Topics in Multinational Banking and International Industrial Organization

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Peter Beermann

Referent:	Professor Dr. Dalia Marin
Korreferent:	Professor Dr. Monika Schnitzer
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Contents

List of Figures and Tables

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Chapter 1

Introduction

The ongoing integration of the world economy has not stopped at the real sectors, but has also taken place in the financial sector, where both the cross-border provision of financial services as well as the globalization of banks are on the rise.

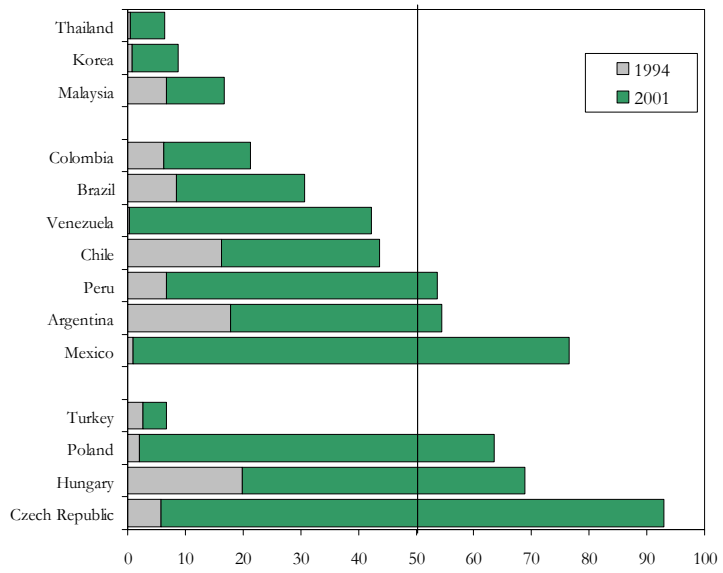
Though no way a new phenomenon[1], the internationalisation and multinationalisation of the banking industry has picked up steam (again) in recent years, with the real new feature being the unprecedented scale of foreign direct investment (FDI) in the banking sector.

This trend was aided by world-wide financial liberalization and deregulation for the banking sector, an increased globalisation of the real sector and technological advances reducing information costs in international financial services activities (e.g. Soussa (2004)[121].

In some countries, primarily in Latin America and the former transition economies in Central and Eastern Europe, foreign direct investment in the banking sector has gone so far as foreign bank subsidiaries now being the dominant market players in these countries, cumulatively holding market shares of close to or more than 50% in many countries in these regions (see the following table).

[1]Jones (1990)[87] traces multinational banking back to the Middle Ages, when Italian bankers established branches in foreign countries to assist in international banking service.

Table 1.1: Foreign Bank Control (% of assets)



Source: Inter-American Development Bank

In general financial sector FDI to emerging market economies increased sharply from 6 $billion in the period 1990-1996 to nearly 50 $billion from 1997 to 2000 (numbers as in BIS report[63]). At the same time an increasing number of large cross-border merger and acquisition deals has taken place in the banking industry in OECD countries. In Europe, for example, the top 10 Cross-border M&A deals in banking alone amounted to an investment volume of 101.4 $billion from 1995 to 2006 (source: The Economist (2006)[127]), with the largest intra-European bank merger to date having been the acquisition of HypoVereinsbank AG group (GER) by Uni Credit Group (IT) at a value of 22.3 $billion.

Amid this surge both new political concerns and scientific questions have arisen. From a normative perspective, governments are in need of answers concerning the effects of foreign bank entry on the economy, while banks are in need of best practices to shape their international expansion strategies. Taking a positive perspective, economic science has to come up with explanations concerning politics towards multinational banking (e.g. legal entry barriers) and the observed patterns of international expansion by multinational banks.

The banking sector is widely perceived to be one of the main important "'strategic"' sectors in an economy, due to its role in providing capital to

all other sectors in the economy. Unsurprisingly then, the increasing globalisation of banking has invoked both fears and hopes among governments concerning the effects of foreign bank entry into their local markets. Whereas there is general hope in emerging market economies, that such entry might help in accessing international capital sources and aid in the efficiency development of the domestic banking sector, fears have arisen about potential negative effects of foreign bank entry on the survival probability of domestic banking institutions, potentially harmful "'overconsolidation"' of the sector and entry effects on loan provisioning for informationally opaque market segments, especially to small and medium-sized enterprises.

Besides scientific interest in the latter direct economic policy-relevant issues, questions on why, when and how banks go abroad are of major interest, especially because entry motives and strategies might shape foreign bank entry effects on the host economy. For example, as will be discussed in the literature overview in this thesis, it is observed, that foreign bank entry via the set-up of a new physical structure (Greenfield Investment) has different effects than entry via the acquisition of a local incumbent bank (M&A). Also, effects of such entry might depend on which banking segment the entrant foreign bank focuses on in the host country market.

In this thesis, besides trying to give both an overview as well as a practitioners view on the general issues of multinational banking, I focus on theoretically exploring three questions, concerning banks' reasoning for international expansion due to follow your customer-considerations, the optimal entry mode into foreign markets and how consolidation via M&A in the banking sector might affect credit supply for the most likely victims of such a development, small and medium-sized enterprises.

Chapter 2 of this thesis starts out with first giving a short literature overview about six basic questions that arise in the context of multinational banking, namely

1. What are the motives of banks for expanding internationally?
2. Which banks become multinational players?
3. Which markets attract multinational banks?
4. How do entry and market strategies of multinational banks look like?
5. How successful are multinational banks operating in foreign markets?
6. What are the effects of multinational bank entry on the host country?

Additionally a case study of a bank highly successful in its international expansion, Bank Austria Creditanstalt, studying its penetration into the Central and Eastern European region, is conducted. Based on first-hand information from a Bank Austria practitioner, I derive a number of insights for a general discussion about the international expansion strategy of multinational banks. Generally, the study shows how strongly various dimensions of international expansion strategy are intertwined and how such strategies are shaped by ex ante characteristics of the bank and its background. Also, the findings shed some further light on the importance of the follow your customer motive in banks' decisions to go abroad, as well as efficient strategies in identifying host market characteristics underlying the location decision of multinational banks.

Chapter 3 tries to answer the question of whether firms in general should enter a host market via the establishment of a completely new structure (Greenfield Investment) or via the acquisition of a domestic incumbent. I theoretically discuss this question in a setting of sequential entry and find, that one reason for the dominance of Greenfield Investment concerning the number of occurrences might be its strategic advantageous effect of deterring potential further entry into the market. While the theory adds to the general literature on entry modes in foreign direct investment, the results are valid for the banking industry, too. Extensions of the model are proposed to discuss entry modes in industries with limited local takeover possibilities and strong country-specific learning-by-doing effects, of which the latter might further help in understanding entry mode choice in specific banking segments such as retail banking.

Chapter 4 discusses the decision of bank entry into foreign markets under the follow your customer-motive. This motive is among the most discussed reasons for banks to go abroad, however no formal theory had been brought forward to my knowledge. In a setup of a double moral hazard problem within a real sector firm I discuss its home bank's incentive to follow the firm abroad to provide financing for a host country subsidiary to be set up. I find that the decision of a bank whether to provided its client with financing from its home base, via actually establishing a physical presence abroad or not at all, depends on client, bank and host country characteristics, namely the relative magnitude of the two moral hazard problems the parent firm faces in interaction with its foreign subsidiary manager, the general efficiency of the bank in the liquidation of project assets and the factor endowment or stage of development of the firm's FDI host country. These single characteristics are found to not influence the banks behaviour uniquely, but rather interact with each other to shape the respective banks service provisioning strategy.

In chapter 5 I propose a general theory on how active consolidation (via

M&A) in the banking sector might affect the credit supply for small and medium sized enterprises (SMEs). Though set up as a general theory for the banking sector, the model also applies to changes in the industrial organization in banking markets induced by the entry of foreign banks. I study this topic by modelling capital allocation decisions within banks, formally introducing relationship lending considerations. Restricting the analysis to banks' incentives to lend to SMEs, the model yields the result that consolidation in the form of at least one existing bank becoming part of a larger organisational structure leads to a potential reduction of credit supply to a fraction of SMEs in the market. Additionally, I give a smaller literature review on why banks might want to grow larger and how consolidation affects credit supply to SMEs empirically.

I finally conclude this thesis by summarizing my findings and discussing potential future trends that will shape the further evolution of multinational banking.

Chapter 2

Multinational Banking - A Literature survey and the case of Bank Austria in Central and Eastern Europe

2.1 Overview

The purpose of the following chapter is to discuss the main findings of empirical literature on multinational banks as well as to discuss entry motives and entry strategies by the example of the most important foreign players in Central and Eastern Europe, namely Austrian Bank Austria Creditanstalt.

For the literature review I will focus on the following questions surrounding multinational banking.

1. What are the motives of banks for becoming multinational or generally acting in foreign markets?
2. Which banks become international/multinational players?
3. Which markets attract multinational banks?
4. How do the entry and market strategies of multinational banks look like?

5. How successful are multinational banks operating in foreign markets?

6. What are the effects of multinational bank entry on the host country?

Of course, at least part of these questions are intertwined with each other. For example, the motives of banks should critically hinge on what kinds of banks they are, which again also determines whether they become international players. Of course, especially taking into account the literature on vertical versus horizontal FDI, the geographic pattern should also differ in the entry motives. Entry motives also will play a role in how the respective multinational bank will setup their entry and market strategy.

One striking point, is that the effect of multinational bank entry should very much depend on the entry motives. For example, if a foreign bank enters a host country market to provide services that are neither available from foreign banks nor close substitutes to the service provided by the latter, the effect of foreign bank entry on the domestic banking sector might be negligible.

I proceed with a case study of Austrian banks' entry in Central and Eastern Europe to shed some further light on these issues. Among the findings are that home country push factors play a strong role in banks going abroad, that the availability of follow your customer-strategies significantly supports international expansion and that the choice of entry mode is strongly connected with the respective market strategy of banks. The latter point also is a reminder that banks are financial conglomerates, potentially offering a wide variety of services, therefore treating banks as a homogenous group in a general discussion of multinationalization strategies might be misleading.

2.2 Multinational banking - what do we know?

In the following I want to give a small, by no means complete, review on the literature about multinational banking.

2.2.1 Entry motives of multinational banks

Broadly speaking, there are two main strands of motives on why banks enter foreign markets. The one I will not discuss in detail here are managerial motives. Obviously, entering a foreign market is usually connected with firm growth. Empire-building tendencies of bank managers might therefore be a simple reasoning why banks want to enter foreign markets, especially if growth possibilities are restricted in the home country e.g. due to anti-trust

considerations. A large literature deals with the empire-building tendencies of managers and the underlying motives such as status, power, compensation and prestige of managers of large firms (see e.g. Baumol (1959)[10], Williamson (1974)[131] and Jensen (1986)[85]). An additional managerial motive for expanding into foreign markets is (potentially inefficient) risk diversification (e.g. Berger et al.(2000)[12]) to prevent cases of bank liquidation leading to job loss.

The other strand of motives, which I want to discuss in more detail, can be subsumed under "'profit-maximization motives"'. One can further differ between the motive to expand business in general and the motive to expand in a specific business segment/geographic market.

Concerning motives for general expansion, economies of scale and scope in various dimensions might play a role. Besides the generally discussed revenue and cost economies of scale and scope, another focus in the analysis of the banking industry is on risk diversification economies of scale and scope.

The empirical evidence on the former is mixed as is discussed in more detail later in of this thesis. However, practitioners strongly support the view that such economies of scale and scope exist in international expansion. For example, Spanish bank managers active in the expansion into the Latin American market perceive a wide variety of such economies e.g. due to the possibility to develop relatively homogeneous financial products or centralize back office and transaction processes (Guillen and Tschoegl (1999)[74]. The majority of studies on this topic also might suffer from old data. Due to technological advances and changing market possibilities, such economies might be available to a higher degree today. The evolution of internet banking, the arrival of Automated Teller Machines (ATMs) and the beginning specialization of banks along the value chain have most probably increased available economies of scale (The Economist (2006)[127]). At the same time bank size and diversification might be an important requirement to be able to place "'strategic bets on future markets such as China without putting the whole bank at risk"'(The Economist (2006), page 4[127]).

The other two well-discussed potential profit-enhancement motives for entering a foreign market are to win new customers in this country (market-seeking foreign direct investment) or to keep existing domestic customers and enhance business volume with them (follow your customer-strategy).

The former is the most obvious and generally acknowledged motive for entry into a foreign market. However, special to the multinational banking literature, there had been an ongoing debate about whether a foreign bank is actually capable of successfully entering local retail and commercial banking markets (e.g. Nolle and Seth (1996)[108]). More recent literature, as well

as the overwhelming experience, suggest that at least some foreign banks in some host markets are able to penetrate local markets on a sufficient scale (e.g. Berger et al.(2000)[12]).

Compared to the discussion of FDI in other industries, the follow your customer motive plays a much larger role in the multinational banking literature. From a firm perspective this follow your customer behaviour seems to have been of large importance for a long time now, as, e.g. in the survey by Pastre (1981)[111] 52% of U.S. multinational firms reported to use one of their domestic banks for operations in foreign jurisdictions[1].

The follow your customer motive includes both offensive and defensive strategic traits. For one, a domestic bank might engage in stand-alone non-profitable follow your customer-FDI, to secure the respective client's home market business with the bank and keep them from switching to another bank providing global service network capabilities. This so-called defensive expansion approach has been mentioned by e.g. Grubel (1977)[73] or Williams (1997)[130]. However, following its customer also might be profitable for the respective bank per se, as the latter is able to broaden the volume of business conducted with the respective firm, taking over additional trade financing and local cash management services for this firm. Also, the geographical expansion of the bank's network might attract additional customer from its home country looking for such "'global capabilities"'[2].

Another profit motive for international expansion of banks seems to have become less of an issue, but has been a big reason for the big wave of international expansion of U.S. banks in the 1960s and 70s, namely the search for cheap sources of refinancing for home market financing activities. This need arose through "'Regulation Q"' enacted by the Glass-Steagall act in 1933 in the United States, which did put a limit on the interest rates that banks could pay on deposits in the United States, therefore leading to a shortage in capital supply for the banks' loan business. The response was to enter especially European markets on a large scale to use European deposits to refinance U.S. bank financing activities (e.g. Huertas (1990)[80]).

[1]Further empirical evidence is discussed at the beginning of chapter 3 of this thesis.

[2]Huertas (1990)[80] e.g. cites Frank Vanderlip, former CEO of Citibank on the banks expansion into Latin America: "' .. I hope to get a very considerable return by offering facilities that other banks cannot offer to exporters, and thus attract their accounts to Citibank"'.

2.2.2 Which banks become multinational? Firm and home country characteristics

Just like in the general literature on Foreign Direct Investment (FDI), the issue of which institution-specific characteristics influence a banks multinationalization decision has started to garner interest just recently.

This newly arising question is strongly linked with the recent advances in trade and FDI theory incorporating the fact that firms are heterogeneous, e.g. in the papers by Melitz (2003)[99] and Helpman, Melitz and Yeaple (2004)[56].

The main proposition of these papers is, that only sufficiently productive (efficient) firms supply foreign markets. This group can the be further split into relatively less productive firms which will serve foreign markets via exporting, whereas the most efficient/productive firms will establish a physical presence in foreign markets conducting Foreign Direct Investment.

A similar, and maybe even stronger, view is existent in the multinational banking literature. As local banks should have inherent advantages over foreign banks in the market, due to intimate knowledge about e.g. borrowers' risks or retail customers' specific preferences, a successful entry by a foreign bank should only be feasible, if the latter has sufficient advantages in other bank characteristics to offset the incumbents' informational advantages (e.g. Grubel (1977)[73] or Berger et al.(2000)[12]). Examples for such multinational bank advantages that could be leveraged on a foreign market could be managerial skill, enhanced risk management and IT systems (e.g. Berger et al.(2000)[12]) or the ability to refinance in the capital market or home deposit market at lower costs.

The empirical literature on efficiency characteristics is surprisingly scarce to date. Focarelli and Pozzolo in two studies (Focarelli and Pozzolo (2001)[61] and Focarelli and Pozzolo (2003)[62]) indeed find, that the more efficient[3] a bank, the more likely this institution will run branches and/or subsidiaries in foreign countries. Also, Buch and Lipponer (2004)[29], studying a sample of German banks, discover that more profitable banks [4] are more active

[3]Measured as return on assets in these studies.

[4]Indeed profitability in their study setup is a good proxy for general bank efficiency, as the authors control for different business portfolios of the banks as well as for bank size. Whereas the former therefore controls for profit differences arising from concentrating on different segments of the banking industry, the latter ensures that profitability is not only a measure of economies of scale, but rather for underlying X-efficiency of the respective bank.

internationally, both in the sense that they undertake more foreign direct investment as well as generate more revenue from international business in general. However, the authors do not analyze how differing profitability affects the choice of serving foreign markets predominantly via FDI or cross-border provision of services.

Bank size per se might be an advantage for banks in their pursuit of international expansion as well, as large size and scope might enable institutions to bear larger risks as well as get cheaper refinancing rates at the capital market, due to potential economies of risk diversification[5]. A number of studies indeed find size to have a positive influence on the degree of multinational activity of a bank (e.g. Focarelli and Pozzolo (2001)[61],Focarelli and Pozzolo (2003)[62], Buch and Lipponer (2004)[29] and Tschoegl (2003)[126]). The latter study even finds that, for the US market, it is predominantly the largest bank from the respective home country, that is most active in the host market. One reasoning might be, that these respective banks are most limited in their further domestic growth due to anti-trust regulations.

However, Curry, Fung and Harper (2003)[42] mention that the causality between the degree of multinationalization and the size of a bank remains a bit unclear, as bank size might be influenced by the fact that the respective institution is involved internationally and not vice versa.

Furthermore the two studies by Focarrelli and Pozzolo[61],[62] show evidence, that the product focus of banks is a further determinant of the global scope of its operations. To be precise investment banks, or banks that generate a high share of their total revenue from non-interest income in general, are found to be more globalized than traditional loan-processing banks.

Finally, Buch and Lipponer (2004)[29] also show, that previous international experience increases the probability of a bank to enter a foreign market[6].

Incentives and capabilities of banks to become multinational are most probably endogenous, depending on the characteristics of markets the bank has been operating in, specifically its home market.

The financial development of the home country, the degree of bank sector competition in the bank's main market, as well as regulatory conditions in this home market are deemed by the literature to have an influence in both developing the capabilities of banks to become multinational as well as their incentive to do so (e.g. Berger et al.(2000)[12], Aliber (1984)[3] and Curry,

[5]From this perspective, size is an efficiency factor, determining available economies of scale and maybe scope.

[6]This finding is also backed by information found in conducting the below case study.

Fung and Harper (2003)[42]). Theoretically a large market should bread tendentially larger banks or enable access to larger deposit volumes. Indeed Brealey and Kaplanis (1996)[26] and Fisher and Molyneux (1996)[59] find a positive influence of home country size on the multinational activity of banks.

Also strong bank sector competition in the host country should lead to pressure to become more efficient, while also restricting the possibility to make abnormal profits, giving incentives and enhancing capabilities to expand into other (less competitive) markets.

Home market saturation is seen among the main reasons banks start to look abroad. Guillen and Tschoegl (1999)[74], conducting interviews with Spanish bank managers, discovered, that the Latin American expansion by Spanish banks was mainly pursued due to a very saturated Spanish home banking market featuring strong margin pressure and restricted growth opportunities.

Additionally a well-developed capital market might give home banks an opportunity for cheaper or more fitting refinancing options. The role of home market financial market conditions for general foreign direct investment has been discussed by Klein, Peek and Rosengren (2002)[88], who find that the reduction in Japanese Foreign Direct Investment in the 1990s could be explained by the Japanese banking crisis, which constrained Japanese firms' ability to find sufficient financing for FDI activity.

The role of regulation on incentives to go abroad has already been partly discussed in the motives for US banks to go abroad ("'Regulation Q"'). Specific to the U.S., another regulatory restriction for domestic growth might have played a large role in these banks' decision to grow abroad. Precisely, until the Riegle-Neal act in 1994, US banks faced severe restrictions on entry into multiple US states, making large-scale interstate banking infeasible[12]. So geographic expansion for U.S. banks was mostly only feasible outside of the U.S..

As mentioned before, another reason for international expansion might be anti-trust considerations for large domestic banks, which might make further inorganic (via acquisition) growth in the home market legally infeasible (e.g. Tschoegl (2003)[126]).

2.2.3 Which markets attract multinational banks?

One area of research on multinational banking, that has already been explored to a relatively large degree by economic literature, is the location choice of multinational banks.

The characteristics of an attractive host country can be sorted into two

main categories, stand-alone and bilateral host-home country characteristics. Multiple dimensions of stand-alone characteristics of host country markets can be distinguished.

Macroeconomic conditions

The macroeconomic conditions attracting banking foreign direct investment are very much alike these attracting FDI in general.

