nations doing business)	−0.228*	0.276***	−0.048	−0.227*	0.289***	−0.063
	(0.127)	(0.054)	(0.072)	(0.134)	(0.053)	(0.080)
Relationship importance	−0.004	0.016	−0.012	−0.008	0.018	−0.010
	(0.124)	(0.053)	(0.071)	(0.131)	(0.053)	(0.077)
Farming and mining	−0.025	0.000	0.025	−0.061	−0.016	0.077
	(0.232)	(0.081)	(0.150)	(0.250)	(0.080)	(0.169)

Table 5 (*continued*)

| | Dependent variable based on primary bank only | | | Dependent variable based on bank with widest reach | | |
	Host	Home	Third	Host	Home	Third
Corporate attributes						
Manufacturing	−0.129	0.106*	0.023	−0.132	0.104*	0.028
	(0.146)	(0.055)	(0.090)	(0.154)	(0.057)	(0.096)
Services and trade	−0.157	0.070	0.087	−0.158	0.058	0.100
	(0.256)	(0.073)	(0.181)	(0.271)	(0.073)	(0.197)

This table reports estimated partial derivatives from the two-stage NMNL regression of bank nationality choice on host nation characteristics, geographic, cultural, and financial differences between the home and host nations, and attributes of the corporation. Each estimated partial derivative measures the change in the probability of observing a given bank nationality choice given a small change in the regressor, holding the other variables constant, evaluated at the sample mean of the explanatory variables, i.e., $\partial \mathrm{Pr}(N)/\partial Z_{\bar{z}}$. A host nation bank is headquartered in the nation in which the affiliate operates, a home nation bank is headquartered in the same nation as the multinational corporation's headquarters, and a third nation bank is headquartered in neither the host nor the home nation. The continuous explanatory variables are specified as the natural logarithm of the variable, denoted by the operator ln. The operator Δ notes the absolute value of the difference in ln values between home and host nations. Former socialist nation is a dummy variable equal to one if the host nation is the Czech Republic, Hungary, or Poland, and zero otherwise. Bank assets/GDP is the aggregate value of a nation's domestic bank assets divided by GDP. Market capitalization/GDP is the value of a nation's private sector debt securities and stock market capitalization, divided by GDP. Exports/GDP is the total value of anation's exports divided by GDP. Bank assets/GDP, Market capitalization/GDP, and Exports/GDP are all measured at the end of 1995. Creditor protection is a dummy variable equal to one when a nation provides strong protection of creditor rights and has a history of strong legal enforcement, and zero otherwise. Distance is the distance, in miles, between the financial centers of the home and host nations. Language difference is a dummy variable equal to one when a home and host nation do not share an official language, and zero otherwise. $\Delta \ln(\text{Bank assets/GDP})$ is $|\ln(\text{Bank assets/GDP}_{\text{Home}}) - \ln(\text{Bank assets/GDP}_{\text{Host}})|$ and $\Delta \ln(\text{Market capitalization/GDP})$ is $|\ln(\text{Market capitalization/GDP}_{\text{Home}}) - \ln(\text{Market capitalization/GDP}_{\text{Host}})|$. Sales is a corporation's 1995 consolidated sales, based on reported categories in the survey. Number of nations doing business is the number of European nations in which the corporation reports doing business. Relationship importance is a dummy variable based on the corporation's perceived importance of its banking relationships, equal to one if the response was "important" or "very important," and zero otherwise. Farm and mining, Manufacturing and Services and trade are dummy variables indicating the broad industry of the corporation, with all other industries excluded from the regressions as the base case. The number of observations used in the regressions is 2043. Standard errors are in parentheses. *, **, *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6
Regressions of bank reach on corporate attributes (estimates of $\partial \mathrm{Pr}(R|N)/\partial Z_{\bar{z}}$)

