

Entry Mode Choices of Multinational Banks

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Abstract

Multinational banks choose between various entry modes when entering new markets. We analyze entry mode decisions of foreign banks and find that the entry mode pattern increasing in banks' productivity is composed of cross border lending followed by greenfield and, finally, acquisition entry. Further, we study how soft information problems, the efficiency of foreign versus host country banks and competition affect entry mode choices and show that these effects crucially depend on the financial development of the host country. Moreover, our analysis indicates that regulation policies regarding multinational banks' entry modes should be based on the efficiency of potential entrants.

JEL classification: F37, G21, G34, L13, O16

Keywords: foreign bank entry, multinational bank, cross border lending, greenfield entry, acquisition entry

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1 Introduction

One of the most striking developments in the banking sector in emerging market and transition economies has been the sharp increase of foreign bank entry during the last decade. For instance, the market share of foreign banks in Eastern Europe has gone up from on average around 11% in 1995 to around 65% in 2003 (Claeys and Hainz, 2006). The situation looks similar in Latin America, and foreign bank entry is likewise on the rise in other emerging economies in Asia, Africa and the Middle East, albeit at a lower pace (Clarke et al, 2003).

Why do multinational banks strive to enter new markets and how do they choose by which mode of entry they engage in new markets? How does the financial development status of host banking markets, the degree of competition and soft information problems influence entry mode patterns? Why is foreign bank entry regulated to such a high degree in most countries and what are the incentives of policy makers to introduce specific regulations concerning entry modes? So far, the literature has not precisely answered these questions.

The aim of our paper is to analyze the entry mode choices of multinational banks engaging in new markets. We allow for three different entry modes: cross border lending, greenfield and acquisition entry. Further, we are interested in how soft information problems, the efficiency of foreign versus host country banks as well as the degree of competition in the host country affect the entry mode decisions of multinational banks. We study, in particular, how entry mode patterns differ according to whether the host country is an emerging or a relatively mature banking market. Moreover, from our welfare analysis we derive policy recommen-

dations concerning the regulation of entry modes in the banking sector.

For this purpose, we set up a model of spatial bank competition à la Salop. Banks in the host and the foreign country compete in interest rates for potential borrowers that engage in investment projects of uncertain return. Banks in our model differ with respect to screening abilities and refinancing costs. Foreign banks have access to a better screening technology and lower refinancing costs than host country banks. When taking the entry mode decision, multinational banks face a trade-off between soft information problems and entry costs. In case of greenfield entry and even more so with cross border lending, foreign banks need to deal with soft information problems in the host banking market. Further, they face a fixed entry cost for either setting up a representative office in case of cross border lending or a subsidiary when operating in the host country through a de novo investment. However, by entering the host country via the acquisition of a domestic bank, multinational banks gain access to the soft information held by the acquired host country bank. In contrast to most of the previous approaches in this area, we model the acquisition price endogenously.

Our analysis shows that multinational banks choose their entry modes according to their efficiency in screening potential borrowers. We find that the entry mode pattern is given as follows: relatively inefficient foreign banks fail to profitably enter new markets. Multinational banks having access to a good enough screening ability to profitably enter new markets choose cross border lending due to the relatively low fixed entry cost, e.g. for establishing a representative office. As soon as the lower soft information problem in case of de novo entry compared to cross border lending compensates the higher fixed entry cost for setting up a

subsidiary, banks move from cross border lending to greenfield entry. We show that the banks that are most efficient in screening borrowers enter new markets via the acquisition of a host country bank. This is because they can largely drive down the acquisition price by threatening to enter via a de novo investment resulting in low market shares and profits of domestic banks and, thus, a low acquisition price.

Our paper also deals with the impact of changes in soft information problems, the relative screening efficiency of host country banks and the degree of competitive pressure on the entry mode decisions of multinational banks. We find that how these factors affect the entry mode choice crucially depends on the financial development status of host banking markets. We show that acquisition entry becomes unambiguously more attractive for foreign banks entering emerging market economies when soft information problems in the host country are severe. Larger differences in the screening efficiency of domestic and foreign banks also increase the attractiveness of acquisition entry. Concerning a rising degree of competitive pressure in the host country, we find that in case of a mature financial host banking market, multinational banks need to be more efficient to enter this market while in case of an emerging market country, less efficient foreign banks can enter that market. However, independent of the financial development of the host country, rising competition unambiguously leads to more acquisition entry.

Regarding our welfare analysis, we show that the policy maker of the host banking market favors the same order of entry modes as it emerges with unrestricted entry. However, we find that the policy maker of the host banking market should try to encourage cross border lending of multinational banks that without entry restrictions would not enter the market. Furthermore, the policy maker should al-

low greenfield entry of foreign banks only for a range of relatively more efficiently screening multinational banks compared to the outcome with unrestricted foreign bank entry. Finally, acquisition entry should be restricted to only the most efficient multinational banks. Hence, regulation policies regarding the entry modes of foreign banks should be based on the efficiency of potential entrants.

Foreign bank entry has received surprisingly little attention in the literature so far. Goldberg (2004) raises the issue by comparing foreign direct investments in the financial and the manufacturing sector, focusing on the implications for emerging market economies. Attempts to analyze foreign bank entry in a theoretical framework have been scarce. Dell’Ariccia, Friedman and Marquez (1999) point to the problem potential entrant banks may face in distinguishing good from bad borrowers that have already been rejected by incumbent banks. In line with this approach, Dell’Ariccia and Marquez (2004) analyze the trade-off between superior information of host country banks and lower refinancing costs of foreign banks entering the market. Buch (2003) sets up a theoretical model of foreign bank entry and finds empirical support for the hypothesis that large information barriers discourage entry of foreign banks. Kaas (2004) presents a model of spatial loan competition and arrives at the conclusion that foreign bank entry is generally too low compared to the social optimum.