Numerous studies find a positive influence on banking sector FDI of Gross Domestic Product (GDP) and GDP per capita, e.g. Focarelli and Pozzolo (2003)[62], Brealey and Kaplanis (1996)[26], Sabi (1987)[116], Buch and Lipponer (2004)[29] and Buch and de Long (2004)[28], which is to be expected from the theoretical literature on horizontal foreign direct investment, e.g. Markusen and Venables (2000)[98]. Generally, all else equal, a higher GDP should equal a larger demand for any kind of product. Besides similar reasoning, higher GDP per capita might be associated with a higher demand for sophisticated, high-margin banking services, such as asset management.

Inflation is found to reduce the attractiveness of the market by Focarelli and Pozzolo (2003)[62], however Buch and Lipponer 2004)[29] do not find a significant impact of inflation[7].

Country risk, as measured by an Index from Euromoney, is found to have a negative influence on international bank activity in a respective country, be it cross-border lending or bank foreign direct investment, in the study by Buch and Lipponer[29].

Bank sector and regulation characteristics

One unanimous result across the empirical literature is that countries harbouring financial centers (e.g. New York, London, Tokyo) attract a larger volume of bank sector FDI (see e.g. Focarelli and Pozzolo (2003)[62] and Buch and de Long (2004)[28]. This easily can be rationalized by a type forward and backward linkages in the banking industry, as banks buy investment banking products for their portfolios from other banks as well as sell such products to other banks. Proximity of respective banks' investment banking divisions supports these transactions with heavy information and trust requirements.

Concerning bank sector regulation, studies find, that the harsher activity restrictions for multinational banks and the stricter banking regulation in general, the less bank FDI the respective country will attract (e.g. Focarelli

[7]However, Buch and Lipponer argue that positive (higher nominal returns) and negative (higher instability) effects might cancel each other out.

and Pozzolo (2003)[62], Berger et al.(2000)[12], Buch and de Long (2004)[28] and Curry, Fung and Harper (2003)[42]). However, this result does not seem to hold for less developed countries (e.g. Sabi (1987)[116]).

Other profit-influencing factors determining whether banks enter the market are the size of the banking market (+) (Sabi (1987)[116] the level of concentration in the host banking market (-) (Focarelli and Pozzolo (2003)[62]), and the cost efficiency of incumbent banks (-) (Berger et al.(2000)[12]). These influence factors obviously shape the expected profitability of market entry through determining the market volume and the degree of competition in the respective market.

Bilateral home-host country characteristics

Screening the empirical literature, bilateral country characteristics seem to play a large role in multinational banks' location decisions, just as the general theory on Foreign Direct Investment predicts (e.g. Markusen and Venables (2000)[98]).

Looking at the broad picture one clearly sees strong bilateral patterns in multinational banking, as found by Soussa (2004)[121]. For example, as discussed in the case study below, Austrian banks abroad are almost exclusively active in the former transition economies, with 93% of Austrian banks' FDI stock concentrated in five countries (Czech Republic, Slovak Republic, Croatia, Poland and Bulgaria). Also, Spanish banks' multinational activity is predominantly restricted to Latin America, with a share of 94% of total outward bank FDI stock in Brazil, Mexico, Argentina, Chile and Colombia. Similar strict bilateral geographic patterns are found for banks from Belgium and Italy (strong focus on CEE countries).

From a host country perspective, for example, Spanish banks account for 65% and 58% of total bank foreign assets in Argentina and Brazil, respectively, while e.g. Austrian banks' foreign asset share in the Czech Republic is 39%.

A closer, regression analysis-based look on bilateral home-host country characteristics shows, that the amount of bilateral trade and real sector foreign direct investment positively influences the volume of bank sector FDI into the host country (see e.g. Focarelli and Pozzolo (2003)[62], Buch and Lipponer (2004)[29], Brealey and Kaplanis (1996)[26] and Fisher and Molyneux (1996)[59] and Sabi (1987)[116]). This result is consistent with the idea, that follow your customer-motives play an important role in multinational banks' location choice.

Additionally common language, low distance and a common legal system are found to positively influence bilateral bank sector FDI in some studies(e.g.

Buch and de Long (2004)[28]), however the impact is partly statistically insignificant in other studies (e.g. Focarelli and Pozzolo (2003)[62] and Buch (1999)[27])[8].

Looking at how the Latin American and Eastern European markets shape up concerning the source of inward bank FDI, especially in the Latin American case, language and cultural factors do seem to play a role, as the dominance of Spanish banks among multinational banks in these countries is blatant. Such a cultural factor is also often mentioned as the reason for the market leadership of Austrian banks in Eastern Europe, as countries such as the Czech Republic, Hungary and Slovenia used to be part of the Austrian Habsburg empire for a long period of time in history.

2.2.4 How do the entry and market strategies of multinational banks look like?

Having discussed empirical results on why, which bank, stemming from which country, enters where, the focus of discussion shifts to the existing literature on how a bank enters a foreign market.

When deciding upon how to become actively involved in a foreign market, a bank has two intertwined organizational dimensions to decide on. For one, the bank has to choose the degree of market involvement (Curry, Fung and Harper (2003)[42]) it wants to reach. A low level of involvement is achieved by establishing correspondent banking (cross-border services with the help of a correspondent incumbent bank in the host country) or by opening a representative office or agency. Common to these forms are restricted activities, with the bank not enabled to engage in deposit taking or direct lending[9] in the host country. In contrast, via establishing branches or subsidiaries, foreign banks are able to "'conduct the full range of banking activities"'(Curry, Fung and Harper (2003)[42]). The difference between branch and subsidiary organizations is, that the former type is not a legally independent organizational structure, whereas the latter is.

Ball and Tschoegl (1982)[6] find that the main determinant of organiza-

[8]In Focarelli and Pozzolo (2003) distance, as expected, influences foreign bank activity negatively and significantly. However, a common language enters insignificantly and ambiguously in the probability of a foreign bank operating either a branch or even a subsidiary in the respective host country.

[9]Agencies might be allowed to engage in commercial lending, but not in other loans or deposit taking.

tional choice in the above dimension is a bank's experience in the respective host market as well as its general experience in foreign banking markets. The former suggests, that markets are entered in a step-by-step approach starting with low degrees of involvement (e.g. representative office) with the bank in the following growing its local structure up to possibly establishing a subsidiary in the market.

Concerning branches and lower-level physical engagement forms, these will usually be set up via Greenfield Investment.

The second dimension of organizational mode of entry concerns the setup of a subsidiary in a host market. Entering via the establishment of a subsidiary can be achieved either by setting up a completely new organizational structure in the market (Greenfield Investment) or via the acquisition of a local incumbent bank.

Very few empirical studies to date deal with the determinants of entry modes of multinational banks.

According to de Haas and van Lelyveld (2006)[44], establishing Greenfield subsidiaries might be the entry mode of choice, if the parent bank wants to exercise a high degree of control over the foreign structure. The authors show evidence for this claim, finding that Greenfield subsidiaries are more closely integrated within the parent organization operationally, having access to the parent banks' internal markets for capital and management resources. In contrast, subsidiaries stemming from the acquisition of local incumbent institutions enter the multinational bank group with an existing personnel and capital (deposits and loans) portfolio, and are found to be less integrated into the parent organizations' internal markets, and also might need restructuring such as to fit into the group's organization and product portfolio. On a positive side, the promptly available deposits of an acquired bank may enable the foreign bank to grow its local loan business faster due to available local refinancing[10]. The need for access to the multinational bank group's internal capital market might therefore also be less pronounced.

A disadvantage of entry via M&A proposed in the literature especially applies to entry into non-OECD countries. Whereas acquired banks come with a portfolio of potentially non-performing loans, a Greenfield subsidiary can start off local business without such baggage[35]. This might be an important factor, especially when entering countries, that have experienced a loan crisis lately or harbour a majority of inefficient banks, also lacking the transparency for multinational entrants to determine their level of engagement in bad loans[11].

[10]see Curry, Fung and Harper (2003)[42]

[11]Indeed, in the case study about Bank Austria Creditanstalt in this chapter, the prac-

An important determinant of the entry mode for multinational banks should also be the respective bank's segmental strategic focus in the respective host market. Due to the problems of acquiring soft information about loan risks, "'greenfield banks have an incentive to focus on the most transparent clientele"'(Havrylchyk and Jurzyk (2006)[76]). The two authors, for banks entering Central and Eastern European banking markets, show indication, that Greenfield banks on average charge lower interest rates on their loans than acquired subsidiary banks, which indicates that the former concentrate on low risk, informationally non-opaque clients, as this customer segment should experience more bank competition, and therefore lower interest margins available, according to theory (Dell'Ariccia and Marquez (2004)[48]).

As the informational advantage of entry via acquisition versus via Greenfield investment hinges on the fact of potential customers being informationally opaque, one might be able to argue, that we should ceteris paribus observe acquisition to be the dominant mode of entry in countries with insufficient information-providing institutions and a relatively large volume of informationally opaque potential customers. However these markets might also be those featuring incumbent banks with a high share of non-performing loans, which (partially) offsets the advantage of entering via M&A.

Havrylchyk and Jurzyk (2006)[76] also decompose foreign subsidiaries' and domestic banks' profits. A look at their descriptive statistics yields, that tendentially foreign banks, that enter the foreign markets via acquisition, show higher net interest margins and higher return on assets than foreign banks entering via Greenfield Investment . This suggests that banks enter via acquisition, if they are large, profit efficient and generate a high proportion of their profits from the traditional banking activity of lending and deposit-taking.

Some special political developments in countries also play a large role in the entry mode decision of foreign banks. The main example are the transition countries in Central and Eastern Europe, where entry via acquisition of incumbent domestic banks was supported by the large bank privatization wave in the 1990s, providing available targets for sometimes relatively low, political prices (ECB (2004)[8]. The above study also claims, that one of the reasons for entering via M&A in these countries was, that the foreign entrants main line of business in this region was retail and commercial banking, operations that require local market knowledge. The authors however especially caption the importance of the privatization programme 'All in all,

titioner mentioned uncertainty about the degree of exposure to bad loans of potential local target banks as a significant barrier to entry via acquisition in Central and Eastern Europe in the 1990s.

the most relevant consideration in the investment strategy of foreign banks in the accession countries has been to take advantage of the opportunities provided by privatisation programmes in order to develop a wide and visible presence in the host markets within a short period of time[12].

The latter part stresses another crucial advantage of acquisition over Greenfield Investment, namely entry by acquisition enabling foreign banks to serve the market on a large scale fast, reducing the time needed to ramp up business volume to significant levels. For example, a lack of brand name recognition for an obscure foreign bank trying to enter the retail banking market via a completely new structure, should lead to slow business growth, as reputation has to be slowly built up. The argument might however not hold true for multinational bank icons such as Citibank entering markets harbouring incumbent banks with a collective negative reputation, for example stemming from a recent national banking crisis.

A general empirical literature on entry modes into foreign markets yields some additional insights, that might also apply to the banking sector.

Hennart and Park (1993)[77], looking at the entry mode decision of Japanese multinational firms into the United States, match firm and industry characteristics with entry mode choice. Results that may also apply to banking are, that the level of concentration in the respective market positively influences the propensity to enter via Greenfield Investment. Concerning product strategy, the more similar products of parent and subsidiary, the more attractive the entry mode of Greenfield Investment compared to acquisition seems to be. However, this might be due to differing motives for acquisition and Greenfield Investment. In difference to the latter, the former might be motivated by trying to add technological knowledge or diversify a firm's business portfolio.

More to the point of a general organizational discussion, the above authors also find that Greenfield Investment is chosen if operations in the host market are of small volume. This points back to the discussion about agencies and branches versus subsidiaries, where the former operations are feasible for low levels of activity in the host market and can most easily and cheaply be achieved by setting up this small structure from scratch.

Andersson and Svensson (1994)[4], for a sample of Swedish multinational firms, come up with evidence, that older firms with strong organizational skill[13] tend to enter foreign markets via acquisition of local incumbents, whereas the role of firm size in the decision whether to enter via Greenfield investment or acquisition is unclear. Concerning host country characteristics,

[12](ECB (2004), page 2)[8]

[13]The authors use the number of existing affiliates as a proxy for organizational skill.

the authors find that acquisition is the preferred mode of entry for developed countries, as the probability of entering that way positively and significantly depends on GDP per capita.

Another dimension of entry strategy is concerned with which segment a bank wants to serve in the respective host market. Tschoegl (2003)[126] discusses an interesting example how such a decision is, besides obvious market characteristics, shaped by institutional/regulatory market conditions. Swiss banks and Deutsche Bank were reluctant to get into retail business in the United States because of fears they might run into problems with U.S. banking regulation agencies as an universal bank, as they already were heavily involved in the securities market in the United States[14].

2.2.5 How successful are multinational banks operating in foreign markets?

Having discussed what shapes the structure of multinational banking, I now take a look at what literature has to say about the success of international expansion of multinational banks. The following literature gives insights into how the relative efficiency of banks in foreign markets look like.

Results by Claessens et al.(2001)[34] suggest, that the relative performance of multinational banks compared to local banks in foreign markets is to some degree host country specific. The authors, using a large sample of 7,900 bank observations from 80 countries, find evidence that foreign banks are more profitable[15] than domestic banks in developing countries[16]. However, this finding is turned upside-down for developed countries. The latter result has been seen as puzzling, as from a Bertrand competition-point of view there should then be no scope for profitable multinational bank entry into these developed countries[17].

[14]The Glass-Steagall Act prohibited universal banking structures and was only repealed in 1993.

[15]The authors discuss interest margins, tax payments and general profitability as variables for profit-efficiency of banks.

[16]This result is replicated by a number of other empirical studies e.g. Bonin, Hasan and Wachtel (2005)[25] and Majnoni, Shankar, Varheggyi (2003)[96].

[17]However, this need not be a real puzzle. As the banking industry can be divided into multiple heterogeneous service segments, one could argue that multinational bank entry into developed countries is mostly restricted to segments of the industry, where profitability

Berger et al.(2000)[12] use a more advanced estimation strategy deriving banks' X-efficiency from a standard banking cost function[18] and further break down the analysis to country levels within developed countries. They focus on five countries, France, Germany, Spain, UK and the United States. The authors generally confirm the result by Claessens et al.(2001)[34], that domestic banks are more efficient than foreign banks in developed countries, with the notable exception being Spain.

Decomposition into profit and cost efficiency gives a hint on where this profit differences between domestic and foreign banks stem from. In all of the analyzed countries the average domestic bank shows significantly higher profit efficiency than the average foreign bank. However, in Spain, this is more than offset by a lower cost efficiency of domestic banks. Cost efficiency in the U.S. is also lower for domestic banks (2,9% higher costs), however this is vastly lower than the profit efficiency advantage for these domestic institutions (25,1% higher profits). Therefore the authors argue, that the cost disadvantage might not be due to inefficiency but rather "'these high expenses more likely reflect efforts to produce a quality or variety of financial services that generate substantially greater revenues"'[19].

One interesting result concerns home country effects in the discussion of relative efficiency. Though, as laid out, foreign institutions are on average less efficient than domestic banks in most developed countries, this result does not hold for multinational banks from the U.S.. Indeed, Berger et al.(2000)[12] observe, that U.S. banks are more efficient than domestic banks in France, Germany and Spain, the only exception to this pattern being the UK. It therefore seems that U.S. banks are so overwhelmingly more efficient in general, that they are able to even outperform domestic banks in their own backyards in most countries.

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is lower. Domestic banks might voluntarily leave these segments to foreign players, instead growing their business in other fields of banking. Also, the empirical literature partly suffers from the problem, that the majority of multinational banks entered foreign markets rather recently. Therefore, these banks might predominantly be in a phase of pursuing aggressive growth strategies in respective foreign markets, asking for low interest spreads and providing services at low prices to attract away customers from incumbents.

[18]The specified cost function uses four variable outputs (consumer loans, business loans, real estate loans and securities), one fixed output (off-balance-sheet activity), two fixed inputs (physical capital, financial equity capital) and three variable inputs (purchased funds, core deposits and labor). This setup therefore at least partially controls for different business portfolios/strategies of the respective banks.

[19]Berger et al.(2000), page 57

Concerning developing countries, Green, Murinde and Nikolov (2004)[71], exploring economies of scale and scope achieved by domestic and foreign banks in selected Central and Eastern European countries from 1995-1999, find selective counter-evidence on whether foreign banks are generally more efficient than domestic banks in lesser developed countries. The authors do not find significant differences in scale and scope efficiency between domestic and foreign banks in the analyzed region. However, their results should be handled with care, as due to the nature of the transition markets, foreign banks had just recently entered the market prior to the observation period, probably still in the process of reaching their efficient scale and scope in respective markets.

Havrylchyk and Jurzyk (2006)[76] study the relative efficiency of foreign banks in Central and Eastern Europe in the period 1993-2004. Using BankScope data they measure profitability via return on assets (ROA). They find that the mode of entry plays an important role in the relative efficiency of foreign banks. Whereas foreign bank subsidiaries resulting from the acquisition of domestic incumbents do not significantly differ from other domestic banks concerning profitability, foreign subsidiaries established via Greenfield Investment are significantly more profitable than domestic banks[20]. However, decomposition of the profitability variable, shows that this difference in profits might not be due to inefficiency but rather due to different strategies and business segments. Greenfield banks seem to focus on low-cost, low risk business segments, which do yield lower risk and service premia, but these premia seem to be too low in transition economies for the risk born via non-performing loans and high overhead costs[21].

The two authors also discover, that Greenfield foreign banks show significantly lower deposit-to-asset rates than either "'takeover foreign banks"' or domestic banks (60% versus 79/76%). Whether this is by choice, as the former banks want to refinance via other sources, or by their ineptitude to raise sufficient volumes of deposits, e.g. due to a missing large scale branch network, is at first sight debatable. A lack of access to local deposits in general might be one of the reasons for the relatively poor performance of foreign banks in developed markets. DeYoung and Nolle (1996)[51] find that foreign banks in the US work under an inefficient input mix, predominantly having to rely on refinancing via purchased funds, whereas local banks use domestically raised deposits to a much higher degree. For the US, this even seems

[20]"'Greenfield foreign banks"' show a mean return on asset ratio of 1.45, whereas domestic and "'Takeover foreign banks"' show mean ROA of 0.86 and 0.87 respectively.

[21]High overhead costs might stem from focusing on loan projects that require a personal gathering of information about the respective client.

to hold true for "'takeover foreign banks"'. Peek et al.(1999)[86] find that foreign banks in the US tend to acquire targets that show an above-average reliance on purchased funds, resulting in a low deposit-to-asset ratio.

2.2.6 What are the effects of multinational bank entry on the host country?

From a political point of view, the main question concerning multinational banking is, which effects the entry of foreign banks into respective markets has on economic conditions. With banks still being one of the main providers of finance to the real sector, questions about the entry effects on domestic banks' performance and loan supply are heavily discussed.

The effects of multinational bank entry depend on the respective entrants' (relative) efficiency, the product/segment strategy they implement and what kind of entry mode they choose.

One commonly accepted effect of entry into any oligopolistic market is, that market power of incumbents diminishes and market volumes increase, if the entrant is sufficiently efficient to put competitive pressure on the incumbents. Due to competitive pressure, incumbents additionally might or might not be incentivised to operate more efficiently, either by bank managers being pushed to operate the structure more efficiently, or by increasing/decreasing the need/incentive for incumbents to invest in efficiency-enhancing new technologies and practices.

These effects should theoretically be costly for the domestic banking sector up front, but should at first sight improve loan market conditions for borrowers.

Systematically, the potential effects of bank entry can be decomposed into the direct market effect via the introduction of an additional (Greenfield Investment) or at least the efficient restructuring of an existing local bank (acquisition), an indirect effect induced by domestic incumbents adapting their strategies in this case, and some direct spillovers of banks technology and institutional requirements on domestic banks' and domestic regulatory/legal institutions.

An increasing theoretical literature has provided both a basis for further (and ex post explanation for existing) empirical analysis.

Concerning the effect of entry on domestic banking sector efficiency, Lehner and Schnitzer (2006)[93] in a setup of competition in horizontally differentiated products, discuss the direct effects of increased competition and direct spillovers in screening technology on the efficiency of the domestic

banking sector, where the two direct effects have the negative side-effect of reducing incumbent banks' incentives to invest in screening themselves. Differing between effects from entry via Greenfield Investment and acquisition, the authors find, that for the case of weakly competitive market (high product differentiation) tendentially entry via acquisition is relatively harmful in less developed countries, whereas it is less harmful in developed countries. For the case of low product differentiation Greenfield Investment is the welfare maximizing mode of entry in all kinds of countries.

The effect of foreign bank entry on incumbent banks' lending practices is theoretically analyzed by Dell'Ariccia and Marquez (2004)[48], who develop a model capturing information asymmetries in loan markets. One of their main results is that entry by an "'uninformed"' outsider (multinational bank) should lead to incumbent banks shifting their loan portfolio towards more informationally-opaque borrowers, due to increased competition in the segment of non-opaque potential clients. From a general perspective this could be seen as a beneficial indirect effect of entry, if the opaque segment had previously been inefficiently loan-constrained by incumbent banks.

Claeys and Hainz (2006)[35], building on the above setup, develop a model to discuss differing effects of foreign bank entry via Greenfield and acquisition on bank lending rates in the respective host market. They find that foreign bank entry reduces required lending rates by incumbent domestic banks, more so if the majority of entry is via Greenfield Investment.