	Dependent variable based on primary bank only			Dependent variable based on bank with widest reach		
	Global	Regional	Local	Global	Regional	Local
First stage = Host nation bank						
(1350 observations)						
ln(Sales)	−0.001	0.023**	−0.022***	−0.000	0.009	−0.009
	(0.008)	(0.010)	(0.008)	(0.009)	(0.010)	(0.007)
ln(Number of nations doing business)	−0.070***	0.070***	0.000	−0.056**	0.078***	−0.022
	(0.019)	(0.025)	(0.020)	(0.022)	(0.025)	(0.016)
Relationship importance	0.020	0.008	−0.028	0.016	0.014	−0.030
	(0.023)	(0.028)	(0.022)	(0.025)	(0.028)	(0.019)
Farming and mining	−0.005	0.016	−0.011	0.066	−0.061	−0.005
	(0.039)	(0.048)	(0.038)	(0.042)	(0.048)	(0.031)
Manufacturing	0.008	0.009	−0.018	0.044	−0.003	−0.041**
	(0.025)	(0.031)	(0.024)	(0.028)	(0.031)	(0.020)
Services and trade	0.024	−0.037	0.012	0.017	0.000	−0.017
	(0.036)	(0.045)	(0.035)	(0.042)	(0.046)	(0.030)
First stage = Home nation bank						
(347 observations)						
ln(Sales)	0.140***	−0.140***		0.125***	−0.125***	
	(0.025)	(0.025)		(0.024)	(0.024)	
ln(Number of nations doing business)	0.335***	−0.335***		0.328***	−0.328***	
	(0.073)	(0.073)		(0.070)	(0.070)	
Relationship importance	0.017	−0.017		0.018	−0.018	
	(0.071)	(0.071)		(0.068)	(0.068)	
Farming and mining	0.005	−0.005		−0.001	0.001	
	(0.110)	(0.110)		(0.104)	(0.104)	
Manufacturing	0.138*	−0.138*		0.130*	−0.130*	
	(0.075)	(0.075)		(0.073)	(0.073)	
Services and trade	0.108	−0.108		0.090	−0.090	
	(0.102)	(0.102)		(0.097)	(0.097)	

Table 6 (*continued*)

	Dependent variable based on primary bank only			Dependent variable based on bank with widest reach		
	Global	Regional	Local	Global	Regional	Local
First stage = Third nation bank *(346 observations)*						
ln(Sales)	−0.002	0.002		0.015	−0.015	
	(0.021)	(0.021)		(0.021)	(0.021)	
ln(Number of nations doing business)	−0.054	0.054		−0.069	0.069	
	(0.049)	(0.049)		(0.048)	(0.048)	
Relationship importance	−0.022	0.022		−0.016	0.016	
	(0.054)	(0.054)		(0.052)	(0.052)	
Farming and mining	0.052	−0.052		0.140	−0.140	
	(0.092)	(0.092)		(0.093)	(0.093)	
Industry	0.068	−0.068		0.068	−0.068	
	(0.063)	(0.063)		(0.061)	(0.061)	
Services and trade	0.196**	−0.196**		0.195**	−0.195**	
	(0.098)	(0.098)		(0.097)	(0.097)	

This table reports estimated partial derivatives from multinomial logit regressions of bank reach on corporate attributes, conditioning first on the choice of bank nationality. Each estimated partial derivative measures the change in probability of observing a given conditional bank reach choice given a small change in a regressor, holding the other variables constant, evaluated at the sample mean of the explanatory variables, i.e., $\partial \Pr(R|N)/\partial Z_z$. A host nation bank is headquartered in the nation in which the affiliate operates, a home nation bank is headquartered in the same nation as the multinational corporation's headquarters, and a third nation bank is headquartered in neither the host nor the home nation. A global bank provides services to sample firms in at least nine of the 20 European nations and had at least \$100 billion in worldwide assets as of year-end 1995, a local bank provides services to sample firms only in the European nation of the bank's headquarters and had assets of less than \$100 billion, and a regional bank is neither global (too few nations or too small) nor local (too many nations or too large). The continuous explanatory variables are specified as the natural logarithm of the variable and denoted by the operator ln. Sales is a corporation's 1995 consolidated sales, based on reported categories in the survey. Number of nations doing business is the number of European nations in which the corporation reports doing business. Relationship importance is a dummy variable based on the corporation's perceived importance of its banking relationships, equal to one if the response was "important" or "very important," and zero otherwise. Farming and mining, Manufacturing, and Services and trade are dummy variables indicating the broad industry of the corporation, with all other industries excluded from the regressions as the base case. The number of observations used in the regressions is 2043. Standard errors are in parentheses. *, **, *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7
Imputed effects on unconditional bank reach of host nation characteristics, differences between home and host nations, and corporate attributes (estimates of $\partial\mathrm{Pr}(N)/\partial Z_{\hat{z}}$)