We are interested in different entry mode choices of multinational banks and add in this respect to two further strands of literature. On the one hand, recent approaches in trade study the trade-off between exports and foreign direct investments. We focus explicitly on the banking industry and study the trade-off between cross border lending and financial foreign direct investment. Moreover,

we enrich our analysis by incorporating the choice between greenfield and acquisition entry, so far rather analyzed in the industrial organization literature focusing on production industries and not accounting for the special characteristics of the banking sector.

One of the first models in trade to study the export versus FDI decision of firms is Brainard (1993). She points to the trade-off between small fixed and large variable costs in case of exports and high fixed and low variable costs in case of FDI. Helpman, Melitz and Yeaple (2006) incorporated firm heterogeneity in this trade-off between variable and fixed costs. They find that when countries open up, the least productive firms are forced to exit the market and that the remaining firms engage with increasing productivity in exports before they move to FDI. Although banks face a similar trade-off between variable and fixed costs when they choose to enter new markets via cross border lending or financial foreign direct investments, the results from trade literature can not be directly applied to the banking sector. First, we find it difficult to argue with labor productivity concerning the banking industry and concentrate, instead, on screening abilities of banks. Second, in order to study the different incentives of multinational banks regarding greenfield and acquisition entry, we find it more plausible to use a Salop approach. Such a set-up captures the impact of foreign bank entry on market shares and the pricing behavior of host country banks which is not the case in a monopolistic competition model as in the recent trade literature. Third, monopolistic competition models are very much driven by love of variety. This certainly is important in traditional industries but probably less in the banking sector.

Gilroy and Lukas (2006), Görg (2000) and Norbäck (2003) study the trade-off

between greenfield and acquisition entry with a focus on traditional production industries. Typically, in this strand of industrial organization literature, the decision to enter a new market via a de novo investment or the acquisition of a host country firm is driven by marginal cost differences of domestic and foreign firms. As in Eicher and Kang (2004) or Müller (2001) it is assumed that in case of greenfield entry, the entrant incurs lower marginal costs than the domestic firms since the foreign firm can fully take advantage of its superior production technology. If entry occurs via acquisition, it is usually assumed that the entrant faces higher marginal costs than the domestic firm since the foreign firm needs to restructure the acquired domestic firm and is constrained to the use of the inferior production facilities of the acquired firm. The majority of theoretical models shows that the most productive firms should choose greenfield entry. Empirically, this result is confirmed by e.g. Raff (2006). However, we think that the situation in the banking industry is exactly the other way round. Multinational banks entering via de novo investments face considerable soft information problems in contrast to domestic banks. These problems do not occur in case of acquisition entry; moreover, the entrant can then implement its superior screening technology so that the marginal costs of the entrant will be lower than those of domestic firms. We account for these special characteristics concerning the banking sector and arrive at the very different result that the most efficient banks should enter new markets via the acquisition of a host country bank.

So far, papers comparing greenfield to acquisition entry focusing on the banking industry rather analyze the impact of different entry modes on the host banking markets and not explicitly the factors driving the entry mode choices of multi-

national banks. For instance, Martinez Peria and Mody (2004) as well as Claeyns and Hainz (2006) find that greenfield entry leads to more competition and, thus, lower interest rates in the host banking market than acquisition entry. One related paper to ours by Van Tassel and Vishwasrao (2005) studies the trade-off between greenfield and acquisition entry but does not consider cross border lending. Further, an explicit entry mode pattern is not derived. Their analysis is very much driven by differences in refinancing costs of banks instead of screening abilities and due to the set-up of the model they find that acquisition should, in general, be the dominant entry mode.

The remainder of the paper is organized as follows. The next section describes the set-up of the model. In section 3 we study the entry mode decisions of multinational banks. Comparative statics in section 4 allows us to analyze the effects of soft information problems, the efficiency of foreign versus host country banks and the degree of competition on the entry mode pattern of foreign banks. We present the welfare analysis in section 5. Section 6 concludes.

2 The Model

We consider two separated banking markets, A and B. In both markets, a continuum of borrowers with mass m_j , $j = A, B$ is uniformly distributed along a circular road with circumference 1. Each borrower can engage in one investment project that requires an initial outlay of 1. Borrowers have either good or bad projects. It is common knowledge that the fraction of borrowers with good projects is γ and the fraction of borrowers with bad projects is $1 - \gamma$, $0 < \gamma < 1$. In case the

project is good it generates a return $v > 0$ with certainty while a bad project always fails yielding a return of zero. The returns of the projects are observable and contractible. We assume that ex ante borrowers do not know the quality of their projects. Hence, we think of borrowers as not being capable to evaluate correctly the outcome of their investment projects because of lacking expertise in project evaluation.¹ Borrowers are not endowed with any initial wealth and therefore need to apply for credit at the banks, the only source of finance in our model.