Proceeding to test their hypothesis empirically, Claeys and Hainz (2006)[35] indeed find, that a higher foreign bank share in loans reduces average lending rates in the respective market. Also they show evidence, that "'Greenfield foreign banks"' charge higher lending rates than "'takeover foreign banks"'. Concerning differing competition effects of entry via Greenfield or acquisition, the former is observed to reduce average domestic bank lending rates significantly more than the latter.

Havrylchyk and Jurzyk (2006)[76] also discuss the differing effect of different entry modes on domestic banks' performance. They discover that, no matter the entry mode, a higher market share of foreign banking increases costs for domestic banks. The authors note that this might seem to be counterintuitive at first sight, as one would expect higher competition to lead to higher cost efficiency, however they argue that this cost increase might be short-term, due to domestic banks' arising need for investing into competitive risk, IT and management systems. In contrast to a high share of "'takeover foreign banks"', a large market share of "'Greenfield foreign banks"' additionally decreases domestic banks' non-interest income but also their loan loss provision volume. In total, however, the effects seem to balance out each

other, as domestic banks' profits seem to be unaffected by the foreign banks' market share in the respective market.

Other empirical studies find that entry of foreign banks reduces the profitability of domestic banks. Additionally to the result from Claeys and Hainz (2006)[35] e.g. Claessens et al.(2001) [34] find that this reduction in profitability is mainly due to reduced net interest margins, a hint that the effect on profitability indeed works through a reduction in market power of incumbent banks in the provision of loans and/or deposit taking.

The latter authors finding can also be perfectly related to the missing "'foreign bank market share-effect"' found by Havrylchyk and Jurzyk (2006)[76]. Indeed Claessens et al.(2001)[34] find that the market share of foreign banks is not an important determinant of domestic banks profitability, but rather only the number of foreign banks has the expected negative significant effect, suggesting that the threat of foreign banks taking market shares away already induces domestic banks to reduce net interest spreads, allowing them to keep domestic bank market shares at a high level.

Another accommodating result is found by Levine (2003)[94], who uses a unique data set on cases of regulatory institutions denying foreign bank entry in 47 developed and less-developed countries to analyze the relationship between political entry restrictions for foreign banks and bank interest margins in a respective country. The author shows evidence, that the more restrictive entry regulation for foreign banks in a country, the higher the net interest margins for banks in the market. Foreign bank entry also is found to be special, as restricting domestic bank entry does not alter operating banks net interest margins. The results further confirm the hint from Claessens et al.(2001)[34] that the contestability of a respective host market primarily determines the competitive behaviour of operating banks, not the actually incurring amount of entry into the market. It seems that the existence of multinational banks threatening to enter a market already disciplines incumbent banks.

One important point of note concerning the effects of foreign bank entry is, that such entry from a global view went hand in hand with a consolidation of the international banking industry. The chapter on bank sector consolidation in this thesis discusses the effects of general consolidation in the banking industry in detail. In that chapter the potential effect of multinational bank entry on the availability of loans to a specific segment of the market, informationally opaque small and medium-sized enterprises (SMEs), is discussed in detail.

Generally, foreign bank presence is found to increase access to loans, at least for larger and transparent firms in emerging market economies (see e.g. Mian (2006)[100], Giannetti and Ongena (2005)[66], Clarke et al.(2001)[37]).

Concerning informationally opaque smaller firms, e.g. Mian (2006)[100] however finds that

'greater cultural and geographical distance between a foreign bank's headquarters and local branches leads it to further avoid lending to "informationally difficult" yet fundamentally sound firms requiring relational contracting"'

suggesting that the beneficial effect of foreign bank entry might not extend to this segment of the market. This results is independent of bank size, bank risk preferences or legal institutions in the home country. This biased lending strategy effect of distance also is identified to be large enough to completely exclude some types of borrowers in the economy from foreign bank finance.

Concerning the increased availability of bank financing for at least a fraction of borrowers in the host market through MNB entry, it at first sight seems as this is simply due to an underlying capital transfer into the host country via the foreign banks' internal capital market. However, as Havrylchyk and Jurzyk (2006)[76] discovered foreign banks to predominantly refinance their local lending activity with local deposits, the international capital transfer through entering banks seems less pronounced than originally thought. Especially for banks entering via acquisition the deposit-to-asset ratio of 79% suggests minimal cross-border capital transfers within the banks' activity. However, if entering foreign banks are more efficient screening potential borrowers than existing incumbents the availability of deposits for commercial loan financing might rise in total, as owners of liquid assets might be more willing to extend deposits to the banking system (instead of e.g. transferring assets abroad or invest in government bonds).

Finally, one topic that has also received a substantial amount of interest in the economic literature is how the presence of foreign banks affect the general stability of the host country banking sector and financial market. The empirical studies to date focus on the two main recipient less-developed regions, Latin America and Central and Eastern Europe (CEE).

Theoretically, two specific advantages of multinational banks compared to local domestic banks might determine whether credit supply is stabilized by foreign banks or not. On the one hand, a multinational bank might have additional/cheaper sources of refinancing, such as better access to international capital markets or to deposits in the home country or other countries of operations. Therefore these banks might be able to support their subsidiaries in cases of market-specific liquidity/bank crisis, therefore dampening local shocks. On the other hand, due to operating in multiple markets, the bank might transfer liquidity/assets from badly-performing/crisis-plagued coun-

tries to other regions, therefore strengthening local shocks.

Supporting a subsidiary should generally be a question of a parent bank's capability to do so, whereas substituting effects should be seen as an incentive-based decision within in the bank structure, depending on banks' opportunity costs of keeping capital in a respective host country subsidiary.

Due to multinational banks operating in multiple regions, they might therefore transfer shocks from one region to the other via reallocation of assets within their international internal capital market.

Recent theoretical work by Morgan et al.(2004)[103], who develop a model of a multinational bank (along the general banking model of Holmström and Tirole (1997)[78]), that rebalances its international bank capital reacting to shocks in bank and real sector capital in respective regions, show what kind of country-specific shocks might be dampened or strengthened by the presence of multinational banks. The model predicts that multinational banks dampen local bank-capital shocks by supporting their local subsidiaries but increase the volatility of the business sector by reallocating bank capital away from regions experiencing real sector capital shocks.

Empirically, for Latin American countries, Dages et al.(2000)[43], Peek and Rosengren (2000)[112], Goldberg (2001)[69], Crystal et al.(2002)[41] and other studies, find strong evidence that foreign bank presence increases the stability of domestic banking sectors. Foreign banks seem to show stronger and less volatile credit growth, and positive growth even in periods of financial market crisis[22]. However, this line of reasoning does not seem to be specific to the ownership structure of banks, but rather to the underlying relative financial health of foreign banks in this region. Dages et al.(2000)[43] observe that domestic banks show the same involatile behaviour as foreign banks, if they are characterized by similar health e.g. similar levels of shares of non-performing loans in their portfolio.

For the Central and Eastern European region, de Haas and van Lelyveld (2006)[44] reinforce the notion of foreign banks as a stabilizing force as they are found to keep up lending volume during times of financial distress whereas domestic banks strongly contract lending. However, this seems to hold true for "'Greenfield foreign banks"'[23] only.

[22]Indeed, it seems that foreign banks see these occasions as opportunities to expand their market shares at the expense of financially stricken local banks.

[23]Again this is in line with the results of Havrylchyk and Jurzyk (2006)[76], which show that Greenfield banks are much more embedded in a multinational bank group's internal capital market, whereas acquired banks within the group seem to be organized as rather independent capital centers.

Home market and parent bank effects, affecting the whole bank group via internal capital markets, also significantly influence the lending activity of multinational banks abroad.

De Haas and van Lelyveld (2006)[44] find evidence for both a substitution and a support effect[24], depending on parent bank and home market conditions. Concerning the former, they find that foreign banks reduce credit supply in foreign markets if GDP growth in the home country accelerates, leading to more potential value-adding business in the home country market. Again, this substitution effect only applies to "'Greenfield foreign banks"'. The capability to support a subsidiary should critically hinge on the parent bank's financial status. Indeed, the authors find that parent banks showing strong financial health[25] have subsidiaries in the CEE region growing credit volume faster than subsidiaries of weak parent banks. The latter result does hold for all kinds of foreign bank subsidiaries, however the effect is more pronounced for Greenfield operations.

The majority of empirical studies on home market effects confirm the results concerning the substitution hypothesis, as worsening home country conditions seem to have led banks to enlarge their lending activity in foreign markets (e.g. Moshirian (2001)[104] and Calvo et al.(1993)[30]).

Summing up, concerning the effect of multinational bank presence on the stability of local banking markets, such presence seems to increase stability in the analyzed less developed regions during times of financial distress. However, there is strong evidence that, while foreign bank presence might dampen financial crisis in the respective host countries, it could also strengthen or even import these when home or third country market developments lead the bank to substitute business and assets from the foreign to its home market or third countries. The advantages and disadvantages of multinational bank presence strongly depend on the level of integration of the respective local subsidiary in the bank group's international internal capital market. Both disadvantages and advantages seem to be less pronounced for foreign subsidiaries established via the acquisition of local incumbent banks, as these structures seem to be more or less financially segregated from their parent banks.

After discussing what existing literature has to say about multinational

[24]The following results are also confirmed in a newer study by the same authors (de Haas and van Lelyveld (2006b)[45].

[25]The authors use the ratio of loan loss provision over net interest revenue as a proxy for financial health.

banking, the chapter now turns to a practitioner-oriented view, discussing the behaviour of multinational banks with the help of a case study of one of the success stories of multinational banking, Bank Austria Creditanstalt and its successful expansion into Central and Eastern European markets.

2.3 A case study of successful multinationalization: Bank Austria Creditanstalt in Central and Eastern Europe

2.3.1 Overview of objects and sources of the case study

One of the hot spots of the evolution of multinational banks in recent years have been the former Communist countries in Central and Eastern Europe. Nowadays, concerning the scope of internationalization of their banking system, these countries are special in that their banking system is dominated by foreign bank subsidiaries. For example Bol, de Haan, Scholtens and de Haas (2002)[24],for the year 2000, find foreign bank asset share in total banking assets to be 54% in Central Eastern Europe and 87% and 77% in South Eastern Europe and the Baltic States respectively. This dominance holds true in large countries like Poland (69%) and the Czech Republic (66%).

Within this environment one other fact of note is that the leading home country of multinational banks operating in these transition economies is Austria, with the regional market leader in this region being Bank Austria Creditanstalt (BA).

These two facts rationalize choosing the respective bank in the respective region for a case study on Bank Austria's operations in these (former) transition countries.

The following insights have been won by screening annual reports and presentations of Bank Austria and its Austrian competitor Erste Bank, but the major insights were won by interaction with Mr Gerhard Smoley, Head of Investor Relations of the Bank Austria Group at this time[26].

I proceed as follows. First a general overview about Bank Austria Creditanstalt (BA) and its history is given. In the following the focus is on the bank's operations in the Central and Eastern European (CEE) region, giving an overview of the development of the bank's market position. A discussion of BA's entry motives, modes and market strategy follow, yielding insights into how, from a practitioner's view, home country, host country and bank-specific characteristics determined the internationalization strategy of Bank

[26]The following insights strongly base on telephone interviews[109] as well as additional email communication.

Austria. After discussing the future strategic focus of Bank Austria Creditanstalt in the region, an overview of operations of Erste Bank, BA's main competitor in the CEE region concerning size, is given, allowing some interesting comparisons between two very different, yet both highly successful market entry strategies. The case study finally is concluded by deriving general insights into topics in multinational banking, that can be won from the proposed case study.

2.3.2 Bank Austria Creditanstalt: An Overview

Bank Austria Creditanstalt today is the leading bank in its original home country Austria (1.8 million clients at a country population of 8 million) and what it now deems as its "'second home market"'[40] Central and Eastern Europe[27]. Since November 2005 Bank Austria Creditanstalt, formally a part of the HypoVereinsbank (DE) group, has become a member of the UniCredit (IT) banking group via the latter acquiring the former. 95% of Bank Austria shares are now held by UniCredit with 5% in free float.

Concerning historical roots, Bank Austria was founded in 1991 via the merger of "'Oesterreichische Landesbank"', "'Zentralsparkasse"' and "'Kommerzialbank"'. In 1997 Bank Austria took over the Austrian government's shares in "'Creditanstalt"' fully integrating into the Bank Austria Creditanstalt group in 1999. As "'Creditanstalt"' was privatized by the Austrian government only in 1990, all formerly independent parts of the newly arising bank had formally been state-owned.

In the year 2000 Bank Austria Creditanstalt merged with HypoVereinsbank and became the competence center for CEE business of the group. BA fully concentrated on the Austrian as well as 11 selected Eastern European countries, taking over HVB business in these countries while transferring other international business to the HVB organization. Bank Austria embraced this friendly merger, as management saw Bank Austria's further growth possibilities limited due to the fact, that Bank Austria stand-alone had grown too large for its home market but was too small to establish strong operations in an integrating European banking market[28]. After the HVB-UniCredit merger in 2005, Bank Austria became part of UniCredit

[27] In Bank Austria Group definition this also includes CIS countries as well as Turkey.

[28] Additionally Bank Austria had become too small for the risk it carried in its portfolio. Especially its exposure to risks in the North American market was too large for further growth stand-alone.

group structure and now acts as the primary holding and operations center for the group's Central and Eastern European business[40].

2.3.3 Bank Austria Creditanstalt in Eastern Europe

Bank Austria Creditanstalt was the first mover in the Central and Eastern European states, especially with Creditanstalt already having had established agencies in Hungary (1975), Prague and Moscow (both 1987) even before the fall of the iron curtain. Creditanstalt also was the first foreign bank to take over a domestic target in the CEE states, acquiring a majority stake in the Slovenian "'Nova banka"' as early as 1992[40].

In general, between 1989 and 1991 both Bank Austria and Creditanstalt started to enter markets in Central and Eastern Europe on a large scale.

Nowadays Bank Austria Creditanstalt is by far the market leader, not only among foreign but all banks, in Central and Eastern Europe, with total assets of 41bn and 39.000 employees in 1,800 branches serving roughly 18 million clients in the region. As the CEE competence center of UniCredit group, this includes former subsidiaries of UniCredit and HypoVereinsbank.Concerning assets, BA-CA-group subsidiaries are the No.1 bank in Croatia, Bulgaria and Bosnia-Herzegowina, and are among the five largest banks in eight countries in total[39].

Table 1 gives a detailed look at the group's positioning in the respective countries[29].

[29]data as reported 31.12.2006

Table 2.1: BA-CA Operations in Central and Eastern Europe

Country	Subsidiaries	Total Assets (€bn)	Branches	Market position
Bosnia	• HVB Central Profit Banka • Nova Banjalucka Banka • UniCredit Zagrebacka Banka	1.7	180	No. 1
Bulgaria	• UniCredit Bulbank	4.2	300+	No. 1
Croatia	• Zagrebacka banka	10	127	No. 1
Czech Republic	• HVB Bank Czech Republic • Zivnostenska Banka	9.2	79	Top 5
Estonia	• HVB Bank Talinn	0.07	NA	Top 10
Hungary	• UniCredit Bank	5.3	76	Top 10
Lithuania	• HVB Bank Vilnius	0.38	2	Top 10
Macedonia	Representative Office only			
Montenegro	Representative Office only			
Poland	• Bank BPH • Bank Pekao	33	1,292	No. 1
Romania	• UniCredit Tiriac Bank	3.7	130	Top 5
Russia	• International Moscow Bank • Yapi Kredi Moscow	6.6	NA	Top 10
Serbia	• UniCredit Bank	0.86	46	Top 5
Slovak Republic	• UniCredit Bank	3.6	93	Top 5
Slovenia	• Bank Austria Creditanstalt Ljubljana	2.2	14	Top 5
(Turkey)	• Yapi Credi	29.5	653	Top 5
Ukraine	• HVB Bank Ukraine • UniCredit Bank	0.25	6	13

Source: Bank Austria Creditanstalt Corporate website http://www.bankaustria.at

2.3.4 Entry motives, entry modes and market strategy of Bank Austria Creditanstalt in CEE

The following section draws most of its information from communication with Bank Austria group head of investor relations Mr Gerhard Smoley.

Three headline motives for BA's entry in CEE countries became apparent in discussions. I describe these hand in hand with what seems like underlying or complementing characteristics of Bank Austria.

Home country push factors seem to have played a significant role in Bank Austria's decision to expand internationally. The Austrian market

was severely overbanked in the early 1990s and no further significant growth in the home market was deemed feasible. In this surrounding, Bank Austria, a recently privatized group of formerly state-owned bank, had to grow its profits fast after privatization to reach sufficient levels of shareholder value. Therefore BA was one of the banks most committed to finding profitable business opportunities. The political development in Eastern Europe presented an unexpected window of opportunity for this.

'By chance the possibility for feasible international expansion arose by the fall of the iron curtain."'(Smoley, 2007)(Smoley (2007)[109])

Host country factors in the beginning of the geographical expansion were more restricted to indirect follow your customer considerations. The first clients in these markets were Austrian commercial clients of BA entering the respective markets. According to Mr Smoley this was the main motive or building stone in the beginning. "'If not for so many of BA's customers from Austria entering the CEE markets, Bank Austria would most probably have entered these markets significantly later in the process"'(Smoley (2007)[109]. Additionally the CEE markets turned out to be in large need for stable banks (Bank Austria back then offered an AAA rating).

Also, Bank Austria, almost from the beginning, did not only service Austrian clients in Eastern Europe, but also a variety of multinational firms from other home countries, such as McDonalds and VW-Skoda. The bank might have had an additional home country advantage in the latter business, as Vienna functions as a management platform for a number of multinational firms operating in the CEE region. For example, McDonalds Eastern European operations center is located in Vienna, therefore close personal contact between Bank Austria top management and McDonalds' CEE management was available quite easy.

A helpful "'snowball effect"', stemming from business in the CEE region with such multinational customers, partly materialized, as these multinational customers often used local suppliers in the value chain. Getting into business with these local firms was made significantly easier by this link[109][30].

The general identification strategy of Bank Austria concerning attractive host country markets, which was applied for location choice in the latter process of transition, was based on basic macroeconomic indicators, such as GDP, GDP growth and population. Additionally BA analyzed potential cross-market synergies, trying to identify markets, where entry would also

[30]This might be another avenue for research as one could discuss how the possibility of follow your customer-motivated entry into foreign markets supports local market-seeking operations later on.

leverage opportunities in BA's global business network[109].

Compared to banks from other countries, Bank Austria might have had an advantage concerning "'appetite for entry"' by an indirect home market effect. Bank Austria stems from a relatively small home market with a population of 8 million. Therefore the bank was less reluctant to enter, what banks from other home countries like Germany might have perceived as rather too small, markets in CEE, as from the perspective of a small country bank the market seemed to be sufficiently large[109]. Additionally the bank had experience how to profitably operate in a small market. These two points might also explain the fact, that Austrian banks in general have been heavily involved in the CEE region already early in the transition process.

Another reason why banks from the small host country Austria were first-movers in the CEE region, outpacing German banks who, according to other theoretical considerations, such as the availability of large deposit volumes and the effect of strong competition in large markets on efficiency of market participants, should have benefited from their larger home country market while also being close geographically, might have been the fact, that German banks, in the early period of transition, very much concentrated on growing their business in the former GDR. This focus possibly restricted organizational capabilities left to explore the CEE markets.

The early geographic pattern of Bank Austria's expansion into CEE markets also was closely linked to the follow your customer-nature of its early FDI projects. Bank Austria first expanded into markets close to Vienna, namely Prague in the Czech Republic, Bratislava in the Slovak Republic and Budapest in Hungary. Whereas in the economic literature (e.g. Buch and de Long (2004)[28]) the influence of distance on bank FDI is predominantly perceived to base on an intuition of information costs, Mr Smoley stated, that, in the case of Bank Austria, distance was simply negatively correlated with the amount of activity of potential real sector customers to be followed abroad[109].

Additionally though, the transition economies closest to the EU-15 also profited most from the fall of the iron curtain, experiencing faster economic growth than more distant countries. According to the practitioner, and probably due to considerations of eastern enlargement of the EU, a more rapid increase in institutional quality also was evident in these countries. Therefore they were also the most interesting markets from a pure foreign market-seeking perspective in the region.

Digging deeper into the expansion strategy of Bank Austria, to understand the entry modes preferred by the bank one has to take the general

strategic setup of Bank Austria in the 1990s as well as the changing landscape in the financial sector in CEE into consideration.

Both Bank Austria and Creditanstalt started to enter the CEE markets in an extensive way, first setting up small agencies in the countries' capitals. Bank Austria's general strategy was to enter the market via Greenfield investment. Usually its first step was to enter via its investment banking division, which acted as a pathfinder to screen respective market characteristics and the legal environment. As laid out before, primary early clients for BA in the region were Austrian corporate customers and other multinational firms. In general Bank Austria, in Austria as well as in CEE, heavily focused on the commercial wholesale segment, at least in the 1990s. Due to this strategic positioning, a large branch network to attract retail and SME customers and soft information about these informationally opaque potential clients were not mandatory for successful operations in these markets. Indeed, for conducting wholesale business, it is often sufficient to establish a handful of regional headquarters in the big cities[109]. This latter argument might make clear why Bank Austria, compared to other multinational banks in CEE, was less active in the takeover market for local banks.