	Dependent variable based on primary bank only			Dependent variable based on bank with widest reach		
	Global	Regional	Local	Global	Regional	Local
Host nation characteristics						
Former socialist nation	0.161**	−0.093	−0.068***	0.146*	−0.099	−0.047***
	(0.073)	(0.087)	(0.016)	(0.078)	(0.080)	(0.011)
ln(Bank assets/GDP)	0.003	−0.002	−0.001	0.003	−0.002	−0.001
	(0.031)	(0.037)	(0.007)	(0.033)	(0.034)	(0.005)
ln(Market capitalization/GDP)	0.025	−0.015	−0.012	0.022	−0.015	−0.007
	(0.041)	(0.048)	(0.009)	(0.044)	(0.045)	(0.006)
ln(Exports/GDP)	−0.031	0.018	0.013*	−0.029	0.020	0.009*
	(0.032)	(0.039)	(0.007)	(0.035)	(0.036)	(0.005)
Creditor protection	0.007	−0.004	−0.003	0.004	−0.003	−0.001
	(0.030)	(0.036)	(0.007)	(0.032)	(0.033)	(0.004)
Differences between home and host nations						
ln(Distance)	0.028***	−0.016**	−0.012***	0.024***	−0.016**	−0.008***
	(0.007)	(0.008)	(0.002)	(0.008)	(0.008)	(0.001)
Language difference	0.015	−0.009	−0.006	0.014	−0.009	−0.005
	(0.037)	(0.044)	(0.008)	(0.040)	(0.041)	(0.006)
Δ ln(Bank assets/GDP)	0.020	−0.012	−0.008	0.013	−0.009	−0.004
	(0.029)	(0.035)	(0.006)	(0.031)	(0.032)	(0.004)
Δ ln(Market capitalization/GDP)	−0.012	0.007	0.005	−0.009	0.006	0.003
	(0.031)	(0.036)	(0.007)	(0.033)	(0.034)	(0.005)
Corporate attributes						
ln(Sales)	0.067*	−0.031	−0.035***	0.065	−0.045	−0.020*
	(0.035)	(0.054)	(0.014)	(0.041)	(0.054)	(0.011)
ln(Number of nations doing business)	0.098	−0.057	−0.041	0.101	−0.055	−0.046
	(0.104)	(0.161)	(0.038)	(0.125)	(0.161)	(0.029)
Relationship importance	0.019	0.003	−0.022	0.017	0.006	−0.024
	(0.105)	(0.160)	(0.039)	(0.125)	(0.161)	(0.031)

Table 7 (*continued*)

	Dependent variable based on primary bank only			Dependent variable based on bank with widest reach		
	Global	Regional	Local	Global	Regional	Local
Corporate attributes						
Farming and mining	0.011	0.002	−0.013	0.085	−0.073	−0.012
	(0.198)	(0.291)	(0.071)	(0.239)	(0.297)	(0.056)
Manufacturing	0.090	−0.053	−0.037	0.114	−0.065	−0.048
	(0.124)	(0.185)	(0.045)	(0.147)	(0.186)	(0.036)
Services and trade	0.118	−0.099	−0.019	0.106	−0.072	−0.033
	(0.216)	(0.312)	(0.074)	(0.259)	(0.315)	(0.058)