The banking sectors in country A and B consist of n_j , $j = A, B$ banks that are located equidistantly along the circular road. The location of a bank signifies its specialization in a certain credit product or industry. Banks within each country are identical. Banks compete in the interest rates r_k , $k = 1, \dots, n_j$ they simultaneously ask from the borrowers. Borrowers whose investment projects yield a return of v must repay $1 + r_k$ to the bank whereas borrowers whose projects fail do not repay their loan. Banks incur refinancing costs i_j , $j = A, B$, $i_A < i_B$ per loan of size 1 they raise from capital markets and have access to a screening technology increasing in δ_j , $j = A, B$, $0 < \delta_B < \delta_A < 1$. Borrowers base their decision at which bank to apply for credit on the interest rates r_k asked by the banks and the transport costs they have to incur to travel to the bank. The transport costs express the preferences borrowers have for a particular type of bank. We assume that transport costs tx are proportional to the distance x between the borrower and the bank. Furthermore, we assume that the return of a good project v is high enough so that the market is covered at equilibrium prices. Borrowers and banks are risk neutral and maximize profits. The time structure of the model is

¹Similar assumptions can be found e.g. in Hauswald and Marquez (2005) or Kaas (2004).

as follows.

At stage 1, banking market B is opened up to a number l of foreign banks from country A. Foreign banks can choose between three entry modes, cross border lending, greenfield investment or the acquisition of a domestic bank. When banks engage in cross border lending, they incur soft information problems so that their screening ability drops to $\alpha\mu\delta_A$, $0 < \alpha < 1$, $0 < \mu < 1$. Furthermore, they need to spend a fixed entry cost F_{CBL} , e.g. for setting up a representative office. Entry via a de novo investment also leads to soft information problems - though smaller as in the case of cross border lending -, captured by μ so that the screening ability in this case decreases to $\mu\delta_A$. For setting up e.g. a subsidiary in country B, the foreign bank needs to spend the fixed entry cost F_{GR} , $F_{CBL} < F_{GR}$. In case of acquisition entry, we assume that the foreign bank gains access to all the soft information kept by the domestic bank. In addition, the foreign bank can implement its superior screening technology at no cost. The acquisition price is modeled endogenously and different possibilities of bargaining power allocation are considered. Without loss of generality, we assume that screening a borrower is costless for all banks.

At stage 2, borrowers apply for credit at the banks. Banks engage in screening the borrowers. According to their screening abilities, banks can identify a certain fraction of borrowers with bad projects but cannot distinguish between the rest of good and bad borrowers. Borrowers with bad projects that are denied credit do not apply for credit at another bank. On the one hand, this is due to the fact that with the screening procedure the borrowers learn about the bad quality of their investment opportunities. On the other hand, banks can verify at no cost whether the borrower has invested the granted credit in production facilities etc. so that

no "take the money and run" effect can occur.

At stage 3, returns realize and all borrowers having invested in good projects pay back their loan.

3 Choice of Entry Mode

A multinational bank considering the entry into new markets can choose between various entry modes. Principally, they can opt for cross border lending, greenfield or acquisition entry. Thereby, foreign banks face a trade-off between soft information problems and entry costs. In case of greenfield entry and even more so with cross border lending, foreign banks need to deal with soft information problems in the host banking market. Further, they face a fixed entry cost for either setting up e.g. a representative office in case of cross border lending or a subsidiary etc. when operating in the host country through a de novo investment. However, by entering a new market via the acquisition of a domestic bank, multinational banks gain access to the soft information held by the acquired host country bank but have to pay the acquisition price which, in our model, is derived endogenously.

In this section, we study in detail the incentives of multinational banks to choose between different entry modes. In order to simplify our analysis, we set the number of banks in country B to $n_B = 2$ and assume, in addition, that just one randomly drawn foreign bank, Bank A, obtains a license to operate in country B. We will relax these assumptions further on.

Cross Border Lending

Bank A enters country B via cross border lending if thereby it makes positive profits in country B. The profit function of Bank A in country B is given by²

$$G_A^{CBL} = [\gamma(r_A - i_A) - (1 - \gamma)(1 - \alpha\mu\delta_A)(1 + i_A)] m_B \left(\frac{1}{3} + \frac{r_B - r_A}{t}\right) - F_{CBL}$$

Due to the relatively large soft information problems in market B, bank A can only identify a relatively small fraction of bad borrowers $\alpha\mu\delta_A(1 - \gamma)$. The fraction $(1 - \alpha\mu\delta_A)(1 - \gamma)$ of borrowers with bad projects obtains financing but does not repay their loans so that bank A incurs a cost of $1 + i_A$ on this fraction. The fraction γ of good borrowers, however, repays their loan with interest so that the bank obtains the margin $r_A - i_A$. Clearly, the market share of bank A in country B is given by $m_B \left(\frac{1}{3} + \frac{r_B - r_A}{t}\right)$ and fixed entry costs amount to F_{CBL} .

Host country banks do not incur any soft information problems but have higher refinancing costs $i_B > i_A$ and lower screening skills than the foreign bank $\delta_B < \delta_A$. Hence, the profit function of a host country bank is given by

$$G_B^{CBL} = [\gamma(r_B - i_B) - (1 - \gamma)(1 - \delta_B)(1 + i_B)] m_B \left(\frac{1}{3} + \frac{r_A + r_B - 2r_B}{2t}\right).$$

Banks maximize their profits with respect to the interest rates they ask from borrowers which results in a profit of Bank A in banking market B of

$$G_A^{CBL} = \frac{4}{25t\gamma} \left(\frac{5t\gamma}{6} + i_B - i_A - (1 - \gamma)[\delta_B(1 + i_B) - \alpha\mu\delta_A(1 + i_A)]\right)^2 - F_{CBL}.$$

²We assume that after entry via cross border lending or greenfield, banks locate equidistantly along the circular road; hence, we abstract from relocation costs since that does not qualitatively change our results.