However, as margin pressure in commercial banking increased in Eastern Europe, due to the development of capital markets and an increasing number of foreign, efficient banks operating in the region in this segment, Bank Austria added retail banking as an additional focus for growth in the region[109]. This rededication to retail banking in the region was further motivated by the rapidly growing demand for services such as asset management and traditional retail banking arising through the economic development of these countries.

One of the most attractive, due to being the largest, markets for retail banking in Central and Eastern Europe is Poland. Bank Austria took a share in the Polish bank PBK in 1997, becoming majority shareholder by 2000[31].

However, Bank Austria was not able to grow its business via acquisitions at this time in many CEE countries strongly. The reasoning shows how strategic choice in one market is influenced by an institutions' business development in other markets. Bank Austria was one of the very few international banks heavily involved in Russia when the Ruble crisis materialized in 1998. The incurred losses of Bank Austria in its Russian business restricted the possibility for growing its business in other parts of Eastern Europe for the following years, due to a lack of financial power. BA was not able to partic-

[31]Polish regulation at that time was such that only 10% stakes in a domestic bank could be bought per round. Therefore reaching a majority share in a Polish bank could not have been attained immediately.

ipate full scale in the bank privatization rounds in Eastern Europe in 1999 and 2000[109]. Its main Austrian competitor in Eastern Europe size-wise, Erste Bank AG, took advantage of this strategic weakness very actively taking part in takeover/privatization markets in Eastern Europe. Erste Bank AG also was less reluctant to pay high strategic prices for banks especially offering sufficient retail and SME client contacts, as these business segments also happen to be the strategic focus of Erste Bank in its Austrian home market.

So in general, Bank Austria was relatively weakly involved in significant acquisitions in Eastern Europe. BA tried to grow its retail business via acquisitions in the Czech Republic, Slovak Republic and Hungary, but failed to do so, due to a regional takeover market ever more characterized by bidding wars on attractive targets. From an ex post point of view the bank's forced low acquisition activity in the early years however seems to have been a blessing in disguise, as Bank Austria was one of the foreign banks in the region not negatively affected in their growth possibilities by having to take on a large share of non-performing loans from an acquired local bank[109][32].

An additional explanation for the bank's relatively low M&A activity, according to Mr Smoley[109], was that Bank Austria had no punctual geographic expansion strategy, therefore being less dependent on specific acquisition, rather focusing on entering the Eastern European market on a broad regional basis. With this implemented strategy Bank Austria has also been able to gain significant economies of scale on the regional basis via synergies both on the profit as on the cost side. On the cost side, Bank Austria Creditanstalt was able to build up centralized transaction centers for the whole region and also introduced a, though partially adapted to local needs, common IT infrastructure. Additional economies of scale and scope according to the practitioner are available on the revenue side[109]. As the CEE region itself strongly integrates trade-wise, with intra-region trade becoming ever more important, as well as an ongoing legal integration due to the adoption of common EU law, two potentially profit-enhancing opportunities arise for a bank with a complete network across the whole region. For one, the trade

[32]Indeed with this "'Greenfield"' strategy Bank Austria itself was surprised with the low ex post risks in their loan portfolio. Ex post risks for some time now have been lower in BA Eastern European operations than in Austrian operations, which was a completely unexpected development for the bank. One advantage according to the practitioner is social culture in the CEE states, in the respect that e.g. in Poland not paying back a loan is still seen as a personal shame, leading to a perceived lack of moral hazard in loan provision.

integration increases the need of local firms for banking services in multiple countries in the region, favouring a bank with a complete network. Concerning the legal integration, the possibility for selling homogeneous products in the whole region increases, yielding cost-saving and reputation-spillover possibilities for Bank Austria. These available economies suggest, that banks, analyzing single country markets stand-alone (and deeming them too small), might miss an important point. As Mr Smoley stated

'Bank Austria is the No.5 bank in Slovenia, a country with a population of 2 million. Therefore looking at the market stand-alone one could question whether significant value-added can be achieved by entering this market. However being present there creates network effects and value-added for commercial customers in Poland, Czech Republic, etc.. One has to take this into account when thinking about entering a market."'(Smoley, 2007[109])

Bank Austria also indirectly grew by acquisition in Eastern Europe, taking over Creditanstalt in 1997, who itself already had a significant physical presence in numerous market in this region, such as for example the Slovenian "'Nova banka"' Creditanstalt had acquired back in 1992. One of the success factors in this integration was that brands stayed independent for five years to keep goodwill immanent in both brands in these countries, while at the same time exploring economies of scale centralizing back office operations for both brands.

Additionally Bank Austria's CEE operations grew via two other M&A deals Bank Austria was part of. As discussed before Bank Austria today bundles all former CEE operations of HypoVereinsbank and UniCredit[33].

For Bank Austria Creditanstalt the merger with HypoVereinsbank brought a number of significant advantages for CEE operations with it. BA was able to significantly strengthen its network in Eastern Europe. The HVB operations taken over were further successfully leveraged, as Bank Austria already was a more established brand name in Eastern Europe. BA was also able to manage existing HVB operations more efficiently due to its greater experience and vaster market knowledge in CEE markets[34]. One clear-cut synergy was that HVB had already also taken over a Polish domestic bank. As the respective Polish subsidiaries were merged the newly created subsidiary now

[33]Except one polish subsidiary bank which became part of the UniCredit organization due to political restrictions by the Polish government.

[34]The former claim can be backed by the fact that for a while HVB changed the name of subsidiaries of the group in the region to HVB (country). The brand name was not as well known as Bank Austria and stunted business growth for some time in the CEE region.

became the third-largest bank in the Polish market and even more important, the lone universal bank with a strong retail business in Bank Austria's Eastern European portfolio[109]. As stated before, this was of significant interest especially in Poland. The increased size of the group's Eastern European operations also allowed the bank to take on fixed costs risks of further expansion into the retail sector.

As Bank Austria tried to grow its retail business, it grew its branch network in Poland, Romania, Croatia and Hungary via Greenfield Investment. As Hungarian target banks became too expensive for takeover, BA tried to grow organically on a large scale, establishing 100 new Greenfield branches in short time.

Additionally, in recent years, Bank Austria became more active in the takeover market, acquiring banks "'Splitska banka"' in Croatia and "'Biochim"' in Bulgaria in 2002 as well as "'Central Profit Banka"' in Bosnia in 2003. In the retail sector "'Bank Austria started out with Greenfield Investment and then tried to speed up the growth process via acquisitions, even though acquisition prices grew higher, too."'(Smoley, 2007[109]. Concerning target strategy, Bank Austria, contrary to other banks in the region, focused on acquiring healthy local banks and paying the high prices for these, whereas other entrants sought a low acquisition price first and foremost, banking on being able to restructure badly-performing banks burdened with a high share of non-performing loans[109].

Based on this discussion, one may be able to derive that in general full-scale retail banking services can probably only be provided in a market entered via M&A. In almost all countries BA was not involved in takeovers it still focuses on the commercial clients segment[109].

The underlying reasons can be identified by evaluating the banking market in the Czech Republic. Bank Austria there has limited scope winning retail clients away from other banks due to a lack of network size. Whereas, for example, Erste Bank AG subsidiary Ceska sporitelna has 630 branches in this country, Bank Austria only operates 40. So due to missing local structures, there is no real possibility to attract retail customers as well as SME customers in some regions of the Czech Republic. Still, Bank Austria in terms of value of assets is the fourth largest bank in CZ concerning assets, due to its leading position in the field of industry and trade (commercial) clients[109].

Strong existing bank-client relationships and therefore a general lack of customer mobility in the retail segment are reasons why Bank Austria is reluctant to build up large Greenfield branch structures in most CEE countries, even more so, as BA tries to position itself as a quality-, not price-leader, where the former strength can hardly be marketed to potential customers

locked in an existing relationship with another bank.

Besides engaging in retail and commercial banking, Bank Austria has a very well-positioned investment banking division in the CEE region. Due to having been one of the first-movers in the markets, BA has excellent long-lasting relationships especially with government agencies in Central and Eastern Europe, also evidenced by the bank being awarded a price for "'Best Investment Bank in CEE"' by "'Financing New Europe"'. In this field BA also still profits from the fact, that most large investment banks early on deemed this regional market to be too small to put a strategic focus on it. According to Mr Smoley these relationships to local customers that are in place now are more important for successful investment banking than strong relationships to the capital market where products are placed[35]. Now being part of UniCredit group also strengthens BA's position in the latter respect, such that BA expects to keep its market leadership in CEE in this area of business[109].

One final interesting point concerning Bank Austria Creditanstalt's strategy is the mode of refinancing of operations in Central and Eastern Europe. Start-up investments and acquisition prices were financed by the Austrian parent bank. However concerning the refinancing of operating business such as loan provision, the pecking order is local first, global only if needed. Subsidiaries should first and foremost refinance their operations via raising local deposits. BA tries to refinance all of its local loans in the respective local market. However the degree of local refinancing differs among countries (between 100% and 80%). The larger the subsidiary concerning the number of branches, the higher tendentially the percentage of local refinancing[36]. Early on in the transition process. as loan demand exceeded wealth, the picture percentage-wise looked different, with the bulk of loans by CEE subsidiaries refinanced by the parent in Austria. One important part of local deposits for BA, as the group's main strength is still with commercial clients, are large deposits from its commercial clients, who hold liquid assets in local currency in a substantial amount[109].

If a subsidiary comes short of complete self-refinancing, Bank Austria operates an internal capital market structure trying to optimize capital across the group. Usually the subsidiaries should not refinance themselves via the capital market themselves, as Bank Austria has better refinancing conditions

[35]However placement power has to be sufficiently large to keep the trust of customers in the bank being actually able to secure financing.

[36]This again points at the need for a large branch network to attract a large volume of retail customers.

there due to a better rating[109].

The following reasoning can be put forward for such an implemented pecking order of refinancing. First, local deposits should be the main and first source of refinancing, due to a complete lack of currency risks[37] when refinancing that way, as well as an increasing distaste of stock analysts for intra-group cross-subsidiaziation[109].

If local deposits are however not available to a sufficient degree, the interest rate advantage of Bank Austria Creditanstalt over its subsidiaries in capital markets should be made use of.

2.3.5 The future strategy of Bank Austria Creditanstalt in CEE

With Bank Austria Creditanstalt now a part of UniCredit group, the geographic focus of BA's business is shifting further to the east. Bank Austria has recently entered markets in Russia and Turkey and is in the process of doing so with a large commitment in Kazahstan and the Ukraine. In Russia, Bank Austria group is present via the International Moscow Bank. In Turkey, BA holds a 50% share in the Yapi Credi Bank. In Kazahstan and the Ukraine Bank Austria is in the process of taking over ATF Bank and Ukrsotsbank respectively[40].

This further eastern expansion is driven by market dynamics in the CEE regions already serviced as well as by a perceived comparative advantage of Bank Austria over other competitors in the new markets.

Large CEE markets have already become quite consolidated and further significant growth is hard to achieve there. One prime example is the Czech market. The first three market positions are firmly established there, especially in the retail banking sector characterized by a low customer switching rate. The market is more or less divided in stable market shares, and BA is restricted to keep operating within its niche strategy there. While organic growth can hardly be achieved, profitable growth via acquisitions is also not feasible as attractively priced and available targets are missing[109].

In contrast, vast profitable growth potential in Russia and Turkey exists, especially due to the fact that a lot of foreign banks are still not present in

[37]Note that additional to the direct costs of currency risks, Basel 2 guidelines force banks to either completely costly hedge these risks or build up legal reserves for them, which is also very costly as the respective amount of capital can then not be used in more profitable opportunities.

these markets due to perceived political risk. There is high profit potential in the retail segment as well, as especially in Turkey demographic trends lead to an arising interesting market for financial products[109].

According to Bank Austria, two comparative advantages of the bank over competitors exist concerning these markets. For one, Bank Austria is one of the very few banks that have build up vast relevant experience from being present in the very early years in transition economies. With target countries for further expansion being similar to CEE countries in the early years of transition (Smoley, 2007[109]), Bank Austria might have best practices to deal with such surroundings including political risk, a lack of institutional quality and a just developing modern real sector.

Additionally the integration into the large UniCredit group enables Bank Austria to expose itself to such higher risks. Bank Austria Creditanstalt, with strong financial backing of the complete group, is able to pursue a long-run oriented strategy. Turkey and Russia might even be candidates for financial crisis in the next year in the eyes of BA, but the is be able to sustain 2-3 loss-making years in the market, being able to focus on the long-term potential, especially for Turkey.

2.3.6 Same region, different strategy: The case of Erste Bank AG in Central and Eastern Europe

Erste Bank AG also started out as a purely Austrian bank, rooting from the mutual savings bank structure in Austria. Like Bank Austria the publicly stated geographic focus of further business development is Central and Eastern Europe[1].

In contrast to Bank Austria Erste Bank AG started to enter the CEE markets relatively late, starting with the acquisition of Mezbank in Hungary in 1998. This first step was followed by further acquisitions of Cakovecka banka, Bjelovarska banka and Trgovacka banka in Croatia in 1999[38], Ceska sporitelna in the Czech Republic in 2000[39], Rijecka banka in Croatia in 2002, Postabank in Hungary in 2003 and Novosadska banka in Serbia as well as Banca Comericala Romana S.A.[40] in Romania in 2005. In July 2007 Erste Bank, like Bank Austria Creditanstalt, expanded further eastwards, acquiring Bank Prestige in the Ukraine[1].

[38]These three banks were later merged into Erste&Steiermaerkischen banka.

[39]To be precise Erste Bank bought a 52% majority share in this bank in 2000 gradually increasing its share to 100% by 2005.

[40]BCR is the largest bank in Romania with a market share of 32%.

Erste Bank AG operations in the respective countries today are subsumed in Table 2.2.

Table 2.2: Erste Bank AG Operations in Central and Eastern Europe

Country	Subsidiary	Clients (million)	Branches	Market position (number of clients)
Croatia	• Erste Bank Croatia	0.6	114	No. 3
Czech Republic	• Ceska Sporitelna	5.3	637	No. 1
Hungary	• Erste Bank Hungary	0.9	186	No. 2
Romania	• Banca Comerciala Romana	3.5	485	No. 1
Serbia	• Erste Bank Serbia	0.3	NA	No. 9
Slovak Republic	• Slovenska Sporitelna	2.5	279	No. 1
Ukraine	• Erste Bank Ukraine	Just founded in December 2005		

Source: Erste Bank AG Corporate website http://www.erstebank.com

The main difference concerning general strategy between Bank Austria Creditanstalt and Erste Bank AG is, that the former predominantly focuses on the wholesale banking segment, including loans to larger commercials as well as investment banking services, whereas Erste Bank AG's primary focus is the retail segment and, to a lesser degree, the provision of financial services to small and medium-sized (SME) firms[1]. This general difference also seems to at least partly explain both different timing and mode of entry between these banks. Whereas the strategy of Erste Bank AG requires a large branch network as well as soft information about informationally-opaque potential loan clients, Bank Austria's need for these due to its focus on the wholesale business, was less pronounced (at least until 2000 when BA started to increase its interest in the retail segment in the CEE region). Therefore Erste Bank was much more active acquiring these needed assets or capabilities via the acquisition of local banks. Erste Bank did not enter any market on a large scale via Greenfield Investment but predominantly choose an acquisition strategy from the beginning[1].

Also, the fact that Erste Bank AG entered the region way later than Bank Austria Creditanstalt could also be seen in light of different core business segments. Whereas historically BA had a large portfolio of large Austrian firms equipped to enter the Eastern European markets, and therefore scope

for applying follow your customer-strategy, Erste Bank AG commercial client portfolio was more skewed towards SMEs, who were less ready to engage in the CEE region from the beginning. Additionally the retail segment in these markets itself might have been to risky and small to enter in the early phase of transition.

Erste Bank AG also focuses on less markets in the region, being active in only 7 countries[1]. It has a very strong position in the retail segment especially in the Czech and Slovak Republic and Romania, as well as to a lesser degree in Hungary. Interestingly Erste Bank AG is not active in Poland, deemed to be the most interesting market for retail banking in CEE due to its large population.

Concerning future growth strategies Erste Bank AG tries to make use of the banking sector development cycle in the heterogeneous markets in the region. Whereas the Ukraine, Serbia and Romania are now seen as "'emerging markets"' characterized by a low market penetration rate of banking services, where growth short-term is driven by demand for simple banking services such as savings, payment transfers and debit cards, these countries will become what Erste Bank AG calls "'developing markets"' like the Czech and Slovak Republic, Hungary and Croatia, where bank penetration rates are somewhat higher therefore experiencing tougher competition, but at the same time enabling growth in high-margin products such as mortgage loans, consumer loans, credit cards and wealth management products[1].

2.4 Conclusion

Quite a lot can be learned for multinational banking in general from the above case study.

Concerning home country effects in multinational banking, it is concluded, that banks from saturated markets are more likely to expand abroad, due to missing significant growth opportunities in the home market. This result has already been discussed in the empirical literature (e.g. de Haas, van Lelyveld (2006)[44]). Interestingly home country characteristics in the majority of studies are most often seen as shaping firms'/banks' capabilities to become multinational (e.g. Buch and de Long (2004)[28], Focarelli and Pozzolo (2000)[60], not so much as a push factor in incentives to become multinational.

New to this discussion are soft home market effects mentioned by Bank Austria Creditanstalt, namely that the relative size of the home country

has an effect on whether a potential target country is perceived by a multinational bank as sufficiently profitable (large). Whereas this result seems somewhat irrational, an additional home market size effect concerning geographical characteristics of expansion might be, that banks from a small market might simply be better equipped to be profitable in foreign small markets, due to experience in this type of surroundings.

This knowledge in similar markets might also explain why some banks are able to enter risky accending markets at an earlier stage than others. Bank Austria seems to be more equipped to enter markets such as the former CIS states due to experience in similar markets, namely the Central and Eastern European countries at an early stage of transition.

One very clear result of the case study is the importance of follow your customer strategies in multinational banking. Especially having customers to follow seems to allow early entry in accending markets, which stand-alone might not be attractive enough at this stage of development.

Additionally the geographic pattern of bank internationalization, at least in non-OECD countries might to a large degree be explained by FYC strategies. This result adds an additional explanation on the influence of distance on multinational bank location choice, as distance might play a minor role in this decision directly through information costs considerations (e.g. Buch and de Long (2004)[28]) but a larger role indirectly as distance is an important variable in the location decision of real sector firms to be followed who actually face a decision concerning the trade of physical goods over this distance[41].

Another mentioned benefit of follow your customer strategies is that local firms might be easier to attract for a bank if the former has business ties to multinational customers of the respective bank.

The most interesting point of the case study might be the findings on how a bank's product strategy shapes entry modes and entry timing into foreign markets, as well as the geographic pattern of such entry.

One conclusion derived is that banks focusing on the wholesale business, characterized by informationally non-opaque clients with low switching costs

[41] Along the FDI theories of e.g. Markusen and Venables (2000)[98] we would expect market-seeking horizontal foreign direct investment between distant countries and vertical production-cost minimizing foreign direct investment between neighbouring countries. For less-developed countries we would rather expect inflowing vertical FDI. So in the early CEE case we would expect countries close to Austria to be main recipients of vertical FDI, therefore close countries to be main recipients of Austrian bank FDI.

and low requirements concerning the scope of the branch network, are more likely to enter via Greenfield investment, whereas banks focusing on the retail and SME[42] business are more likely to enter a foreign market via the acquisition of a local bank due to the client group's informational opacity (especially SMEs), high switching costs from existing bank relationships (especially retail customers) and large requirements concerning the branch network scope (especially retail customers). These assets might most easily be acquired via the acquisition of an existing bank, whereas wholesale-focused entrants might probably not be willing to pay for these assets, as they are of second-order importance for their business focus.

Additionally, timing of entry in a respective market[43] might be a function of product strategy of a bank. As discussed above, a retail-oriented bank not having large real sector clients in its portfolio ex ante, might want to wait to enter an accending market until the retail market in this country has grown sufficiently large. In contrast, a wholesale-oriented bank might be able to enter a market earlier on, banking on early profit from follow your customer-business, business with third-country multinational firms as well as investment banking services for the host country government and large corporations.

For the economic literature these results propose a research strategy both treating banks as conglomerates as well as on a market level taking care of the fact that banking is not a single homogeneous industry. Therefore multinational bank behaviour might require differentiated theories for respective banking segments. Entry modes, further strategic decisions and potentially associated different impacts of bank entry into foreign host markets might have to be discussed separately for banks with a retail and SME financial services focus and wholesale/investment banking-oriented institutions.

The empirical literature, when discussing the location choice of multinational bank subsidiaries, primarily focuses on host country effects. Taking a result of the above case study into consideration, this picture might be partially misleading. Indeed location strategies might take complete regions into account, not single countries stand-alone. An isolated view on a respective country market might be insufficient, as due to potential network effects within a region the market's attractiveness also depends on potential cost or revenue synergies with other markets in the region. The notion of network economies of scope across regions also seems rather new to economic

[42]Small and Medium-sized enterprises

[43]This could also be seen as locational choice, as a market A in period t_i might mimic a market B in period t_j.

theory concerning banking, but has been a standard feature of business literature discussing international one-stop-shopping possibilities for clients as well as follow your customer strategies, which constitute a special case of such network economies of scope.