This table reports imputed partial derivative estimates from the two-stage NMNL model of host nation characteristics, geographic, cultural, and financial differences between the home and host nations, and attributes of the corporation on bank reach . Each estimated partial derivative measures the change in probability of observing a given bank reach choice given a small change in a regressor, holding the other variables constant, evaluated at the sample mean of the explanatory variables, i.e., $\partial \Pr(R)/\partial Z_{\hat{z}}$. A global bank provides services to sample firms in at least nine of the 20 European nations and had at least $100 billion in worldwide assets as of year-end 1995, a local bank provides services to sample firms only in the European nation of the bank's headquarters and had assets of less than $100 billion, and a regional bank is neither global (too few nations or too small) nor local (too many nations or too large). The continuous; explanatory variables are specified as the natural logarithm of the variable, denoted by the operator ln. The operator Δ denotes the absolute value of the difference in ln values between home and host nations. Former socialist nation is a dummy variable equal to one if the host nation is the Czech Republic, Hungary, or Poland, and zero otherwise. Bank assets/GDP is the aggregate value of a nation's domestic bank assets divided by GDP. Market capitalization/GDP is the value of a nation's private sector debt securities and stock market capitalization, divided by GDP. Exports/GDP is the total value of a nation's exports divided by GDP. Bank assets/GDP, Market capitalization/GDP, and Exports/GDP are all measured at the end of 1995. Creditor protection is a dummy variable equal to one when a nation provides strong protection of creditor rights and has a history of strong legal enforcement, and zero otherwise. Distance is the distance, in miles, between the financial centers of the home and host nations. Language difference is a dummy variable equal to one when a home and host nation do not share an official language, and zero otherwise. $\Delta \ln(\text{Bank assets/GDP})$ is $|\ln(\text{Bank assets/GDP}_{\text{Home}}) - \ln(\text{Bank assets/GDP}_{\text{Host}})|$ and $\Delta \ln(\text{Market capitalization/GDP})$ is $|\ln(\text{Market capitalization/GDP}_{\text{Home}}) - \ln(\text{Market capitalization/GDP}_{\text{Host}})|$. Sales is a corporations' 1995 consolidated sales, based on reported categories in the survey. Number of nations doing business is the number of European nations in which the corporation reports doing business. Relationship importance is a dummy variable based on the corporation's perceived importance of its banking relationships, equal to one if the response was "important" or "very important," and zero otherwise. Farm and mining, Manufacturing, and Services and trade are dummy variables indicating the broad industry of the corporation, with all other industries excluded from the regressions as the base case. The number of observations used in the regressions is 2043. Standard errors are in parentheses. *, **, *** represent statistical significance at the 10%, 5%, and 1% levels, respectively.

5.1. Bank nationality regressions

Table 5 contains the estimated partial derivatives from the regression of bank nationality choice on host nation characteristics, geographic, cultural, and financial differences between the home and host nations. The table also reports the impact of the corporate attributes on nationality, imputed from the inclusive value estimates obtained from the reach regressions shown below. Several interesting patterns emerge from the table.

First, holding the other variables constant, firms operating in socialist nations are less likely, by 37.3 percentage points, to choose a host nation, all else equal, and are instead more likely to choose a home nation bank (by 24.4 percentage points) or third nation bank (by 12.9 percentage points). This effect of being in a former socialist nation explains most, but not nearly all of the observed difference in means shown in Table 2 above, in which the frequencies for former socialist nations choosing host nation banks (26.2%) were on average more than 40 percentage points below the large banking sector nations (69.1%) and small banking sector nations (67.0%). This finding is consistent with the hypothesis that financial systems within former socialist countries may be too new and underdeveloped in some cases to create banks with sufficient concierge services, so that many foreign affiliates of multinational corporations may rely instead on banks from other nations. Most of the other host nation characteristics do not have a statistically significant effect on the choice of bank nationality, except that greater exports are associated with a greater probability of choosing a third nation bank and a lesser probability of choosing a home nation bank.

Second, the estimates on the variables that measure differences between the home and host nations generally do not support the hypothesis that relatively large geographic, cultural, and financial differences between the two nations make it more likely that a firm will use a host nation bank for cash management services. In fact, the relation between all of these variables and the likelihood of choosing a host nation bank are negative or zero. For instance, firms become significantly less likely to use a host nation bank and more likely to use a home nation bank or third nation bank as the geographical distance between the home and host increases. The partial derivative estimates imply that a 10% increase in distance from the mean of ln(Distance) is predicted to increase the likelihood of choosing a home nation bank by about 0.49 percentage points $(0.052 \ln(1.10))$ and a third nation bank by roughly 0.12 percentage points $(0.013 \ln(1.10))$. Firms are significantly more likely to choose a third nation bank when the home and host do not share a common language and when the difference in size of the two nations' banking sectors is large. The language difference estimate implies that lack of a common language between the home and host nations leads to 7.1 percentage point increase in the likelihood of choosing a third nation bank. The estimate on $\Delta \ln(\text{Bank assets})$ suggests that an increase of 10% in the mean value of the absolute difference between the logged size of the two nations' banking sectors implies a 0.36 percentage point increase in the likelihood of selecting a third nation bank.