The multinational bank enters market B via cross border lending as soon as it makes positive profits in country B. Our result concerning the threshold value of the screening ability is stated in proposition 1.

Proposition 1 *Bank A enters market B via cross border lending if its screening ability is larger than the threshold value δ_A^{CBL} , i.e. if*

$$\delta_A \geq \delta_A^{CBL} = \frac{(1-\gamma)\delta_B(1+i_B)-(i_B-i_A)-\frac{5t\gamma}{6}+\frac{5}{2}\sqrt{t\gamma F_{CBL}}}{(1-\gamma)\mu(1+i_A)}$$

Proof: see Appendix.

Greenfield Entry

If the multinational bank enters country B via a de novo investment, it faces fewer soft information problems than in case of cross border lending. Now, bank A only finances the fraction $(1 - \mu\delta_A)(1 - \gamma)$ of borrowers with bad projects but incurs larger fixed costs F_{GR} . Hence, the foreign banks' profit function in market B is given by

$$G_A^{GR} = [\gamma(r_A - i_A) - (1 - \gamma)(1 - \mu\delta_A)(1 + i_A)]m_B\left(\frac{1}{3} + \frac{r_B - r_A}{t}\right) - F_{GR}$$

Again, banks maximize their profits with respect to the interest rates they ask from borrowers which results in a profit of Bank A in market B of

$$G_A^{GR} = \frac{4}{25t\gamma} \left(\frac{5t\gamma}{6} + i_B - i_A - (1 - \gamma)[\delta_B(1 + i_B) - \mu\delta_A(1 + i_A)] \right)^2 - F_{GR}$$

Bank A enters market B via a de novo investment if the profit it makes is superior to the one it would obtain in case of cross border lending. Consequently,

it must hold that $G_A^{CBL} < G_A^{GR}$. Our results with respect to greenfield entry is summarized in proposition 2.

Proposition 2 *Bank A enters market B via a de novo investment if its screening ability is larger than the threshold value δ_A^{GR} , $\delta_A^{GR} > \delta_A^{CBL}$, i.e.*

$$\delta_A \geq \delta_A^{GR} = \frac{\frac{5t\gamma}{6} + i_B - i_A - (1-\gamma)[\delta_B(1+i_B) - \mu\delta_A(1+i_A)]}{25(1+\alpha)m(1+i_A)(1-\gamma)} + \sqrt{Y}$$

Proof: see Appendix.

Hence, multinational banks that enter new markets via a greenfield investment need to be more efficient in screening bad borrowers than those entering via cross border lending.

Acquisition Entry

Consider first the case that bargaining power is allocated to the multinational bank A. In that case, bank A can drive down the acquisition price to the profit a host country bank makes in case bank A enters via a de novo investment. Note that bank A will never threaten to enter via cross border lending since in that case the acquisition price, equal to the profit of bank B in case of cross border lending of bank A, is clearly larger than the profit of bank B in case of a de novo investment by bank A. It follows that the profit function of bank A in case of acquisition entry is given by

$$\begin{aligned} G_A^{AC} &= \tilde{G}_A^{AC} - G_B^{GR} = \\ &= [\gamma(r_A - i_A) - (1 - \gamma)(1 - \delta_A)(1 + i_A)] m_B \left(\frac{1}{3} + \frac{r_B - r_A}{t} \right) - G_B^{GR} \end{aligned}$$

with \tilde{G}_A^{AC} constituting the profit of bank A in case of acquisition entry excluding the acquisition price. Clearly, bank A enters market B via the acquisition of a domestic bank if $\tilde{G}_A^{AC} - G_B^{GR} > G_A^{GR}$.

Consider now the possibility that bargaining power is allocated to the host country banks. This could reflect a situation in which many foreign banks want to enter market B and only the one paying the highest acquisition price obtains a license to operate in country B. The host country bank can then charge the multinational bank as acquisition price the difference between the profit in case of acquisition excluding the acquisition price \tilde{G}_A^{AC} and the greenfield profit G_A^{GR} . Note that bank B cannot request the difference between \tilde{G}_A^{AC} and G_A^{CBL} since then bank A clearly enters via a greenfield investment. Hence, if the difference in \tilde{G}_A^{AC} and G_A^{GR} is larger than the greenfield profit of bank B, it will accept to be acquired by the foreign bank. Hence, for acquisition entry to take place it must hold that $\tilde{G}_A^{AC} - G_A^{GR} > G_B^{GR}$ which, obviously, results in the same entry mode pattern as with bargaining power being allocated to the foreign bank.

Solving $\tilde{G}_A^{AC} - G_B^{GR} > G_A^{GR}$ for the screening ability of bank A gives us the threshold value δ_A^{AC} from which bank A on chooses acquisition entry over greenfield entry. Our results are stated in proposition 3.

Proposition 3 *Bank A enters market B via the acquisition of a domestic bank if it holds that*

$$\delta_A \geq \delta_A^{AC} = \frac{3t\gamma(5-2\alpha\mu)-2(9\alpha\mu-5)[i_B-i_A-\delta_B(1+i_B)(1-\gamma)]-\sqrt{Z}}{2(1-\gamma)(9\alpha^2\mu^2-5)(1+i_A)}.$$

Proof: see Appendix.