The final point I want to stress is the result obtained on the refinancing of multinational bank activity in host countries. Indeed it seems that in sufficiently developed markets foreign bank activity does not lead to a large volume of capital inflows into this market, as the subsidiaries' refinancing might primarily take place in the host country (via deposits). Therefore internal capital markets in multinational bank organizations might only play a residual role in the financing of these subsidiaries.

Chapter 3

M&A versus Greenfield - Optimal Entry Modes into Markets with Sequential Entry

3.1 Introduction

One of the topics concerning foreign direct investment, that has just recently become a core focus of economic literature, is the choice of the exact entry mode of firms into foreign markets.

Foreign direct investment can take place via the acquisition of a local firm in the target market (M&A), via the set-up of a completely new structure (Greenfield Investment) or some impure organizational designs in between these two modes (e.g. Joint Ventures, Brownfield Investment).

The most general advantage for a firm entering via M&A instead of Greenfield lies in the differing effect on the ex post host market structure and therefore on the degree of competition in the market ex post. A firm entering a market with d incumbents via Greenfield Investment will ex post face d competitors in the market, whereas, when entering via M&A, it will only face d-1 competitors (abstracting from the possibility of additional entry). In markets with imperfect competition, e.g. due to horizontal product differentiation, all else equal, profits for the entrant should therefore be higher if the firm enters via M&A. This positive characteristic of entry via M&A is for example modelled by Müller (2001)[105] and Görg (2000)[70].

However, this beneficial "competition" effect might be a short-sighted motivation for entry via M&A. If one would consider foreign firms to enter markets sequentially, such that some firms due to various reasons[1] move into a specific host market faster than others, the entry mode of early movers might affect the entry decisions of sequential entrants in the future. Obviously, if the early mover entered via Greenfield Investment, a sequential entrant would face the decision whether and how to enter a market with d+1 incumbents, whereas with early mover entry via M&A he would face a decision on a market with d incumbents. Therefore sequential entry might be accommodated by the early moving firm entering via M&A instead of Greenfield Investment. So the static positive "competition" effect of entry via M&A might to some degree be offset up by an increase in the likelihood of further sequential entry.

Two types of questions arise in such a "dynamic" setting, the first one being "ex post", how the entry mode of the early mover affects potential sequential entrants' decisions, and therefore "ex ante" how the optimal entry mode choice for the early mover looks like given its effect on sequential entry.

To analyze entry mode decisions in a less static setting a simple two-period model, featuring a potential early and sequential entrant, is proposed.

To focus on pure market structure effects of entry modes I, at least in the basic model, abstract from other incentives for entry via M&A such as asset complementarity between acquirer and target (see e.g. Nocke and Yeaple (2007)[107]), but from the possibility, that an entrant might be better equipped to operate a company in general compared to its host country target. In this simple setup firms are assumed to be symmetric in their marginal costs, only differing in what can be called their fixed costs of operating in a market. In such a model I show, that entry via Greenfield Investment indeed has a valuable strategic entry deterring effect for early entrants, such that sequential entry in general is less likely than if the early entrant enters via M&A. It is also shown, that the chosen entry mode of later entrants differs in expectations for differing early mover entry modes, as do acquisition prices for domestic targets. Which early movers should enter via Greenfield Investment or M&A, and how modelling potential sequential entry reduces the relative probability of early movers choosing M&A over Greenfield Investment as entry mode, is then derived.

To sum up, the model will have the following intuition. The general trade-off faced by firms, when choosing their entry mode, is between increasing net variable profits (variable profit minus acquisition price) and not having to

[1]For example practitioners mentioned that German banks did not enter the market in Eastern Europe early on because they focused on building up their business in East Germany at this time.

sustain the fixed costs of Greenfield entry when entering via M&A, versus working in the market at lower fixed operating costs per period when entering via Greenfield Investment. The heterogeneity in possible entrants' general fixed operating cost levels determines their respective fixed cost disadvantage when entering via M&A.

Modelling potential sequential entry reduces the expected variable profit advantage of entry via M&A, as this kind of entry is shown to increase the probability of profit-reducing sequential Greenfield entry. Additionally, the profit reducing effect for the early entrant of sequential entry via Greenfield Investment is more pronounced if the early entrant entered via M&A, than if it had entered via Greenfield Investment. In sum these two effects are shown to reduce the attractiveness of M&A entry for all types (concerning fixed operating costs) of early entrants, even though the threat of sequential entry also works to reduce the acquisition price to be paid for takeover targets. As the fixed cost disadvantage of M&A is unaffected by such an entry threat, a smaller relative fraction of potential early entrants (namely only the very fixed-cost efficient firms) chooses entry via M&A compared to a static setting not taking the threat of sequential entry into account.

The main result of the basic model is, that taking into account the threat of sequential entry reduces the incentive for early movers to enter via M&A compared to a static world. This result holds true for all markets where both kinds of entry modes are principally probable[2]. These market characteristics should be present in the majority of real-world markets, as we generally observe both kinds of foreign direct investment modes in the respective countries.

The possibility of market incumbents to deter or accommodate further entry is well-established in economic literature, starting with the work of Stackelberg (1934)[122] and continuing with contributions by e.g.Bernheim (1984)[20] and Gilbert and Vives (1986)[67]. However, according to my knowledge, no one has linked entry deterrence in models with sequential entry to the entry mode choice of multinational corporations. Also, the majority of theories have been restricted discussing entry deterrence in markets with Cournot competition.

The proposed basic model can therefore contribute to the understanding why Greenfield Investment still makes up a substantial share of foreign

[2]This means, that structures are such that firms entry choice will be heterogeneous in equilibrium, with some firms entering via Greenfield Investment, some via the takeover of an incumbent firm and some will not enter the market at all.

direct investment. For example, Raff, Ryan and Staehler (2006)[113] find, that for Japanese firms Greenfield Investment is the dominant mode of entry, with cases of Greenfield entry outnumbering M&A entry by a factor of 2.5 to 1. Even concerning value of investments, Lorentowicz, Marin and Raubold (2002)[95] show evidence that for German Direct Investment in Eastern Europe Greenfield Investment makes up 56% of total FDI flows. Concerning number of projects, this dominance of Greenfield Investment in their study is even more striking when one considers that the mean size of M&A investments is roughly 2.4 times the mean size of Greenfield Investments in the authors' dataset.

Recent theoretical contributions on optimal entry modes have however stressed additional reasons of firms to enter via M&A, especially the importance of asset complementarity (e.g. Nocke and Yeaple (2007)[107]). Concerning the found dominance of Greenfield Investment in the number of occurrences, we think a counterbalancing theoretical contribution stressing the advantage of Greenfield Investment is needed.

Also, when controlling for firm size effects, Raff, Ryan and Staehler (2006)[113] find, that the widespread perception that the most efficient firms enter via Greenfield Investment, does not hold true. Indeed, when controlling for firm size, they find, that tendentially the more efficient firms enter via M&A, though the effect is not significant. Andersson and Svensson (1994)[4] find, that firms with strong organizational skill tend to enter foreign markets via the acquisition of local incumbents rather than via Greenfield Investment. Theoretically the latter point is theoretically rationalized in the paper by Nocke and Yeaple (2007)[107], as an internationally mobile asset such as organizational skill can be leveraged by combining it with non-mobile capabilities of acquired local market incumbents. I incorporate these findings, that have else been neglected in the literature, to date, with the general perception being that the most efficient firms enter via Greenfield Investment (e.g. Mueller (2001)[105]), in my model setup.

Additional to the above main result it is shown, that the advantageous effect of early entry via Greenfield Investment is more pronounced when takeover possibilities in a market are limited, such that early entry via M&A deletes the option of M&A entry for sequential entrants. Interestingly decreasing potential competitors options then has a negative effect for early movers. I therefore come up with a new, strategic indirect, "'perverse"' effect of missing takeover targets on the choice of entry mode of firms into foreign markets.

Welfare analysis within the proposed basic model yields, that in a world

with sequential entry, the negative effect welfare effect of entry via M&A is even more pronounced than in a static setting. This is due to the fact, that additional sequential entry, which is accommodated by early entry via M&A, in the proposed setup reduces profits of foreign firms more than it increases consumer rent.

A final proposed extension of the basic model is to incorporate what can be called country- or market-specific learning by doing-effects, which changes the results from the basic model for some types of markets. Indeed it is shown, that when the degree of product differentiation in the market is low and learning-by-doing effects are sufficiently strong, an "efficiency effect" dominates the "competition effect" of entry modes, such that in this case early entry via M&A deters sequential entry. In this setting then taking into account the threat of sequential entry increases the incentive for early movers to enter via M&A.

One could argue that this latter extension might yield an especially valuable insight into the retail and commercial banking sector, where ex ante product differentiation between banks is generally perceived to be low and learning-by-doing effects perceived to be both strong as well as predominantly country-specific, due to the heterogeneity of banking regulation across countries. Indeed the result, that in this industry M&A entry should be very dominant due to its additional sequential entry deterring nature, is getting support from the findings in the case study in this thesis.

From a general theoretical point of view, this chapter contributes to the existing literature by being, to my knowledge, the first to leave a static world of entry mode decision analysis to implement a more forward-looking behaviour of potential foreign direct investors. Additionally, within the model, I am able to discover yet undiscussed potential effects of limited takeover possibilities on entry mode choice, as well as the effect of country- or market-specific learning by doing effects on the choice of entry modes, in at least a stylized way.

The rest of the chapter proceeds as follows. Section 2 lays out the basic model and assumptions, analyzes the contingent sequential entry structure and the derives the optimal entry mode decision of early movers, finally comparing the results to a benchmark world without sequential entry. Section 3 discusses welfare implications Two extensions/setup changes are introduced in the following. In Section 4 the effect of limited takeover possibilities is analyzed. Then the model is extended by including country-specific learning-by-doing effects in Section 5. The final section concludes and discusses open questions.

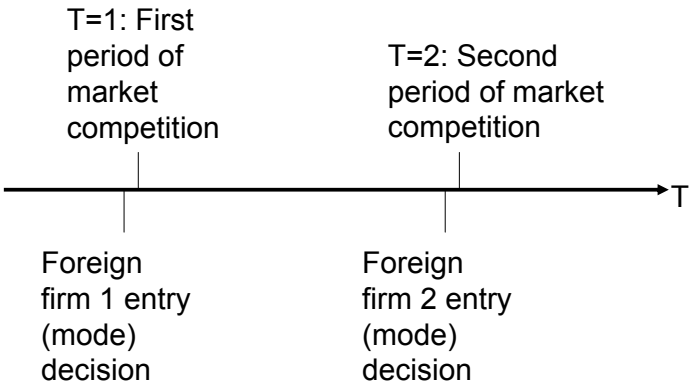
3.2 The basic model

The building stone of the model is a host country market characterized by Bertrand competition in horizontally differentiated goods. The market is set up as a Salop circle of size $Y = 1$ and transport costs or degree of product differentiation $t > 0$.

Before any foreign entry into the market, there are two incumbent domestic firms A and B operating in the market at marginal costs c_A and c_B and fixed costs of operation per period of O_A and O_B, respectively.

The simple timing structure of the model is illustrated by the following graphic.

Figure 3.1: Time Structure of the Model



Foreign entry happens sequentially, such that an early-moving firm enters the market one period before the next potential entrant.

At the beginning of period $T = 1$ there is one potential foreign entrant F_1 with marginal costs c_1 and fixed costs of operation per period of O_1.

The potential entrant firm has three options concerning entry into the host country market. It can either enter the market via the acquisition of an incumbent firm (M&A), by establishing a completely new firm structure in the host country (Greenfield Investment) or not enter the market at all. After the entry decision the first market game in the host country market takes place.

At the beginning of period $T = 2$ a second potential entrant F_2 with marginal costs c_2 and fixed costs of operations per period of O_2, with O_2

assumed to be uniformly distributed between 0 and 1[3], decides on whether and how to enter the market. After the sequential entry decision the second market game takes place.

For simplicity symmetric marginal costs of firms are assumed, such that $c_1 = c_2 = c_A = c_B = \overline{c}$. Therefore it is straightforward that firms will locate equidistantly to each other on the Salop Circle[4].

Additionally, incumbent firms are assumed to be perfectly symmetric, such that $O_A = O_B = O_D > 0$, where O_D is then the level of fixed costs of operation per period for all domestic firms.

Concerning entry modes the setup is as follows.

If a firm enters via Greenfield Investment it bears fixed costs of entry of $F > 0$. The newly setup structure will then work at marginal costs $\overline{c}$ and fixed costs O_i.

If it enters via M&A, the firm has to pay an endogenous acquisition price A for the respective target. Bargaining power is assumed to reside with the acquirer, such that the acquisition price will equal the outside option of the target firm, which is the respective targets (expected) foregone profits when staying independent. The acquired structure will work at marginal costs $\overline{c}$ and fixed costs αO_i with $\alpha = 2$ for simplicity. The results would be unchanged as long as we assume $\alpha > 1$.

Therefore fixed costs of operation are assumed to be higher under M&A then under Greenfield Investment. α determines how relatively large this difference is. The usual explanation for higher (operational) costs under operating with an acquired organization is, that company cultures between target and acquirer may clash (see e.g. Feely and Kompare (2003)[57])or that there might be some costs of restructuring the target to fit into the acquirer's organizational structure (see e.g. Müller (2001)[105]). In the proposed setup the fixed costs of operation are twice as large under M&A compared to stand-alone Greenfield operation of entrants.

Special to the proposed setup is then, that the absolute negative effect of operating with an acquired organizational structure instead of a completely new setup structure (Greenfield Investment) on operating fixed costs depends on the general fixed costs efficiency O_i of the entering bank. The intuitive idea is, that a generally well managed firm should also be better equipped to handle post-merger integration problems than a badly managed firm.

[3]The actual realisation of O_2 of the potential entrant is then drawn by nature.

[4]Obviously this would be the profit maximizing location choice. As in this model incumbents have a "'location history"', it is implicitly assumed that location switching costs are zero.

Note that for reasons of tractability the model abstracts from directly arising differences in marginal costs between Greenfield and M&A operation. Therefore I do not claim to fully discuss the effect of a firms general efficiency on its choice of entry mode. I'll be content to discuss effects of non-marginal cost efficiency on entry mode choice.

The final restriction made to reduce cases to be analyzed is what can be called a "no passive consolidation"-clause, which means that the focus of the analysis will be on cases of transport costs t and incumbent firms' fixed costs O_D such that incumbent firms are not driven out of the market by competition[5]. Such passive consolidation would occur if profits of incumbents would be negative in the case of four players in the market, so iff $t < 16O_D$[6].

To sum up, general profit functions of firms then look as follows:
For firms entering via Greenfield Investment:

$$\pi_{i,j}(GF) = (p_{i,j}(GF) - c_i) \times x_{i,j}(GF) - O_i - F \tag{3.1}$$

For firms entering via Acquisition:

$$\pi_{i,j}(MA) = (p_{i,j}(MA) - c_i) \times x_{i,j}(MA) - 2O_i - A_j(MA) \tag{3.2}$$

with $i \in \{1, 2\}$ denoting early and sequential entrant and
$j \in \{MA, GF, NE\}$ the entry mode of the other entrant.

For incumbent firms, profits of operating in the market are simply respective variable profits depending on the entry mode(s) of entrant(s) minus the firms' respective fixed operating costs.

$$\pi_{A,j} = \pi B, j = (p_{A,j} - c_A) \times x_{A,j} - O_D \tag{3.3}$$

In appendix 1 the respective variable profit for firms for different cases of entry are derived. In this basic model the only difference between entry modes concerning variable profits lies in the respective number of firms that compete in the market.

[5]Besides reducing cases to be analyzed let us abstract from passive consolidation among incumbents to keep the analysis non-trivial. If e.g. any kind of entry of firm 1 would lead incumbent firms to leave the market in period 1 then there would never be an incentive for 1 to enter the market via M&A and no possibility for 2 to enter the market via M&A in period , as there would be no targets to be acquired.

[6]The respective profits under a given number of market participants are derived in appendix 1.

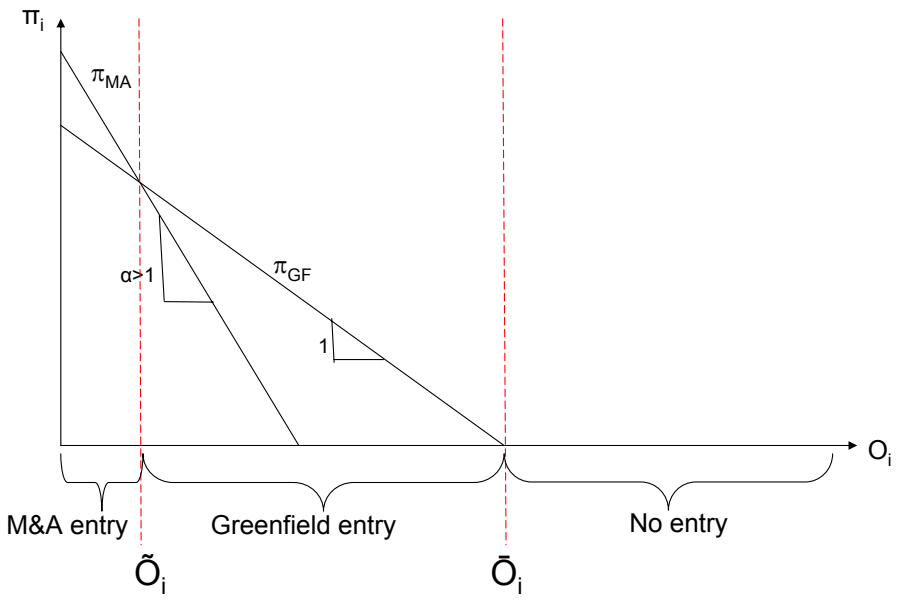
Before getting onto the core questions one intermediate result is derived to help determine equilibrium acquisition prices.

Lemma 1

The structure of entry decisions is such, that firms will enter via M&A if they have low fixed costs of operation, via Greenfield Investment for medium-level fixed costs and will not enter the market at all with high fixed costs of operation.

The Lemma is proved in appendix 2 and the following graph illustrates this result.

Figure 3.2: The General Structure of Entry Mode Decisions



Therefore one can conclude that firms making an acquisition offer to an incumbent firm will be those that would enter via Greenfield if the acquisition fails to materialize. Therefore the outside option of the target is its (expected) profits under the case that the potential acquirer enters via Greenfield Investment.

First now the ex post question will be analyzed to determine how entry patterns differ for the sequential entrant in period 2 depending on the early-mover's choice of entry mode.

3.2.1 Analyzing entry (mode) decisions of the sequential entrant in period T=2

In general the entry decision of firm 2 can be subsumed as follows

a) Firm F_2 enters via M&A iff

$$\pi_{2,j}(MA) > \pi_{2,j}(GF) \text{ and } \pi_{2,j}(MA) > 0^7$$

b) Firm F_2 enters via Greenfield iff

$$\pi_{2,j}(GF) > \pi_{2,j}(MA) \text{ and } \pi_{2,j}(GF) > 0$$

c) Firm F_2 does not enter the market iff

$$\pi_{2,j}(GF) < 0 \text{ and } \pi_{2,j}(MA) < 0^8$$

From this general decision structure sequential entrants' decisions contingent on early entrant entry mode decisions can be derived.

Early mover entry via Greenfield Investment

In this case firm 2 decides upon entry and entry mode into a market with three incumbents, the two domestic firms and the early entrant firm 1. Therefore if firm 2 enters via Greenfield four firms will divide market profits between them. Firm F_2 profit then is

$$\pi_2(GF) = \pi^{Var}(4) - F - O_2 = \tfrac{t}{16} - F - O_2$$

Firm F_2 will not enter the market at all if Greenfield profits are negative, so iff $\frac{t}{16} - F - O_2 < 0$ or fixed costs of operation above

$$\overline{O}_2^{GF} = \frac{t}{16} - F \tag{3.4}$$

Firm F_2 profit when entering via M&A in this case is

$$\pi_2(MA) = \pi^{Var}(3) - \pi^{Var}(4) + O_D - 2O_2{}^9$$

[7] Where we do know that the former is binding due to the structure of the entry mode decision.

[8] Where the former is binding again due to the structure of the entry mode decision.

[9] As the acquisition price to be paid in this case equals $\pi^{Var}(4) - O_D$.