The results on the variables that measure differences between the home and host nations could be driven in part by US multinational corporations, which come

from a home nation that is located relatively far from the host nations and has relatively large capital markets, yet has firms that rely heavily on home nation banks (see Table 3). As discussed earlier, this may reflect in part the relatively high efficiency of US banks in other nations, or preferences for control by the US corporations or home nation banks. To test the extent to which the behavior of these firms may explain the anomalous results for the differences between home and host nations, we try removing the foreign affiliates of US corporations from the sample (not shown in tables). The estimate on ln(Distance) switches signs to become positive and significant and the estimate on language difference becomes positive but not significant, while all other estimates remain the same sign and of similar magnitude. Thus, without the US firms, the signs on ln(Distance) and language difference are consistent with our hypothesis that coming from a more distant home nation or one that does not share a language with the host nation improves the value of concierge benefits and makes firms more likely to rely on a host nation bank.

The imputed corporate attribute estimates suggest that as corporations become larger and operate in more European nations, they become significantly less likely to use a host nation bank and more likely to use a home nation bank. This result could reflect that larger and more far-flung corporations have less demand for concierge services in each individual foreign nation. Alternatively, it may suggest that some banking organizations engage in "follow-your-customer" strategies that target their home customers as they grow and expand.

5.2. Conditional bank reach regressions

Table 6 reports the results from the regressions of bank reach on corporate attributes, conditioned first on the nationality of the bank. Three sets of estimates are given, depending on the bank nationality chosen in the first stage of the decision tree. Conditional on choosing a host nation bank, firm may choose a bank with global, regional, or local reach. Conditional on choosing a home nation or third nation bank, firms can only choose between a global and regional bank. Comparing the estimates for the different nationality choices gives a sense for how nationality choice influences the reach decision.

Conditional on choosing a host nation bank, firms appear to become more likely to select a regional bank rather than a local bank as they become larger in terms of ln(Sales). Interestingly, size does not appear to influence the likelihood of selecting a global bank. However, firms become *less* likely to choose a global bank as the number of countries in which their corporation does business increases. In contrast, firms that have chosen a home nation bank appear to be more likely to select a global bank as they become bigger and as the number of countries in which they do business increases. Finally, conditional on choosing a third nation bank, little variation in the reach choice is explained by our variables.

At first blush, the effect of ln(Number of nations doing business) on choice of bank reach for firms that choose host nation banks may seem counterintuitive. It might be expected that firms that use host nation banks would rely more on glo-

bal banks as they do business in more nations, as we find that firms do when they use home nation banks. However, this result is consistent with the hypothesis that as these corporations expand internationally, they may prefer the mix of services from regional banks that have better expertise about the foreign nations in which they operate, and still provide a reasonably wide variety of international services.

Table 7 shows imputed partial derivative estimates of the unconditional impact of the explanatory variables on bank reach. The unconditional probability of choosing a bank of a given reach, $P(R)$, can be expressed as

$$P(R) = \sum_{N=0}^{2} P(R|N)P(N). \tag{8}$$

Partial derivatives can then be computed using the chain rule:

$$\frac{\partial P(R)}{\partial Z} = \sum_{N=0}^{2} \left[\frac{\partial P(R|N)}{\partial Z} P(N) + P(R|N) \frac{\partial P(N)}{\partial Z} \right]. \tag{9}$$

We obtain estimates in Table 7 by replacing the right hand side of Eq. (9) with the estimates of $\partial P(N)/\partial Z$ and $\partial P(R|N)/\partial Z$ from Tables 5 and 6, respectively, and fitted values of $P(N)$ and $P(R|N)$. Standard errors for the imputed estimates are calculated in a similar fashion. Note that Eq. (9) reflects the effects of all three sets of explanatory variables on bank reach through their effects on the choice of bank nationality, as well as the direct effects of the corporate attributes.