Note that with our analysis we capture, first, the stylized fact that in case of acquisition entry a bank, inter alia, aims at acquiring a large market share at once. Instead, it is harder for foreign banks to acquire market shares in the host banking market when they enter via a de novo investment. Second, the often in empirical papers mentioned role of larger competitive pressure in the host country in presence of greenfield entry is also included in our analysis since with greenfield entry, the number of banks operating in the market increases while it stays constant in the light of acquisition entry.

Entry Mode Patterns

In order to allow for the richest possible entry mode pattern we assume $\delta_A^{CBL} < \delta_A^{GR} < \delta_A^{AC}$. This is no limitation since allowing for different relationships of these three threshold values would only result in a reduced entry mode pattern without changing the order of the entry modes. Hence, we find that the entry mode pattern increasing in the screening ability δ_A is no entry - cross border lending - greenfield entry - acquisition entry. Our results are stated in proposition 4.

Proposition 4 *The entry mode pattern of multinational banks entering market B increasing in the screening ability δ_A is given by no entry - cross border lending - acquisition entry - greenfield entry - acquisition entry.*

Consequently, the least efficient foreign banks can not afford to enter new markets. Banks with good enough screening technologies to enter foreign markets face a very large acquisition price due to their still relatively low screening ability. Thus, these banks can only enter via cross border lending, then, however, facing large

soft information problems. As soon as the lower soft information problem in case of de novo entry compared to cross border lending compensates the higher fixed entry cost with greenfield entry, banks move from cross border lending to greenfield investments. However, from a certain threshold value of screening ability on, foreign banks can drive down the acquisition price so much that acquisition entry becomes profitable and, then, foreign banks can take advantage of the absence of any soft information problems.

4 Comparative Statics Analysis

In this chapter we will analyze how changes in soft information problems, screening abilities of domestic banks and the degree of competitive pressure influence the entry mode decision of foreign banks. We find that how these factors affect entry modes crucially depends on the differences in refinancing costs of banks. Interpreting the difference in refinancing costs between the home and foreign country as the relative financial development status of both countries, we find that for entry mode choices it matters a lot whether foreign banks engage in emerging or mature economies.

The Influence of Soft Information Problems on the Entry Mode Choices of Foreign Banks

Regarding a rise in the severity of the soft information problems for foreign banks, we find that for rather industrialized host banking markets, all threshold values determining the different entry modes increase. Hence, foreign banks must

possess a relatively better screening ability in order to profitably enter the new market and for the most efficient segment of foreign banks, the range of acquisition entry contracts. However, in case of an emerging market host country, the ranges of the screening ability where acquisition entry occurs unambiguously expand when the soft information problem increases. Hence, the less developed the host country and, thus, the larger soft information problems due to missing credit registries etc. are, the more important acquisition becomes as an entry mode. Our results are stated in proposition 5.

Proposition 5 *For relatively small differences in the refinancing costs of the home and the foreign country, it holds that*

$$\frac{d\delta_A^{CBL}}{d\mu} < 0, \quad \frac{d\delta_A^{GR}}{d\mu} < 0, \quad \frac{d\delta_A^{AC}}{d\mu} < 0.$$

For relatively large differences in the refinancing costs of the home and the foreign country, it holds that

$$\frac{d\delta_A^{CBL}}{d\mu} < 0, \quad \frac{d\delta_A^{GR}}{d\mu} < 0, \quad \frac{d\delta_A^{AC}}{d\mu} > 0.$$

Proof: see Appendix.

Clearly, the increase in δ_A^{CBL} is due to the fact that the foreign bank has to compensate the increased soft information problem with better screening skills. Concerning the threshold value determining greenfield entry, δ_A^{GR} , increasing soft information problems drive down both the profit of bank A in case of cross border lending and in case of greenfield entry. However, since the profit in case of

greenfield entry is larger than in case of cross border lending, the fall in profits is larger in case of greenfield entry than with cross border lending. That is why cross border lending becomes relatively more attractive compared to greenfield entry when foreign banks have to deal with more soft information problems in the host country.

Concerning the threshold values determining acquisition entry, we first analyze the case of small refinancing cost advantages and thus small differences in the financial development status of both countries. This makes it more likely that the market share with greenfield investment of bank A is smaller than the market share of the domestic banks. This means that due to smaller profits of the foreign banks in the host banking market compared to the domestic banks, an increase in the soft information problems leads to a gain in the profits of the domestic banks that is larger than the losses of the foreign bank. This means that the acquisition price is driven up whereas profits in case of greenfield investment for the foreign bank fall by a relatively smaller amount. Thus, acquisition entry becomes less attractive compared to greenfield entry.

In case of large differences in refinancing costs of foreign and host country banks, however, the situation looks different. In that case, the market share in case of greenfield entry and, thus, the profit of the foreign bank is more likely to be larger than those of the domestic banks. With rising difficulties in accessing soft information, profits of foreign banks in case of greenfield entry fall by more than the profit of the domestic banks and, accordingly, the acquisition price increases. This makes acquisition entry more attractive relative to greenfield entry.

Hence, an increase in soft information problems in host banking markets implies

that only more efficient foreign banks can enter the market. Further, acquisition entry becomes unambiguously more attractive for foreign banks entering emerging market economies. This result is also found in many empirical papers, e.g. xxx.