Firm F_2 will enter via M&A if M&A profits are larger than Greenfield profits, so iff

$$\pi^{Var}(3) - \pi^{Var}(4) - \pi^{Var}(4) + F + O_D - 2O_i = \tfrac{t}{9} - \tfrac{t}{16} - \tfrac{t}{16} + O_D + F - O_2 > 0$$

or fixed costs of operation below

$$\widetilde{O_2}^{GF} = -\frac{t}{72} + O_D + F \tag{3.5}$$

Firm F_2 will enter via Greenfield Investment if such entry yields both positive profits and higher profits than entry via M&A, so iff $\frac{t}{16} - F - O_2 > 0$ and $-\frac{t}{72} + O_D + F - O_2 < 0$, or fixed costs of operation O_2 in the range

$$\widetilde{O_2}^{GF} < O_2 < \overline{O}_2^{GF} \tag{3.6}$$

Early mover entry via M&A

In this case firm F_2 decides about entry and entry mode into a market with two incumbents, one independent domestic firm and the early entrant organization. Firm F_2 profit under Greenfield Investment then is

$$\pi_2(GF) = \pi^{Var}(3) - F = \tfrac{t}{9} - F - O_2$$

In this case F_2 will not enter the market iff $\frac{t}{9} - F - O_2 < 0$ or fixed costs of operation above

$$\overline{O}_2^{MA} = \frac{t}{9} - F \tag{3.7}$$

Firm F_2 profit under M&A then is

$$\pi_2(MA) = \pi^{Var}(2) - \pi^{Var}(3) + O_D - 2O_2 = \tfrac{5}{36}t + O_D - 2O_2$$

The condition for F_2 to enter via M&A is then

$$\pi^{Var}(2) - \pi^{Var}(3) - \pi^{Var}(3) + F + O_D - 2O_i = \tfrac{t}{4} - \tfrac{t}{9} - \tfrac{t}{9} + O_D + F - O_2 > 0$$

or fixed costs of operation below

$$\widetilde{O_2}^{MA} = \frac{t}{36} + O_D + F \tag{3.8}$$

F_2 will therefore enter via Greenfield if its fixed operational costs are such that

$$\widetilde{O_2}^{MA} < O_2 < \overline{O}_2^{MA} \tag{3.9}$$

As a side result, from the above cases it is obvious, that M&A entry in this model in general is preferred to entry via Greenfield Investment if fixed costs of Greenfield entry as well as the operating fixed costs of domestic banks are large, as the latter leads to a reduction in the acquisition price to be paid.

Comparing contingent entry and entry mode probabilities

One can now compare the respective entry and entry mode probabilities for sequential entrants for the cases of firm F_1 entering via Greenfield Investment or via M&A. With O_2 uniformly distributed between 0 and 1 the probabilities are easily matched with the respective fixed costs threshold levels for the respective entry mode[10].

The following analysis is restricted to cases where parameters t, O_D, F are such that all probabilities are larger than zero and smaller than one. Intuitively that means we look at markets where all entry modes are possible in general, so depending on operating cost levels of a respective potential entrant market structure leads to heterogeneous profit-maximizing entry strategies, with some firms preferring entry via M&A, others preferring Greenfield entry and some maximizing profit by not entering at all.

Taking into account the threshold levels and the characteristics of the uniform distribution, the probability of any sequential entry given that firm F_1 entered via Greenfield is

$$P_1 = \overline{O}_2^{GF} = \frac{t}{16} - F \tag{3.10}$$

The probability of any sequential entry given that firm F_1 entered via M&A is

$$P_2 = \overline{O}_2^{MA} = \frac{t}{9} - F \tag{3.11}$$

[10]The probability of e.g. $O_i < \overline{O}_i$ for any distribution of O_i simply equals the cumulative distribution function from the lower bound of the distribution up to $\overline{O}_i$. For a uniform distribution between bounds $a = 0$ and $b = 1$ the cumulative distribution then is

$$F(\overline{O}_i) = \tfrac{\overline{O}_i - a}{b-a} \text{ therefore } F(\overline{O}_i) = \overline{O}_i$$

Intuitively, a potential sequential entrant with overhead costs below these threshold level will enter the market in some mode, while if the potential entrant has higher costs he will not enter, as entry would result in negative profits then. The following proposition directly follows from comparing the above probabilities.

Proposition 1

The probability of sequential entry is lower if firm 1 entered via Greenfield Investment instead of M&A. Potential sequential entrants deterred from entry in the former case are firms with fixed operating costs of $\overline{O}_2^{MA} < O_2 < \overline{O}_2^{GF}$. *The probability of sequential entry is reduced by* $\triangle P_E = \frac{7}{144}t$.

The proposition is derived in appendix 3. Note that the reduction of the probability of sequential entry is larger the larger, the degree of product differentiation t in the market. The reasoning is, that the larger t, the stronger the negative effect on profits of an increase in the number of market participants is for market participants[11].

The absolute probability of sequential entry via M&A equals the operating cost threshold level for M&A entry of the potential sequential entrant F_2, therefore

$$P_3 = \widetilde{O}_2^{GF} = -\frac{t}{72} + O_D + F \tag{3.12}$$

if F_1 entered via Greenfield Investment, and

$$P_4 = \widetilde{O}_2^{MA} = \frac{t}{36} + O_D + F \tag{3.13}$$

if F_1 entered via M&A.

Comparing these probabilities gives further insight into the effect of early entrant's decisions on successive entry modes, as stated in Lemma 2.

Lemma 2

The absolute probability of sequential entry via M&A is lower if firm 1 enters via Greenfield Investment instead of M&A . Potential sequential entrants with $\widetilde{O}_2^{MA} < O_2 < \widetilde{O}_2^{GF}$ *would enter via Greenfield Investment in the former case and via M&A in the latter. The probability of sequential entry via M&A is reduced by* $\frac{t}{24}$.

[11] This can also be seen technically, as the equilibrium price chargeable in the market is $p = \frac{1}{n}t$, so $\frac{\partial p}{\partial n \partial t} = -n^{-2}$. This shows that an increase in the number of market participants reduces prices in the market stronger, the larger the degree of product differentiation.

The Lemma is proved in appendix 4.

As we will discuss later on, the most important question for the early entrant is, how its' entry mode will affect the absolute probability of sequential entry via Greenfield Investment. This probability simply equals the probability of any kind of sequential entry minus the probability of sequential entry via M&A. So the absolute probability of sequential entry via Greenfield Investment is

$$P_1 - P_3 = \frac{t}{16} - F - [-\frac{t}{72} + F + O_D] = \frac{11}{144}t - 2F - O_D$$

for early entry via Greenfield Investment and

$$P_2 - P_4 = \frac{t}{9} - F - [\frac{t}{36} + F + O_D] = \frac{t}{12} - 2F - O_D$$

for early entry via M&A.

Again comparing these probabilities the following important Lemma can be stated.

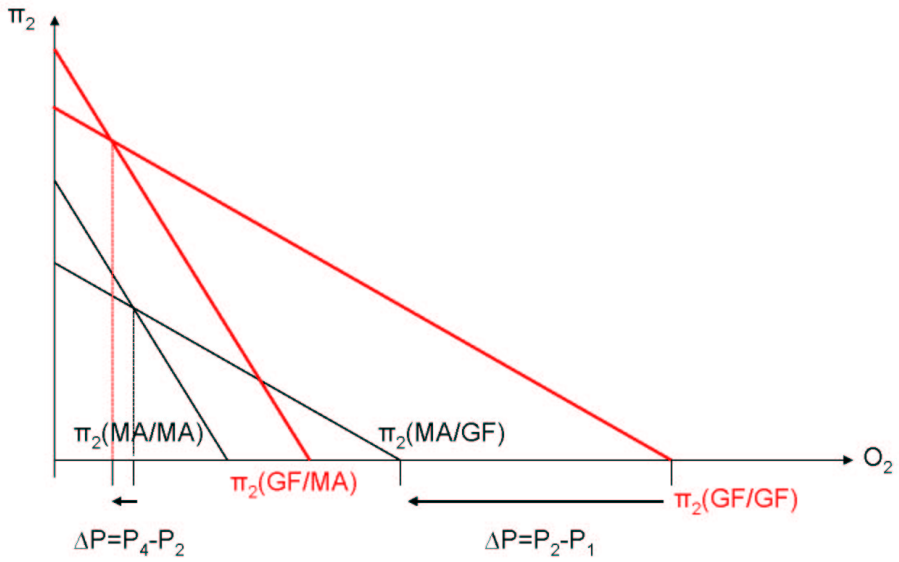
Lemma 3

Early entry via Greenfield Investment compared to entry via M&A reduces the probability of sequential entry via Greenfield Investment by $\frac{t}{144}$.

The Lemma is derived in Appendix 5.

The effects of the early movers' entry mode on F_2's entry decision can be subsumed by the following graphic.

Figure 3.3: The Effect of Early Entry Mode on Sequential Entry



To sum up, early entry via Greenfield Investment compared to early entry via M&A has the following effects on sequential entry. For one, the absolute probability of sequential entry is lower in the former case. This is however not a sufficient result for our following analysis, as it is shown, that part of the total reduction of entry also occurs via the reduction of the probability of sequential entry via M&A. Further analysis however shows, that early entry via Greenfield Investment is shown to definitely decrease the probability of sequential entry via Greenfield Investment, which is the actual harmful type of sequential entry from the point of view of the early mover in this model.

3.2.2 The optimal entry mode of the early mover

Now knowing how the entry mode of the early mover shapes sequential entry probabilities, one can analyze the optimal entry mode for the early-moving firm F_1.

To that end, profits of firm F_1 under entry via Greenfield and entry via M&A, given the respective effects on sequential entry, are simply compared.

Firm 1 profit when entering via Greenfield Investment can be written as

$$\pi_1(GF) =$$
$$\pi_1^{VAR}(3) \text{ which is the variable profit of } F_1 \text{ in period 1}$$
$$+P_3 \times \pi_1^{VAR}(3) \text{ which is the probability weighted variable profit of } F_1 \text{ with } F_2 \text{ entering via M\&A in period 2}$$
$$+(P_1 - P_3) \times \pi_1^{VAR}(4) \text{ which is the probability weighted variable profit of } F_1 \text{ with } F_2 \text{ entering via Greenfield in period 2}$$
$$+(1 - P_1) \times \pi_1^{VAR}(3) \text{ is the probability weighted variable profit of } F_1 \text{ with } F_2 \text{ not entering in period 2}$$
$$-2O_1 - F \text{ is the fixed costs of operation in both periods and of Greenfield entry for } F_1$$

Inserting variable profits and rearranging the terms we can rewrite profit under Greenfield as

$$\pi_1(GF) = 2 \times \left[\frac{t}{9} - O_1 - \frac{F}{2}\right] - (P_1 - P_3) \times \frac{7}{144}t \tag{3.14}$$

where $(P_1 - P_3) \times \frac{7}{144}t$ constitutes the expected negative effect of sequential entry via Greenfield on firm 1 profits, as $(P_1 - P_3)$ constitutes the absolute probability of sequential entry via Greenfield Investment.

In the proposed setting, it is quite obvious that the only sequential entry mode affecting firm 1 profits negatively is Greenfield Investment as this increases the number of firms in the market[12].

Firm 1 profit when entering via M&A can be written in similar style

[12]Entry via M&A in this model does not change profits of firm 1 as it is assumed that all foreign entrants and local incumbents have the same marginal costs. Therefore sequential entry via M&A, from the point of view of firm 1, simply constitutes interchanging identically behaving firms in the market.

$$\pi_1(MA) =$$

$\pi_1^{VAR}(2) - \pi_A^{VAR}(3)$ which is the variable profit of F_1 minus the "variable part of the acquisition price" in period 1

$+P_4 \times \left[\pi_1^{VAR}(2) - \pi_A^{VAR}(3)\right]$ is the probability weighted variable profit of F_1 minus the "variable part of the acquisition price" with F_2 entering via M&A in period 2

$+ (P_2 - P_4) \times \left[\pi_1^{VAR}(3) - \pi_A^{VAR}(4)\right]$ is the probability weighted variable profit of F_1 minus the "variable part of the acquisition price" with F_2 entering via Greenfield in period 2

$+ (1 - P_2) \times \left[\pi_1^{VAR}(2) - \pi_A^{VAR}(3)\right]$ is the probability weighted variable profit of F_1 minus the "variable part of the acquisition price" with F_2 not entering in period 2

$-4O_1 + 2O_D$ is the fixed costs of operation in both periods and the effect of a targets fixed costs on the acquisition price.

Again inserting variable profits and rearranging yields

$$\pi_1(MA) = 2 \times \left[\frac{5}{36}t - 2O_1 + O_D\right] - (P_2 - P_4) \times \frac{13}{144}t \tag{3.15}$$

with $(P_2 - P_4) \times \frac{13}{144}t$ again being the expected negative profit effect of sequential entry via Greenfield Investment of firm 1 profits.

Solving for respective operating fixed costs profit levels like it has been done for the sequential entrant in T=2 the following result can be derived.

Lemma 4

Firm 1 will enter via M&A, if its fixed costs of operation are low, such that

$$O_1 < \widetilde{O}_1 = \tfrac{t}{36} + O_D + \tfrac{F}{2} - (P_2 - P_4) \times \tfrac{13}{288}t + (P_1 - P_3) \times \tfrac{7}{288}t$$

via Greenfield Investment if fixed costs of operation are of medium size, such that

$$\widetilde{O}_1 < O_1 < \overline{O}_1 = \tfrac{t}{9} - \tfrac{F}{2} - (P_1 - P_3) \times \tfrac{7}{288}t$$

and will not enter the market if fixed costs of operation are high, such that

$$O_1 > \overline{O}_1$$

The Lemma is derived in Appendix 6. The general pecking order of the entry mode of the early moving firm 1 is not influenced by the threat of sequential entry and therefore arising strategic effects of entry mode, which is unsurprising due to the way the model is setup, as this order is determined by assumptions on the influence of entry modes on the ex post operating efficiency of the foreign structure in the market.

The more interesting question is whether the threat of sequential entry reduces the probability or amount of M&A and Greenfield entry in comparison to a world, where there no such threat exists. In order to analyze this, a two-period benchmark case without a sequential entry threat is derived.

For further use, the relative probability of early entry via M&A given general entry is simply $\frac{\widetilde{O}_1}{\overline{O}_1}$, which intuitively is simply the proportion of firms with operating fixed costs such that they enter via M&A, divided by the proportion of firms with operating fixed costs such that they enter the market at all.

3.2.3 Benchmark Case (No sequential entry)

The following benchmark case without a sequential entry threat is constructed. The benchmark would be a two-period market game with perfectly symmetric periods concerning market structure from the perspective of the early entrant.

In such a setting, cumulative profits of firm 1 under Greenfield Investment over both periods are then

$$\pi_1^{BM}(GF) = 2 \times \left[\frac{t}{9} - O_1 - \frac{F}{2}\right] \tag{3.16}$$

which is simply twice the profit of firm 1 in period 1 under Greenfield Investment[13].

Cumulative profits of firm 1 under M&A entry are therefore[14]

$$\pi_1^{BM}(MA) = 2 \times \left[\frac{5}{36}t - 2O_1 + O_D\right] \tag{3.17}$$

[13]With three players in the market in each profit each firm makes variable profits of $\frac{1}{9}t$ per period. Fixed costs of entry are F, which occur only once, so per period fixed costs of Greenfield entry are $\frac{F}{2}$.

[14]Entry via M&A leaves two players in the market generating per-period variable profits of $\frac{1}{4}t$. Foregone target profits per period would have occurred in a market with three players, so the acquisition price per period would be $\frac{1}{9}t - O_D$.

Solving for fixed operation cost levels O_1 one finds that in the benchmark case firm 1 will enter via M&A if

$$O_1 < \widetilde{O}_1^{BM} = \frac{t}{36} + O_D + \frac{F}{2} \tag{3.18}$$

will not enter the market if

$$O_1 > \overline{O}_1^{BM} = \frac{t}{9} - \frac{F}{2} \tag{3.19}$$

and for fixed overhead cost levels in-between firm 1 would enter via Greenfield Investment.

It can be immediately seen, that

$$\widetilde{O}_1^{BM} = \widetilde{O}_1 + (P_2 - P_4) \times \tfrac{13}{288}t - (P_1 - P_3) \times \tfrac{7}{288}t$$

and

$$\overline{O}_1^{BM} = \overline{O}_1 + (P_1 - P_3) \times \tfrac{7}{288}t$$

The relative probability of entry via M&A given general entry is $\frac{\widetilde{O}_1^{BM}}{\overline{O}_1^{BM}}$ for the benchmark case.

3.2.4 How does the threat of sequential entry change the entry mode decision of early movers?

Comparing the benchmark case with the case of potential sequential entry yields the following first result.

Lemma 5

The threat of sequential entry leads to a lower probability of general entry for early movers.

The result is derived in Appendix 7.

This Lemma is very intuitive. With some positive probability another firm will enter the market in period 2 via Greenfield Investment in the case of potential sequential entry. Therefore, with this positive probability, variable profits of the early mover will be lower in period 2. So some potential early moving firms able to make small positive profits ϵ in a market with two

other competitors will in expectation make negative profits, as there is the possibility of having to compete with three other competitors in period 2.

Our main interest however concerns the non-trivial effect of introducing the threat of sequential entry on the relative probability of the early entrant choosing entry via Greenfield Investment over entry via M&A. Analyzing this question gives the following main result of the basic model.

Proposition 2

The threat of sequential entry leads to entrants choosing Greenfield Investment over M&A with a higher probability, formally

$$\frac{\widetilde{O}_1^{BM}}{\widetilde{O}_1^{\overline{BM}}} > \frac{\widetilde{O}_1}{\overline{O}_1}$$

if the general structure of the market supports all available entry modes with positive probability.

This proposition is proved in Appendix 8.

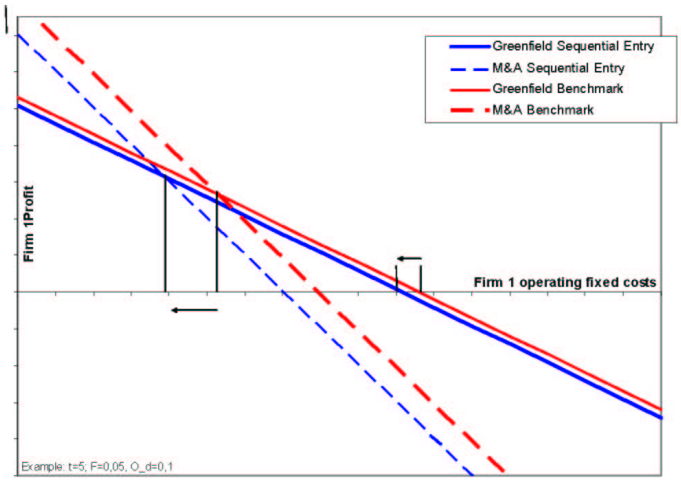
The main result is easily explained intuitively. With sequential entry, Greenfield Investment, compared to early entry via M&A, reduces the probability of sequential Greenfield entry, which would reduce early mover profits.

Due to expectations, acquisition prices for targets will also be lower for the early entrants with the threat of sequential entry, as incumbent domestic firms expect lower profits in period 2. However the variable profit-benefit of entry via M&A decreases disproportionately due to the non-linear relationship between profits and number of firms in the market.

Altogether the existence of a sequential entry threat makes M&A a less interesting entry mode option compared to a static setting.

The difference between this model of sequential entry and the benchmark case is illustrated by the following graphical example, where it is quite easy to see that the relative probability of M&A entry decreases strongly when modelling sequential entry.

Figure 3.4: Comparison of Benchmark and Sequential Entry Case



In the proposed model setup there are markets that would only be entered via M&A by early movers, no matter sequential entry threat or not. This would be the case if either fixed costs of Greenfield entry and fixed operative costs of incumbents are sufficiently large[15]. One can easily see that $\overline{O_1} - \widetilde{O_1}$ would become negative in this case as well as $P_2 > P_4$, such that entry would only occur via M&A.

In general, however, neglecting the market dynamics effects of entry modes underestimates the attractiveness of entry via Greenfield Investment.

[15]Restricted to F being small enough for potential acquirers entering via Greenfield Investment if takeover negotiations fail and operating fixed costs O_D such that no passive consolidation takes place.

3.2.5 A note on completely endogenous market structure

For simplicity the model only discusses at 2 potential entrants. In a complete equilibrium we would have sequential entry in period 2 until profits for potential entrants become zero.

However, if e.g. one would assume n potential symmetric sequential entrants with operating fixed costs of O_2 the qualitative results would not change at all. In fact entry deterrence considerations would become more important for firm 1 as its profits would reduce much more for $n_{Entry} > 1$ firms entering the market.

3.3 Welfare analysis

In this section it is shown how welfare effects of entry modes differ between a model without potential sequential entry and with such a threat. To that end, the welfare effects of firm 1 entering via Greenfield and via M&A are analyzed.

As a simple welfare measure, the sum of profits of domestic firms (which include acquisition prices if a domestic firm is acquired) and the consumer rent in the market, is used.

Welfare in the case of firm 1 entering via Greenfield is

$$W^{GF} = \pi^{GF}_{Dom} + CR^{GF} = \pi^{GF}_{A} + \pi^{GF}_{B} + CR^{GF} \tag{3.20}$$

where π^{GF}_{Dom} is the sum of profits of domestic incumbent firms A and B in both periods and CR is the consumer rent in both periods, which in general per period is $\left(s - t\overline{d} - p\right) \times X$, where s is consumer willingness to pay, $t\overline{d}$ is the average transport costs incurred by customers and p is the equilibrium price in the market and X is the trade volume in the market. As we assumed market size equal to 1 and s large enough, such that total demand in the market equals market size, CR reduces to $s - p - t\overline{d}$[16].