Most of the signs of the derivatives on host nation characteristics shown in Table 7 are consistent with expectations, although there is not much statistical significance. The findings suggest that firms operating in former socialist nations are more likely to choose a global bank and less likely to choose a local bank, consistent with expectations that these firms more often need the wide range of services and expertise of a global bank, rather than a local bank headquartered in a former socialist nation. Firms also become more likely to use a global bank as the distance between the host and home nations increases, although this may be driven in part by the presence of US firms. Finally, the data also suggest that larger firms are more likely to choose greater bank reach, consistent with expectations.

6. Conclusion

In this paper, we examine bank globalization along two dimensions – bank nationality and bank reach – using data on cash management services provided to foreign affiliates of large multinational corporations. These firms represent a significant portion of the potential market for global banks and should therefore be influential in determining the extent to which the banking industry will become globalized. The provision of cash management services to such firms represents a crucial "middle ground" of financial services that could be provided by a range of different institutions – from a small local bank that operates only in the host nation to a large global

bank headquartered in a distant financial center but with a physical presence in the host nation.

We investigate bank nationality and reach using a two-stage NMNL model in which bank nationality is of primary importance and may influence bank reach. Explanatory variables in the model include (1) host nation characteristics, (2) geographic, cultural, and financial differences between the home and host nations, and (3) attributes of the multinational corporations. The first two sets of variables are designed to reflect both the demand of the foreign affiliates of the multinational corporations for cash management services from banks of different nationalities and the willingness and ability of these banks to supply the services. The attributes of the corporations are assumed to affect both bank nationality and reach through the demand side alone.

We find that nearly two-thirds of our sample firms choose a bank headquartered in the host nation and less than 20% select a bank from their home nation. This is consistent with a strong "concierge" effect that dominates the "home cookin" effect. That is, affiliates of multinational corporations often use banks that know the local market, culture, language, and regulatory conditions rather than banks that are more familiar with the conditions in the corporation's home market, or have direct ties to the corporation in the home nation.

The data also suggest that bank reach is strongly associated with bank nationality. Firms that use host nation banks for cash management services are less likely to use a global bank and more likely to use a local or regional bank. Moreover, corporations that use host nation banks also tend to use regional banks as they expand internationally, whereas those that use home nation banks tend to rely on global banks as they expand. These findings together suggest that local and regional banks may be better at delivering concierge services than global banks, and large, multinational corporations need more concierge services as they expand further from their home nation. Overall, the finding that multinational corporations rely on host nation banks with limited reach suggests the extent of globalization may remain limited.

Our bank nationality and bank reach regressions also yield some additional interesting results about the likely determinants of bank globalization. For example, we find that the very low levels of financial development in the former socialist nations appear to have strong effects on both bank nationality and bank reach. Firms operating in the former socialist nations of Eastern Europe are more likely to use home nation or third nation banks rather than host nation banks, and are also more likely to choose banks with a global reach.

We caution that these inferences are subject to several caveats. First, we acknowledge that the financial structure of the banking industry reflects some supply and demand factors that are not modeled here. For instance, implicit barriers to competition might limit the supply of cash management services in some nations and therefore reduce the choice set available to our sample firms. Second, because our sample is a "snapshot" of the European market in 1996, our data do not necessarily reflect the long-run, steady-state equilibrium. For instance, the introduction of the Euro in 1999 – and its subsequent adoption as a physical currency in 2002 – may

have reduced the costs of offering financial services across the borders of European Monetary Union (EMU) nations, making it easier for home and third nation banks to compete with host nation banks. [8] Third, our measurement of bank reach is somewhat arbitrary and Eurocentric – we may classify some banks as global that only have substantial reach within Europe.

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[8] However, a recent study uses an extensive panel of micro-level price data to demonstrate that most of the convergence in goods prices in Europe occurred in the early 1990s. Prices continue to converge after the introduction of the Euro, but at a slower rate than in the early 1990s (Rogers, 2001).

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