The Influence of the Screening Ability of Host Country Banks on the Entry Mode Choices of Foreign Banks

It is also interesting to look at how relative differences in screening abilities between the home and the foreign country influence entry mode patterns. In contrast to our results concerning the impact of soft information problems and competition on entry mode patterns, we find that the impact of different screening abilities of the host country banks on entry mode choices do not depend on the differences in refinancing costs and, thus, the financial development status of the host country. Our results are summarized in proposition 6.

Proposition 6 *Lower screening skills of host country banks imply lower threshold values for all entry modes, that is*

$$\frac{d\delta_A^{CBL}}{d\delta_B} < 0, \quad \frac{d\delta_A^{GR}}{d\delta_B} < 0, \quad \frac{d\delta_A^{AC}}{d\delta_B} < 0.$$

Proof: see Appendix.

Clearly, the decrease in δ_A^{CBL} is due to the fact that the foreign bank needs to be less efficient in order to enter market B when the screening ability of host country banks is smaller. Concerning the threshold value determining greenfield

entry, δ_A^{GR} , less developed screening technologies of domestic banks allows both larger profits of the foreign bank in case of cross border lending and greenfield entry. However, since the profit in case of greenfield entry is larger than in case of cross border lending, the rise in profit is larger in case of greenfield entry than in case of cross border lending. That is why greenfield entry becomes relatively more attractive compared to cross border lending when the screening abilities of host country banks are lower.

Turning now to the entry mode of acquisition, we find the following influences of lower screening skills of host country banks on the profit of the foreign bank: the profit of bank A in case of a de novo investment increases while the profit of the domestic banks and thus the acquisition price decreases. In addition, however, the profit of the foreign bank in case of acquisition without considering the acquisition price also increases since this part of the profit obviously depends on the screening skills of the domestic banks. We can show that both the increase in this part of the profit in case of acquisition entry and the fall in the acquisition price dominate the increase in the profit in case of greenfield entry. Consequently, acquisition entry becomes more attractive relative to de novo investments when the screening technology domestic banks have access to is lower.

Hence, again we find that a lower development status of the host banking market, this time expressed by lower screening skills, increases the attractiveness of acquisition entry for foreign banks. In addition, less efficient foreign banks can then enter the host banking market.

The Influence of Competition on the Entry Mode Choices of Foreign Banks

We are also interested in how the degree of competition in the host country influences the decision of multinational banks to enter developing or industrialized markets. In this chapter, we analyze the impact of competitive pressure $\frac{1}{t}$ in terms of product differentiation on entry mode choices. Further on, we will also look at the impact of an increasing number of banks operating in the market. Again, we find that the impact of competition on entry mode decisions depends on whether the host banking market is an emerging or a mature financial market. Our results are stated in proposition 7.

Proposition 7 *For small differences in the refinancing costs of the home and the foreign country, it holds that*

$$\frac{d\delta_A^{CBL}}{d\left(\frac{1}{t}\right)} > 0, \quad \frac{d\delta_A^{GR}}{d\left(\frac{1}{t}\right)} > 0, \quad \frac{d\delta_A^{AC}}{d\left(\frac{1}{t}\right)} < 0.$$

For large differences in the refinancing costs of the home and the foreign country, it holds that

$$\frac{d\delta_A^{CBL}}{d\left(\frac{1}{t}\right)} < 0, \quad \frac{d\delta_A^{GR}}{d\left(\frac{1}{t}\right)} < 0, \quad \frac{d\delta_A^{AC}}{d\left(\frac{1}{t}\right)} < 0.$$

Proof: see Appendix.

Let us first look at the host country banks having similar refinancing costs as foreign banks. In case of cross border lending, the market share of bank A

due to soft information problems is then more likely to be lower than the market shares of domestic banks. When competitive pressure increases, market shares of foreign banks fall while the domestic banks can expand their market coverage. The according fall in the profit of foreign banks implies a higher necessary screening ability of foreign banks in order to enter market B via cross border lending. Looking at the threshold value determining greenfield entry, we show that due to increasing competition the fall in market shares of bank A leads to a larger fall of the profit in case of greenfield entry compared to cross border lending due to the larger market shares of bank A in case of a de novo investment relative to cross border lending. Hence, cross border lending becomes relatively more attractive compared to greenfield entry.

Turning to acquisition entry, we find that entry via the acquisition of a domestic bank becomes relatively more attractive compared to de novo entry. This is due to the fact that with increasing competition the profit of the foreign bank in case of greenfield entry falls while the profit of the domestic banks and thus the acquisition price increases. However, since the foreign bank reaches an unambiguously larger market share than the domestic bank in case of acquisition as a result of its lower refinancing costs and higher screening ability, the profit in case of acquisition entry increases with increasing competition. Since, moreover, the greenfield profit falls, acquisition entry becomes more attractive relative to de novo entry.

The situation is different in case of large refinancing cost advantages of the foreign bank compared to the host country banks. In this case, the market share of the foreign bank is more likely to be larger than the market share of the host country banks and an increase in competition increases both the profit of bank

A in case of cross border lending, and by more, in case of a de novo investment. Hence, cross border lending becomes viable for less efficient foreign banks and greenfield entry becomes more attractive relative to cross border lending.