Total domestic profits are then simply[17]

[16] It is common knowledge, that average transport costs for customers in the Salop setup equal $\frac{t}{4n}$ with n the number of firms in the market.

[17] to reduce notational clutter in the following it is assumed that $\overline{c} = 0$ without loss of generality.

$$\pi_{Dom}^{GF} = \tfrac{4}{9}t - 4O_D - P_1 \times \tfrac{7}{72}t + P_3 \times \tfrac{7}{144}t$$[18]

where it is straightforward, that $\frac{4}{9}t - 4O_D = \pi_{Dom}^{GF}(BM)$ is the profit of domestic firms without potential sequential entry. Compared to the benchmark case, one can observe that domestic firm profits are lower in markets that generally support all entry modes[19], which is obvious as a potential additional competitor reduces profits for each market participant.

Inserting case dependent consumer rents and case probabilities and rearranging we get the following consumer rent in case of early entry via Greenfield Investment

$$CR^{GF} = 2s - \tfrac{7}{18}t + (P_1 - P_3) \times \tfrac{5}{72}t$$

where again it is straightforward, that $2s - \frac{7}{18}t = CR^{GF}(BM)$ is the consumer rent without potential sequential entry. Again comparing to the benchmark case we can see that consumer rent is higher in markets that generally support all entry modes, which is intuitive, as an additional sequential entrant reduces both prices to be paid as well as average transport costs for the consumers.

Welfare in the case of entry via Greenfield Investment by firm 1 is therefore

$$W^{GF} = \pi_{Dom}^{GF} + CR^{GF} = \frac{t}{18} - 4O_D + 2s - P_1\frac{t}{36} - P_3\frac{t}{48} \tag{3.21}$$

or $W^{GF} = W^{GF}(BM) - P_1\frac{t}{36} - P_3\frac{t}{48}$.

Deriving welfare under early entry via M&A works the same way.

The sum of profits of domestic firms in this case is

$$\pi_{Dom}^{MA} = \tfrac{13}{18}t - 4O_D - P_2\tfrac{27}{144}t + P_4\tfrac{7}{144}t$$

[18]Deriving these profits is simple. If firm 1 enters via Greenfield Investment both local firms make profits $\frac{t}{9} - O_D$ in period 1 respectively. In period 2, if a sequential entrant enters via Greenfield both local firms make profits $\frac{t}{16} - O_D$ each, if the sequential entrant enters via M&A one local firm gets his outside option as the takeover target of $\frac{t}{16} - O_D$ and the other local firm makes profits $\frac{t}{16} - O_D$. If no sequential entry occurs, local firms make profits $\frac{t}{9} - O_D$ in period 2. Multiplying with respective probabilities of sequential entry decisions yields the above domestic profit level.

[19]So $P_3 < P_1$

where again $\pi_{Dom}^{MA}(BM) = \frac{13}{18}t - 4O_D$ is straightforward.

Consumer rent in the case of early entry via M&A is

$$CR^{MA} = 2s - \tfrac{3}{4}t + (P_2 - P_4) \times \tfrac{13}{72}t$$

Therefore welfare in this case is

$$W^{MA} = \pi_{Dom}^{MA} + CR^{MA} = 2s - \frac{t}{36} - 4O_D - P_2\frac{t}{144} - P_4\frac{19}{144}t \qquad (3.22)$$

where again $2s - \frac{t}{36} - 4O_D = W^{MA}(BM)$.

A comparison between the welfare effect of entry modes between the benchmark case and the case of sequential entry can now be made.

The welfare difference between entry via Greenfield Investment and entry via M&A in the benchmark case is

$$\Delta W_{BM} = W_{BM}(GF) - W_{BM}(MA) = \tfrac{t}{36}$$

so in the benchmark case entry via Greenfield Investment is the welfare maximizing entry mode, yielding $\frac{t}{36}$ higher welfare than entry via M&A.

In the case of sequential entry after some rearranging, the welfare difference can be shown to be

$$\Delta W = W(GF) - W(MA) = \tfrac{t}{36} \underbrace{-\frac{t}{144}\underbrace{[-\frac{31}{72}t - 19F - 16O_D]}_{<0}}_{>0}$$

or

$$\Delta W = W(GF) - W(MA) = \Delta W_{BM} \underbrace{-\frac{t}{144}\underbrace{[-\frac{31}{72}t - 19F - 16O_D]}_{<0}}_{>0} \qquad (3.23)$$

Therefore the following propositions can directly be stated.

Proposition 3

Early entry via Greenfield Investment is the welfare maximizing mode of entry, with or without potential sequential entry.

Proposition 4

With sequential entry, the welfare advantage of entry via Greenfield Investment over entry via M&A is more pronounced, than without the threat of sequential entry.

Whereas the first proposition does not come as a surprise, the second result is not so obvious. Intuitively entry via M&A in the case of potential sequential entry accommodates further entry. However such accommodated further entry, besides increasing expected consumer rent, also decreases expected profits (including acquisition prices) for the domestic firms. In the proposed setup, the second effect dominates the first, not least because only sequential entry via Greenfield Investment increases consumer rent, whereas both types of entry reduce domestic profits for at least one firm[20].

3.4 Markets with restricted takeover possibilities

Another interesting result can be derived from the model if one changes the setup such, that only 1 out of 2 incumbents can be taken over. Assume that only firm A can be taken over, while B, due to various possible reasons [21] can not be taken over.

Intuitively, one might at first guess that in this setup the choice of entry mode of the early mover shifts towards M&A, because by taking over firm A it disables the sequential entrant to enter via M&A, as there are no targets left in this case. So, by taking away this option from sequential entrants, one might think firm 1 should be better off. Therefore M&A might seem to be a more appealing entry mode for firm 1 now.

However with symmetric firms concerning marginal costs this is not the case as will be shown. The reason is, that, with symmetric firms, sequential

[20]The reasoning runs through acquisition prices to be paid. If the sequential entrant enters via M&A he pays the target its outside option, which is profits the latter would make if the sequential entrant enters via Greenfield Investment. Therefore the threat of Greenfield Investment reduces the targeted firm's profits even when being taken over, so the sequential entrant entering via M&A.

[21]e.g. the firm might be state-owned with the state having a strategic interest in keeping the firm state-owned, or the firm might be family-owned, where the family might not be interested in selling the firm to some entrant due to non-monetary reasons.

entry via M&A is harmless to the early mover, whereas Greenfield entry reduces early mover profits in period 2. Within the setup of restricted takeover probabilities now firm 1, by choosing to enter via M&A, does not change the entry consideration of sequential entrants that would have entered via Greenfield anyway, but it will push sequential entrants that would have entered via M&A if a target had been available to enter via Greenfield Investment now. We show this in the following.

If firm F_1 enters via Greenfield nothing changes compared to the base model, as no additional limitation is introduced for the strategic entry decision of the sequential entrant.

Sequential entry (mode) probabilities still are $P_1 = \overline{O}_2^{GF} = \frac{1}{16}t - F$ and $P_3 = \widetilde{O}_2^{GF} = -\frac{1}{72}t + O_D + F$.

If firm F_1 enters via M&A the probability of any entry is still $P_2 = \overline{O}_2^{MA} = \frac{1}{9}t - F$, but now $P_4 = 0$, as there is no available target for firm 2 left in the market now.

Analyzing firm 1 behaviour there is no difference concerning the threshold level of operative costs for general entry of F_1.

A look at the threshold level for entry via M&A for firm 1 points out the difference to the base specification.

In the base model

$$\widetilde{O}_1^{Base} = \tfrac{1}{36}t + O_D + \tfrac{F}{2} - (P_2 - P_4) \times \tfrac{13}{288}t + (P_1 - P_3) \times \tfrac{7}{288}t$$

Without a target for sequential entrants this reduces to

$$\widetilde{O}_1^{Extension} = \frac{1}{36}t + O_D + \frac{F}{2} + (0 - P_2) \times \frac{13}{288}t + (P_1 - P_3) \times \frac{7}{288}t \quad (3.24)$$

It is straightforward that

$$\widetilde{O}_1^{Extension} = \tfrac{1}{36}t + O_D + \tfrac{F}{2} + (0 - P_2) \times \tfrac{13}{288}t + (P_1 - P_3) \times \tfrac{7}{288}t$$
$$<$$
$$\widetilde{O}_1^{Base} = \tfrac{1}{36}t + O_D + \tfrac{F}{2} + (P_4 - P_2) \times \tfrac{13}{288}t + (P_1 - P_3) \times \tfrac{7}{288}t$$

as the inequality reduces to $0 < P_4 \times \frac{13}{288}t$, which is true for $t > 0$ and $P_4 > 0$, which is true for all markets that in general support entry via M&A.

As $\overline{O}_1^{Extension} = \overline{O}_1^{Base}$ it is also straightforward that the relative probability of M&A entry of the early mover firm 1 $\frac{\widetilde{O}_1^{Extension}}{\overline{O}_1^{Extension}}$ is lower with restricted takeover possibility than in the basic model $\frac{\widetilde{O}_1^{Base}}{\overline{O}_1^{Base}}$.

As the benchmark case is unaffected by the proposed change in the model setup it then must be true that

Proposition 5
The negative effect of the threat of sequential entry on the relative probability of early entry via M&A is more pronounced, when takeover possibilities in the market are limited, such that early entry via M&A eliminates the option of sequential entrants to enter via M&A. In absolute terms such limited takeover possibilities increase the probability of early movers entering via Greenfield Investment instead of entering via M&A.

This result is quite astonishing. Whereas general literature discusses obvious effects of missing targets on entry mode choice, namely that there is no possibility for a firm to enter via M&A if no target is available for this firm, we come up with an additional indirect missing target effect, due to strategic considerations about potential sequential entry taken into account by an early entrant.

3.5 Country-specific learning-by-doing effects

A final interesting extension of the model proposed is incorporating the availability of learning-by-doing effects in the market. With country-specific learning-by-doing effects it is meant, that in the respective industry increasing sales volume in other countries does not change the efficiency of a firm in the respective host country market, such that efficiency of a firm in a market only increases with the volume of former (sales) experience in this specific market.

This extension is considered in a further simplified version of the basic model. We will see that, if learning-by-doing effects are strong for some kind of industry, M&A is actually the sequential entry deterring mode for early movers and therefore it is obvious that the threat of sequential entry leads early movers to rather enter the market via M&A compared to the benchmark case.

Assume for simplicity that in period T=1 all firms have marginal costs of $\bar{c} = 1$. Further assume that incumbents have been in the market for such a long time that they have already used up all learning-by-doing effects available, such that $c_A = c_B = 1$ in both periods. The potential sequential entrant does by design not participate in the market in$T = 1$, so his marginal costs in T=2 are also $c_2 = \bar{c} = 1$.

For the early entering firm 1 assume that his marginal costs in period 2 are a function of how much 1 has sold in the market in period T=1. Specifically let us assume

$$c_1(T=2) = \begin{array}{l} 1 \text{ if } x_1(T=1) < 0,5 \\ 0 \text{ if } x_1(T=1) \geq 0,5 \end{array}$$

This is a very simple, special form of learning-by-doing effects, but the results can be generalized[22]. By assuming this specific form we can abstract from any strategic selling behaviour of firm 1 in period 1 as well as reduce notational clutter.

3.5.1 Sales volumes in period T=1

With firms $1, A, B$ being symmetric in marginal costs and market size equal to 1 it is straightforward that the sales volume of firm 1 in period 1 is $x_1(T = 1) = \frac{1}{3}$ if 1 enters via Greenfield Investment and $x_1(T = 1) = \frac{1}{2}$ if 1 enters via M&A.

Therefore $c_1(T = 2) = 1$ if 1 enters via Greenfield and $c_1(T = 2) = 0$ if 1 enters via M&A.

3.5.2 Sequential entry probabilities in period T=2

If F_1 enters via Greenfield Investment results do not differ from the base model, as marginal costs of market participants are unchanged.

The probability of any entry as well as the absolute probability of entry via M&A is still $P_1 = \frac{1}{16}t - F$ and $P_3 = -\frac{1}{72}t + O_D + F$ respectively.

If F_1 now enters via M&A the sequential entry probabilities differ from the base model, due to the additional effect of M&A on marginal costs of firm 1.

The probability of any entry in T=2 is now[23]

[22]It is always true that first period sales will be higher for firm 1, if it enters via M&A compared to Greenfield Investment. Therefore its marginal costs in the second period will always be lower if it enters via M&A compared to Greenfield Investment.

[23]One has to stay simple in this analysis, therefore I keep assuming that firms will locate equidistantly from each other, which is a strict assumption, but actually even counterbalances our results, so the assumption does not drive our results. To be concrete, it is additionally assumed that the sequential entrant locates farthest away from the early entrant at the other side of the Salop circle with the two local incumbents in between.

$$P_2 = \frac{1}{t}\left(\frac{1}{3}t - \frac{1}{5}\right)^2 - F \tag{3.25}$$

and the absolute probability of entry via M&A is now

$$P_4 = \frac{1}{t}\left[\left(\frac{1}{2}t - \frac{1}{3}\right)^2 - 2 \times \left(\frac{1}{3}t - \frac{1}{5}\right)^2\right] + O_D + F \tag{3.26}$$

Analyzing probabilities we come up with the main interesting result of analysis of this extension.

Proposition 6

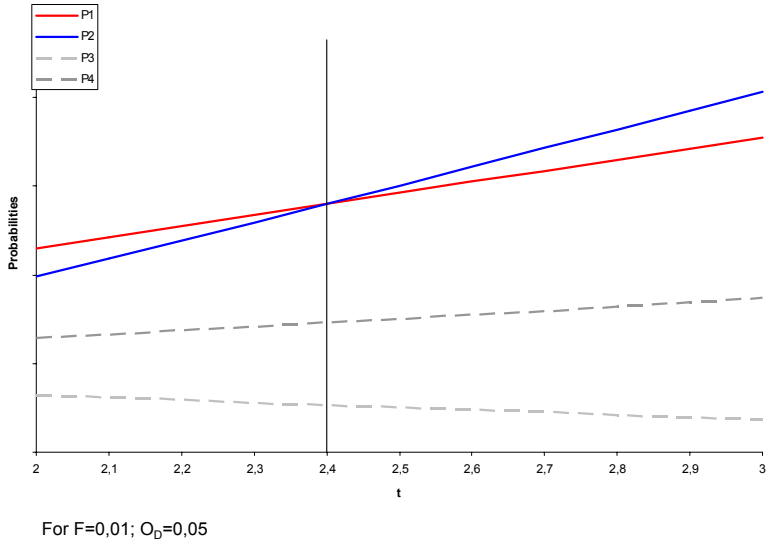
With learning-by-doing effects in the market and product differentiation low early-mover entry via M&A compared to entry via Greenfield deters sequential entry. If product differentiation is high early-mover entry via M&A still accommodates sequential entry.

The proposition is proved in Appendix 9.

The intuition is straightforward. If product differentiation is of low degree, the base model-effect of entry deterrence via Greenfield through an increase in the number of market participants faced by a sequential entrant is small, as has been shown before. With learning-by-doing-effects entry via M&A leads to firm 1 being able to price more aggressively in period 2, due to lower marginal costs than under Greenfield Investment. This second "'efficient competitor"'effect then dominates the first "'more competitors"' effect for sufficiently low levels of transport costs, as a more efficient competitor hurts potential sequential entrants in expectations more than a larger number of competitors.

The following figure shows how the respective probabilities of entry and entry modes depend on "'transport costs"' t in this extension.

Figure 3.5: Contingent Sequential Entry Probabilities and Transport Costs



For F=0,01; O_D=0,05

How the threat of sequential entry then influences the entry mode choice of the early mover is obvious. As the threat of sequential entry already reduces the acquisition price to be paid by the early mover as well as the strategic entry deterring effect also favouring M&A entry it follows that

Proposition 7

In markets with low degrees of product differentiation and strong learning-by-doing effects the threat of sequential entry increases the relative probability of entry via M&A.

3.6 Conclusion

Modelling the threat of sequential entry makes it possible to discuss more forward-looking entry mode strategies of potential foreign direct investors.

I come to the conclusion, that when the "competition" effect, due to a difference in the number of competitors in the market is the main difference between entry modes, Greenfield Investment of early entrants compared to entry via M&A has the profit-enhancing effect of reducing the probability of harmful sequential entry by other foreign firms. Even though the former entry mode might additionally have the negative effect of pushing the sequential entrant's decision towards Greenfield Investment, the absolute entry deterring effect is profit-enhancing, as the absolute probability of sequential entry via Greenfield Investment is reduced.

And while acquisition prices will also be lower with the threat of sequential entry, it is show, that early movers will choose Greenfield Investment with a higher probability than in a static world without sequential entry, as the entry deterring effect on profits outweighs all other effects.

The above result holds true for all markets where both kind of entry modes are chosen by the group of potential entrants with positive probability, so if the degree of product differentiation, fixed costs of Greenfield entry and fixed cost structure of incumbent banks give support to both M&A as well as Greenfield Investment. Obviously there are markets, where modelling sequential entry does not change entry mode choices, due to incentives for one specific entry mode being too dominant.

Additionally it is shown in the model, that with sequential entry, the effect of early entry via M&A instead of entry via Greenfield Investment is even more harmful to welfare than in the static case. The reason is, that early entry via M&A accommodates further entry of foreign firms, which decreases domestic firm profits by more than it increases customer rent.

Slightly changing the setup of the model to account for "scarcity" of takeover targets, further shifts early entrants' incentives towards Greenfield Investment, due to the effect that entry via M&A in this setup takes away the entry mode option for sequential entrants that is less/not harmful to early mover profits. I therefore find a "'perverse"' missing target effect on entry mode choice, such that missing targets for other entrants pushes an early entrant towards entering via Greenfield Investment.

All in all the proposed basic model helps explain the still very significant share of Greenfield Investment in total FDI (see e.g. Raff, Ryan and Staehler (2006)[113] via the market structure effect of entry modes and the latter effect on entry dynamics.

Extending the model to account for country-specific learning by doing effects in a stylized way, it is found that in such a setting the early mover can become a "terrifyingly" efficient competitor in period 2 by entering via M&A early on. The effect of becoming a stronger competitor via M&A then dominates the "competition" effect of reducing the number of market participants by M&A concerning sequential entry probability for some kind of markets. It can be shown then, that in this extended setup M&A is the entry deterring early entry mode if the respective market shows a low degree of product differentiation and if country-specific learning-by-doing effects are sufficiently strong (like they are modelled here).

Referring to the general scope of this thesis, I deem this latter extension to be a very good fit for international retail and SME loan markets. Indeed one can probably state, that product differentiation concerning financial services for these types of customers is rather low [24]. Also, due to heterogeneous (banking) regulation in countries, banks (and also probably insurance companies, for that matter) compared to firms in e.g. the real sector, might be less able to transfer knowledge won by learning-by-doing in one market to other markets. So efficiency in a specific market in the former industries should mainly depend on the cumulative volume of business in exactly this market, and not so much on general world-wide level of experience. The fact that heterogeneous regulation in part prohibits banks from making use of other market experience in a respective host country market has been shown by various studies of e.g. Berger et al.(2000)[12], who show that, except U.S. banks in some specific markets, foreign banks are almost always less efficient than domestic banks in OECD countries. A similar story is discussed in the case study, stating that general international market experience only helps in conduction business in a specific country, if the other markets mimic this specific market.

[24] At least this should be true ex ante. Ex post there might be some product differentiation stemming from an existing lending relation with a respective customer.

APPENDIX

Appendix 1: Deriving variable profits

For starters I assume that willingness to pay s for the product is such, that in equilibrium the whole market Y is served by the firms in the market. In general sales volume of firm i can be derived by the indifference condition of the marginal customer of the respective firm. The condition yields

$$x_i = \frac{p_j + p_k - 2p_i}{2t} + \frac{Y}{n}$$

where p_j,p_k are the prices of the two closest competitors and n is the number of firms in the market.

Inserting into firm i profit function yields

$$\pi_i^{Var} = (p_i - c_i) \times \left(\frac{p_j + p_k - 2p_i}{2t} + \frac{Y}{n} \right)$$

Solving for the optimal price and taking into consideration that all firms will charge the same price due to same marginal costs $\overline{c}$ we get equilibrium price charged by all firms

$$p = \frac{Y}{n} \times t$$

Inserting into the sales volume we get equilibrium sales volume for all firms

$$x = \frac{Y}{n}$$

Therefore variable profit for each firm is

$$\pi^{Var} = \left(\frac{Y}{n} \right)^2 \times t$$

With market size 1 and potential number of firms ranging between 2 (both foreign entrants enter via M&A or no entry at all) and 4 (both foreign entrants enter via Greenfield) the relevant variable profit levels for the analysis are

$$\pi^{Var}(2) = \frac{1}{4} \times t$$
$$\pi^{Var}(3) = \frac{1}{9} \times t$$
$$\pi^{Var}(3) = \frac{1}{16} \times t$$

Appendix 2: Proof of Lemma 1

The difference between M&A and Greenfield profits for a respective bank and a respective entry mode of another bank is of the form

$$\triangle = \pi_i^{Var}(MA) - \pi_i^{Var}(GF) - A + F - 2O_i + O_i = \pi_i^{Var}(MA) - \pi_i^{Var}(GF) - A + F - O_i$$

So

$$\frac{d\triangle}{dO_i} = -1 < 0$$

which means the larger O_i so M&A is preferred over Greenfield Investment for low values (as $\pi_i^{Var}(MA) - \pi_i^{Var}(GF) - A > 0$ for the proposed setup) of O_i and vice versa for higher values of O_i.