In contrast, the profits of the domestic banks and, consequently, the acquisition price falls when competition increases. Since due to the larger market share of the foreign bank compared to the remaining domestic bank in case of acquisition the profit of bank A increases, this effect in combination with the fall of the acquisition price dominates the increase in the greenfield profit. Again, acquisition entry becomes more attractive compared to de novo entry when competition rises.

To sum up, rising competition unambiguously leads to more acquisition entry. In case of an emerging market host country, also less efficient foreign banks can enter via cross border lending while in the case of a more mature host banking market, foreign banks need to be more efficient to enter new markets when competition in the host banking market is high.

5 Welfare Analysis

In this section we derive the entry mode pattern the policy maker of the host banking market favors by only maximizing welfare of the host banking market. Furthermore, we study which entry mode pattern the social planner would want to implement by maximizing welfare both in the foreign and the host banking market. We compare both outcomes to the entry mode pattern that emerges with unrestricted foreign bank entry.

Entry Mode Pattern Chosen by the Policy Maker of the Host Banking Market

The policy maker of the host banking market maximizes welfare consisting of the sum of borrower rents and bank rents. Bank rents, obviously, are only comprised of the rents of host country banks, thus excluding the rents of foreign banks having entered the market. Borrower rents are captured by the willingness to pay of borrowers minus the repayments of borrowers to banks and their transport costs. Bank rents include the revenues of banks minus their costs. Further, in case of acquisition entry, the acquisition price is included in the welfare function of the host banking market. Our results concerning the entry mode pattern are summarized in proposition 8.

Proposition 8 *The policy maker of the host banking market favors the following entry mode pattern increasing in the screening ability of the foreign banks: no entry - cross border lending - greenfield entry - acquisition entry.*

Proof: see Appendix.

Hence, concerning the order of the entry modes, the policy maker in the host banking market chooses the same pattern as it would emerge in the case of unrestricted foreign bank entry. However, the threshold values differ. Our results concerning the threshold values in case of unrestricted bank entry and in case of welfare maximization by the policy maker of the host banking market are summarized in proposition 9.

Proposition 9 *It holds that*

$$\delta_{A,WF}^{CBL} < \delta_A^{CBL}, \delta_{A,WF}^{GR} > \delta_A^{GR}, \delta_{A,WF}^{AC} > \delta_A^{AC}.$$

Proof: see Appendix.

First, we find that the policy maker in country B would allow foreign banks to offer products via cross border lending even if these banks possess an insufficient screening ability in order to profitably enter the market. This result is mainly driven by the fact that with cross border lending, interest payments and transportation costs of borrowers fall as a result of the increased bank competition. Second, the policy maker favors cross border lending over greenfield entry for a certain range of screening technologies in which unrestricted entry would lead to de novo entry. This is mainly because with greenfield entry, the income of domestic banks shrinks in favor of that of foreign banks since greenfield banks cover a larger market share than multinational banks entering via cross border lending. Third, the policy maker prefers greenfield over acquisition entry for a certain range of screening technologies, in which under no entry restrictions acquisition entry would occur. This is due to the fact that acquisition entry drives up transportation costs for borrowers and leads to a fall in the income of domestic banks since the foreign bank covers a relatively large market share.

Hence, from our analysis we conclude that the policy maker of a host banking market should try to encourage cross border lending of multinational banks by e.g. reducing fixed entry costs via tax havens etc. Furthermore, the policy maker should allow greenfield entry of foreign banks for a range of relatively more efficiently

screening multinational banks compared to the outcome in case of unrestricted entry. Finally, acquisition entry should be restricted to only the most efficient foreign banks.

The question arises why acquisition entry is the most preferred entry mode by a large number of emerging market economies. This could be a result of policies fostering to save bad domestic banks. We will tackle this question by assuming an asymmetric market structure of the host banking market. — Work in progress —

Entry Mode Pattern Chosen by the Social Planner

— work in progress —

6 Conclusions

This paper analyzes the entry mode choices of multinational banks engaging in new markets. We show how soft information problems, the efficiency of foreign versus host country banks as well as the degree of competition in the host country affect the entry mode decisions of multinational banks. We study, in particular, how entry mode patterns differ according to whether the host banking market is an emerging or a relatively mature banking market. Moreover, from our welfare analysis we derive policy recommendations concerning the regulation of entry modes in the banking sector.

Our analysis shows that multinational banks choose their entry mode according to their efficiency in screening borrowers. We find that the entry mode pattern

increasing in the screening ability is no entry - cross border lending - greenfield entry - acquisition entry. Hence, the least efficient foreign banks can not afford to enter new markets. Banks with good enough screening technologies to enter foreign markets face a very large acquisition price due to their still relatively low screening ability. Thus, these banks can only enter via cross border lending, then facing large soft information problems. As soon as the lower soft information problem in case of de novo entry compared to cross border lending compensates the higher fixed entry cost for setting up e.g. a subsidiary, banks move from cross border lending to greenfield entry. However, from a certain threshold value of screening ability on, foreign banks can drive down the acquisition price so much that acquisition entry becomes profitable and, then, foreign banks can take advantage of the absence of any soft information problems.

Our paper also deals with the impact of changes in soft information problems, the screening efficiency of domestic relative to foreign banks and the degree of competitive pressure in the host country on the entry mode decisions of multinational banks. We find that how these factors affect entry modes crucially depends on the financial development status of host banking markets. We can show that acquisition entry becomes unambiguously more attractive for foreign banks entering emerging market economies when soft information problems in the host country are severe. Larger differences in the screening efficiency of domestic and foreign banks and, thus, in the financial development of both countries also increase the attractiveness of acquisition entry. Concerning a rising degree of competitive pressure in the host country, we find that in case of a mature financial host banking market, multinational banks need to be more efficient to enter this market while

in case of an emerging market country, less efficient foreign banks can enter that market. However, independent of the financial development of the host country, rising competition unambiguously leads to more acquisition entry.

Regarding our welfare analysis, we show that the policy maker of the host banking market favors the same order of entry modes as it emerges with unrestricted entry. However, we find that the policy maker of the host banking market should try to encourage cross border lending of multinational banks that without entry restrictions would not enter the market. Furthermore, the policy maker should allow greenfield entry of foreign banks only for a range of relatively more efficiently screening multinational banks compared to the outcome in case of unrestricted entry. Finally, acquisition entry should be restricted to only the most efficient foreign banks. Hence, our analysis indicates that regulation policies regarding the entry modes of multinational banks should be based on the efficiency of potential entrants.

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8 Appendix

Proof of Proposition 1:

Bank A enters market B via cross border lending if it holds that $G_A^{CBL} > 0$. Solving

$G_A^{CBL} = 0$ yields

$$\delta_A := \delta_A^{CBL} = \frac{(1-\gamma)\delta_B(1+i_B) - (i_B - i_A) - \frac{5t\gamma}{6} \pm \frac{5}{2}\sqrt{t\gamma F_{CBL}}}{(1-\gamma)\mu(1+i_A)}.$$

To ensure increasing profits in δ we only consider

$$\delta_A^{CBL} = \frac{(1-\gamma)\delta_B(1+i_B) - (i_B - i_A) - \frac{5t\gamma}{6} + \frac{5}{2}\sqrt{t\gamma F_{CBL}}}{(1-\gamma)\mu(1+i_A)}.$$

Proof of Proposition 2:

Bank A enters market B via a de novo investment if it holds that $G_A^{GR} > G_A^{CBL}$.

Solving $G_A^{GR} = G_A^{CBL}$ yields

$$\delta_{A1,2}^{GR} = \frac{\frac{5t\gamma}{6} + i_B - i_A - (1-\gamma)[\delta_B(1+i_B) - \mu\delta_A(1+i_A)]}{25(1+\alpha)m(1+i_A)(1-\gamma)} \pm \sqrt{Y}$$

with

$$Y := \left(\frac{\frac{5t\gamma}{6} + i_B - i_A - (1-\gamma)[\delta_B(1+i_B) - \mu\delta_A(1+i_A)]}{25(1+\alpha)m(1+i_A)(1-\gamma)} \right)^2 - \frac{4t\gamma}{25(1-\alpha^2)(\mu(1+i_A)(1-\gamma))^2} (F_{GR} - F_{CBL})$$

We can rule out $\delta_{A1}^{GR} = \frac{\frac{5t\gamma}{6} + i_B - i_A - (1-\gamma)[\delta_B(1+i_B) - \mu\delta_A(1+i_A)]}{25(1+\alpha)m(1+i_A)(1-\gamma)} - \sqrt{Y}$ since (- to be completed-) so that

$$\delta_A^{GR} = \frac{\frac{5t\gamma}{6} + i_B - i_A - (1-\gamma)[\delta_B(1+i_B) - \mu\delta_A(1+i_A)]}{25(1+\alpha)m(1+i_A)(1-\gamma)} + \sqrt{Y}$$

Proof of Proposition 3:

Bank A enters market B via acquisition if it holds that $G_A^{AC} > G_A^{GR}$. Note that

$$G_A^{AC} = [\gamma(r_A - i_A) - (1 - \gamma)(1 - \delta_A)(1 + i_A)] m_B \left(\frac{1}{3} + \frac{r_{B1} + r_{B2} - 2r_A}{2t} \right) - G_B^{GR}.$$

Solving $G_A^{AC} = G_A^{GR}$ yields

$$\delta_A := \delta_{A1,2}^{AC} = \frac{3t\gamma(5-2\alpha\mu) - 2(9\alpha\mu-5)[i_B - i_A - \delta_B(1+i_B)(1-\gamma)] \pm \sqrt{Z}}{2(1-\gamma)(9\alpha^2\mu^2-5)(1+i_A)}$$

with

$$Z := 180Ft\gamma(9\alpha^2\mu^2 - 5) + 180(1 - \alpha\mu)^2(i_B - i_A - \delta_B(1 - \gamma)(1 + i_B))^2 + t\gamma(t\gamma[100 + (9\alpha\mu - 10)^2] - 60(9\alpha\mu - 2)(1 - \alpha\mu)[i_B - i_A - \delta_B(1 - \gamma)(1 + i_B)])$$

The fact that the market share of each bank must be smaller than $\frac{2}{3}$ allows us to rule out

$$\delta_{A1}^{AC} = \frac{3t\gamma(5-2\alpha\mu) - 2(9\alpha\mu-5)[i_B - i_A - \delta_B(1+i_B)(1-\gamma)] + \sqrt{Z}}{2(1-\gamma)(9\alpha^2\mu^2-5)(1+i_A)}.$$

Hence, bank A enters market B if $\delta_A \geq \delta_{A2}^{AC} := \delta_A^{AC}$.

- to be completed -

Proof of Proposition 5:

- to be completed -

Proof of Proposition 6:

- to be completed -

Proof of Proposition 7:

- to be completed -

Proof of Proposition 8:

- to be completed -