Greenfield profits are of form

$$\pi_i^{Var}(GF) - O_i$$

so $\frac{d\triangle}{dO_i} = -1 < 0$ and entry becomes less likely if O_i is high.

Appendix 3: Proof of Proposition 1

I want to show that

$$P_1 < P_2$$

so

$$\frac{1}{16}t - F < \frac{1}{9}t - F$$

which reduces to

$$\frac{7}{144}t > 0$$

which is true for $t > 0$,which is fulfilled by assumption.

The difference between P_2 and P_1 is

$$\frac{1}{9}t - \frac{1}{16}t = \frac{7}{144}t$$

Appendix 4: Proof of Lemma 2

I want to show that

$$P_3 < P_4$$

which is equal to $P_3 - P_4 < 0$. Inserting yields

$$-\tfrac{1}{72}t - \tfrac{1}{36}t = -\tfrac{1}{24}t < 0$$

true for $t > 0$, which is true by assumption.
The absolute difference between probabilities is $P_4 - P_3 = \tfrac{1}{24}t$.

Appendix 5: Proof of Lemma 3

We want to show that

$$P_2 - P_4 > P_1 - P3$$

equal to

$$\tfrac{1}{12}t - 2F - O_D > \tfrac{11}{144}t - 2F - O_D$$

which reduces to

$$\tfrac{1}{144}t > 0$$

which is true for $t > 0$. which is given by assumption.
The difference $[P_2 - P_4] - [P_1 - P3] = \tfrac{1}{144}t$.

Appendix 6: Proof of Lemma 4

Solving profit inequality

$$\pi_1(MA) = 2 \times \left[\tfrac{5}{18}t - 2O_1 + O_D\right] + (P_4 - P_2) \times \tfrac{13}{144}t$$
$$>$$
$$\pi_1(GF) = 2 \times \left[\tfrac{1}{9}t - O_1 - \tfrac{F}{2}\right] - (P_1 - P_3) \times \tfrac{7}{144}t$$

for O_1 yields

$$O_1 < \tfrac{1}{36}t + O_D + \tfrac{F}{2} - (P_2 - P_4) \times \tfrac{13}{288}t + (P_1 - P_3) \times \tfrac{7}{288}t$$

Solving inequality $\pi_1(GF) > 0$ for O_1 yields

$$O_1 < \tfrac{1}{9}t - \tfrac{F}{2} - (P_1 - P_3) \times \tfrac{7}{288}t$$

Appendix 7: Proof of Lemma 5

It should be shown that an early mover with some overhead fixed costs O_1 would enter the market without the threat of sequential entry, but will not enter if the threat of sequential entry exists. This is true iff

$$\overline{O}_1^{BM} > \overline{O}_1$$

Inserting yields

$$(P_1 - P_3) \times \tfrac{7}{288} t > 0$$

By the pecking order of entry modes we know that $P_1 > P_3$ as long as the market structure in general supports both kinds of entry. As additionally $t > 0$ it must hold true that $RHS > 0$.

Appendix 8: Proof of Proposition 2

I want to show that some potential entrant firm 1 with operating fixed costs of O_1 would enter via M&A without the threat of sequential entry and via Greenfield if the threat of sequential entry exists. Therefore we got to show that

$$\frac{\widetilde{O}_1^{BM}}{\overline{O}_1^{BM}} > \frac{\widetilde{O}_1}{\overline{O}_1}$$

Inserting in the RHS yields

$$\frac{\widetilde{O}_1^{BM}}{\overline{O}_1^{BM}} > \frac{\widetilde{O}_1^{BM} + \left[(P_4 - P_2) \times \frac{13}{288} t + (P_1 - P_3) \times \frac{7}{288} t\right]}{\overline{O}_1^{BM} + (P_3 - P_1) \times \frac{7}{288} t}$$

which can be simplified to

$$(P_3 - P_1) \times 7 \times \widetilde{O}_1^{BM} > [(P_4 - P_2) \times 13 + (P_1 - P_3) \times 7] \times \overline{O}_1^{BM}$$

for markets where entry is feasible ($\overline{O}_1^{BM} + (P_3 - P_1) > 0$)

Inserting for probabilities and benchmark threshold levels after some manipulation yields the following inequality

$$\tfrac{239}{18} t^2 - (428F + 290O_D)\, t + (2016O_D^2 + 5904FO_D + 3744F^2) > 0$$

Analyzing the LHS yields

$$\frac{\partial LHS}{\partial t} < 0 \text{ for } t < \frac{3852}{239}F + \frac{2610}{239}O_D$$
$$\frac{\partial LHS}{\partial t} = 0 \text{ for } t = \frac{3852}{239}F + \frac{2610}{239}O_D$$
$$\frac{\partial LHS}{\partial t} > 0 \text{ for } t = \frac{3852}{239}F + \frac{2610}{239}O_D$$

as well as $LHS(t=0) = 2016O_D^2 + 5904FO_D + 3744F^2 > 0$
and $LHS(t \to \infty) \to \infty$.
So, the LHS has a minimum at $t = \frac{3852}{239}F + \frac{2610}{239}O_D$.
Therefore it is sufficient to show that the inequality $LHS > 0$ holds for this minimum.
Inserting the minimizing t-level yields

$$\frac{70488}{239}F^2 + \frac{294776}{239}FO_D + \frac{103374}{239}O_D^2 > 0$$

which is fulfilled by $F > 0$ and $O_D > 0$.

Appendix 9: Proof of Proposition 6

I show that $P_2 < P_1$ for sufficiently low levels of t. $P_2 < P_1$ iff

$$P_2 = \frac{1}{t}\left(\frac{1}{3}t - \frac{1}{5}\right)^2 - F < \frac{t}{16} - F$$

which reduces to inequality

$$\frac{7}{144}t^2 - \frac{2}{15}t + \frac{1}{25} < 0$$

which is fulfilled for $t < 2,4$. For $t > 2,4$ it is still true that $P_2 > P_1$.

Chapter 4

When do Banks Follow their Customers Abroad?

4.1 Introduction

Among the often-stated motives for foreign direct investment (FDI) in the banking sector, besides the classical market-seeking reasoning, is a bank's desire to follow its existing customer base abroad. This motive is well-established both in the economic as well as the business literature (e.g. Aliber (1984)[3],Casson (1990)[31], Williams(1997)[130] and Bain, Fung and Harper (1999)[5]). As Casson (1990) states

> "'... US banks capitalize on their goodwill by following their customers overseas; the multinationalization of manufacturing firms creates a derived demand for the multinationalization of banks as well"'

Nolle and Seth (1996)[108] cite a study conducted by the U.S. General Accounting Office [1] reporting that in the United States "'most foreign banks serve customers of their home countries. An industry representative told us that only a few banks are large enough to penetrate through home country loyalties to attract other customer"'.

[1] "'Foreign Banks: Assessing their Role in the U.S. Banking System"', Report to the Ranking Minority Member, Committee on Banking, Housing and Urban Affairs, U.S. Senate, GAO/GGD-96-26 (1996)[110]

Though this latter claim might be too strong[2], the general statement drives home the point, that follow your customer(FYC)-considerations are an important reason for banks to establish a physical presence abroad.

In some instances existing clients even actively lobbied for their respective primary banks to follow firm expansion abroad. Well-documented and often-stated early examples were U.S. multinational companies US Steel and DuPont urging Citibank to establish a foreign presence in South America to provide their local operations with banking services (e.g. Huertas (1990)[80]).

A large empirical and business/case study literature deals with this topic and indeed finds strong indications that this motive plays a significant role in the multinationalization decision of banks.

In one of the earliest studies Fieleke (1977)[58], in his study on the determinants of U.S. banks' overseas expansion, found that "'financial need of U.S. firms abroad"' was the major factor in U.S. banks foreign location choice. This early result for U.S. banks has been supported by numerous studies, e.g. Nigh, Cho and Krishnan (1986)[106].

A similar role for follow your customer motives in the foreign direct investment decision of multinational banks has been found for foreign banks entering the U.S. market by e.g. Hultmann and McGee (1989)[82] and Goldberg and Grosse (1994)[68] and for bank entry into less developed markets (Sabi (1987)[116]). For example, Goldberg and Grosse (1994) study bank sector foreign direct investment in respective U.S. states. They come up with evidence, that states, that attract a large volume of real sector foreign direct investment, also attract more bank FDI.

Nolle and Seth (1996)[108] also analyze the U.S. banking market. They find indication that follow your customer strategies indeed seem prevalent in foreign bank strategy in the U.S. banking market, as evidence points to foreign banks devoting the dominant part of total extended loans to foreign real sector firms. However their approach yields the some indication, that this strategy might not be the main reason for foreign banks entering the U.S. market. Then again, in contrast to some recent remarks in the industry, they discover, that follow your customer strategies are still at least as important in the entry decision of foreign banks as in previous times[3].

[2]As at least some banks seem able to attract local customers, see e.g. Berger et al.(2000)[12].

[3]The authors find, that the share of loans to foreign firms as a percentage of total loans of foreign banks in the U.S., after decreasing for some time, had reached and partly even exceeded former levels again in the 1990s.

Even though the topic is has drawn a lot of attention in the empirical literature, there is a lack of formal theory on this subject. This seems bothersome, especially when one considers the direction of argumentation of a growing literature on market-seeking bank foreign direct investment. This literature is strongly concerned with information asymmetries and problems of foreign banks when trying to serve local markets (e.g. Dell'Arricia, Friedman and Marquez (1999)[47], Dell'Arricia and Marquez (2004)[48] and Lehner (2007)[92]). These theories might not yield a sufficient explanation for bank FDI that is induced by the follow your customer-motive.

Particularly the question arises, why a home bank, with an existing relationship to a home country multinational firm, does not simply provide banking services cross-border, or indirectly via providing the loan to the parent company from its home base, to the multinational firm's foreign subsidiary. Physical transport costs seem negligible for loans and similar financial services, and informational requirements to provide a loan might already be met by the bank's general intimate knowledge about the client firm due to previous and ongoing interaction.

Whereas there might still be motivation for following clients to assist in local cash management and other services requiring face-to-face contact[4], the question is whether there also is such motivation concerning the provision of loans.

In the following, a model is proposed to motivate such latter follow your customer-behaviour by applying and refitting a well-established theoretical literature on the choice of type of financing on this specific topic.

The following model setup is based on a view first clearly laid out by Gertner, Scharfstein and Stein (1994)[65], who discuss the benefits and costs of debt financing compared to internal financing in a setup of a two-dimensional moral hazard problem (managerial effort and managerial discretion in diverting project payoffs to himself) faced by a firm conducting a manager-run investment project.

Marin and Schnitzer (2006)[97] broaden the scope of such analysis by introducing a geographic dimension of debt financing in the financing decision of a multinational firm setting up a manager-run subsidiary in a foreign country. Letting liquidation efficiency of banks differ exogenously by their proximity to the respective investment project, they find that, depending on project/firm characteristics, multinational firms will either use host or home/third country bank financing (or financing from internal sources) for

[4]However the question then is, whether sales volume of such services are sufficient for banks to have an incentive to enter a foreign country.

their FDI projects.

The trade-off faced by the investing firm here is, that high liquidation efficiency of the chosen bank type on the one hand allows the investing multinational firm to capture a larger share of ex post project returns if the project is successful, as well as in some cases being able to claim a larger excess liquidation value (liquidation value minus debt repayment) in case the project fails. On the other hand, however, managerial incentives to spend effort, therefore increasing the expected size of the pie (larger expected project payoffs) to be shared, are negatively affected by high liquidation efficiency, as the manager expects a lower share of project returns to be available to himself due to a better outside option of the investing firm in negotiations about sharing project continuation value.

I closely follow this main idea in this paper[5]. However, in order to incorporate strategic choice of domestic banks into the model, I allow for this home bank to potentially make non-zero profits as well as having discretion in locational choice, or to put it simply, for home country banks to establish a physical presence in the firm subsidiary's host country. That way the respective bank has discretion in a profit-determining choice of the loan provision mode, as the decision then faced by this bank is to whether establish a physical presence abroad or to serve the client from its home base. As the focus will be on this conditional location decision faced by the bank, the model abstracts from cases discussed in Marin and Schnitzer (2006)[97], where the parent firm can potentially completely finance this FDI project from internal cash flow or wealth.

Additionally the location-specific liquidation efficiency of a bank is endogenized. This is first done in a very simple fashion, where I lay out the fact that physical transport costs might after all play a role in the decision of how to supply a loan, as physical assets to be liquidated of a bank's unsuccessful client abroad might have to be transferred back to the bank's home country to sell these assets at a high price. With the help of a simple political economy story transport costs are then further endogenized by introducing the ability of host country governments to (partially) keep assets to be liquidated in the home country, restricting cross-border physical asset flow. In a simplified setting the respective government's incentive to do so are discussed, contingent on the country's endowment in human capital. I do so by using the notion of asset-embedded human capital, that therefore is immanent in

[5]I'd really like to thank Prof. Marin for pointing out this paper as a possible starting point for discussing bank location choice.

the liquidation value of the respective project[6].

Introducing bank location choice as well as country-dependent liquidation values, allows an analysis on why and under which circumstances banks engage in foreign direct investment induced by the follow your customer-motive.

The reason for engaging in follow your customer-bank FDI is then a potentially different liquidation efficiency attained by the bank, in comparison to the bank supplying the loan to its multinational client without a physical presence in its client host market. The model therefore offers the possibility to discuss project/firm-specific and host country-specific optimal provision modes for the respective domestic bank, showing that these two dimensions of contingency are intertwined in shaping the location choice of the bank.

Using basic results attained from the model, the argumentation of Marin and Schnitzer (2006)[97] concerning the link between foreign direct investment and international capital flows can be scrutinized.

The rest of this chapter is organized as follows. Section 2 lays out the basic model, analyzing firm level, bank level and government level decision making to at the end come up with the optimal loan provision modes from the bank's perspective for respective circumstances. Section 3 concludes. First, I discuss the empirical observations the model can explain. Second, I analyze how my results compare to those obtained by Marin and Schnitzer (2006)[97]. Finally I point to the potential obstacles to exposing the theory to an empirical test.

4.2 The Model

The following setup is considered. There are two countries, Home and Foreign. A firm (investor) from Home considers entering the market in Foreign via the establishment of a subsidiary in this host country. In order to do so, the firm has to hire a manager to operate the subsidiary. Additionally the firm is cash-strapped in so far, as it is not able to finance this foreign direct investment completely via internal funds. Therefore the firm has to take on a loan of size K from a bank.

The foreign direct investment project of the firm analyzed is a two-period project, yielding return X_1 in period 1 with probability p and 0 with probability $1-p$ and return X_2 in period 2 with certainty. The subsidiary manager controls the success probability p in period 1 by his choice of effort level which

[6] A similar notion is proposed in a chapter of the upcoming PhD. thesis by Yanhui Wu, University of Munich.

equals the probability of success. The costs of effort are assumed to be of the quadratic form $C(p) = \frac{1}{2}zp^2$ with $z \in]0; \infty]$.

The problem from the point of view of the parent firm is, that neither the effort level of the manager, nor the project returns in the respective periods are verifiable. Therefore the choice of effort level cannot be influenced by the investor firm directly via an effort-based contract. Additionally the firm needs to give indirect incentives to the manager to at least partially transfer project payoffs back to the parent company.

Following Marin and Schnitzer (2006)[97] the two incentive problems can be called the effort problem, and the repayment problem, where the former must be solved by the parent firm by to maximize the expected return of the FDI project, while the latter must be solved to maximize its share in the expected return.

The combination of the other stakeholders in the subsidiary, bank and parent firm, has two means to influence the actions of the manager. For one, the parent has the ability to monitor the project closely, therefore being able to make the payoff partially verifiable. That way it is able to capture a share β of period 1 project payoff. However, monitoring comes at a cost which is assumed to be of the quadratic type $C(\beta) = \frac{1}{2}\beta^2$.

Additionally the bank has the right to liquidate the project after period 1, if the loan is not paid back. Precisely, the parent firm has to pay back the demanded repayment D_i to the bank, else the bank will liquidate. Following (implicitly) Marin and Schnitzer (2006)[97] it must be the case, that only the parent firm, not the local subsidiary manager has the right to pay back the loan to the bank[7].

A negotiation stage between manager and investing parent firm, after period 1 payoffs are realized and before the credit repayment is due, is modelled. If the parent firm does not repay the loan to the bank the project is liquidated by the bank. As long as it is efficient to continue the project ($X_2 > L_i$), as will be assumed in the following analysis, the parent firm and the subsidiary manager can bargain over the continuation value, leaving both stakeholders better off ex post by continuing. Furthermore it is assumed, that the bargaining power in such a renegotiation is exogenous, with the investing

[7]When latter discussing the model it becomes obvious that when the parent firm could decide on whether to repay the loan itself or to make the subsidiary a relatively independent capital center it would always choose the former. As we will implicitly see, the reason is that if the manager could repay the loan himself the investor would not be able to extract anything more than net $\beta \times X_1$ from the manager, therefore not participating in period 2 profits at all.

parent firm able to claim a fraction $0 < \alpha < 1$ of the continuation value and the manager therefore able to claim $(1 - \alpha)$ of it.

The banking market structure is as follows. There is a bank monopolist in the home market, which has an existing relationship with the above mentioned firm[8]. In the foreign market a large number of operating homogeneous banks is assumed, such that there is perfect competition between these banks leading to zero profits for them in equilibrium.

The domestic bank can differ from the foreign banks in terms of the ability to efficiently liquidate the firm's subsidiary if the loan is not paid back. Bank ex post liquidation value for the client firm's subsidiary is denoted L_d for the domestic bank and L_f for all foreign (local) banks[9].

Within this setting the domestic bank can decide on whether to set up a subsidiary abroad itself (follow its customer), or try to win the loan contract and extend the loan without such a physical presence abroad[10]. The difference between the two modes of loan provision will be potentially differing liquidation values the bank can achieve, which will be discussed in greater detail below. Finally, if the bank decides to follow its customer abroad it incurs small fixed costs of setting up an agency or other organizational structure of size F[11].

The structure of the model can be subsumed in the following figure.

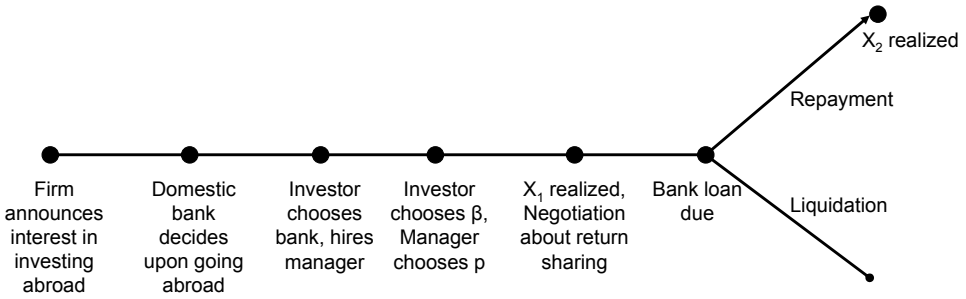
[8] Actually one would not need to assume only one bank being active in the home market, but from its existing relationship with the respective firm the bank analyzed might be able to act as a monopolist concerning this firm due to various reasons.

[9] As bank efficiency should be shaped by characteristics of its main market, the assumption, that banks stemming from the same country should, all else equal, be more similar to each other concerning efficiency than banks from other markets, seems reasonable.

[10] The latter simply means, that the bank finances a project abroad without establishing a local physical presence there, but does so by either actually giving the loan to the domestic parent firm, which then internally transfers the capital to its subsidiary, or by extending the loan to the subsidiary cross-border, where in the latter case the contract still must call for repayment by the parent firm only as well as excess liquidation value in case of failure falling back to the parent firm directly. Again this follows the implicit setup by Marin and Schnitzer (2006)[97].

[11] In the remaining paper these fixed costs will not be discussed explicitly, only functioning as a tiebreaker between loan provision modes when the bank is indifferent else.

Figure 4.1: Time Structure of the Model



4.2.1 Bank profit maximization under given liquidation value

In a first step the domestic banks profit maximization decision for a given liquidation value it can achieve is analyzed.

Two possible cases have to be distinguished, the case of a moderately cash-strapped firm and the case of a severely cash-strapped firm. From the perspective of the bank, the first case translates into a small loan (small K) compared to the total size of the investment project, whereas in the latter case the loan size would be large compared to the investment volume (large K). As the liquidation value should depend on the total size of the investment project, different relative $\frac{K}{L_i}$ result, which lead to completely different risk structures between these two types of firms from a bank's perspective.

The case of a moderately cash-strapped firm

Let us first consider the case of a relatively small loan, such that for all banks $L_i > K$, therefore bank i gets back at least the face value of the loan in all circumstances, even when the project fails. The expected profit for bank i is then

$$\pi_i = \widehat{p} D_i + (1 - \widehat{p}) min[L_i; D_i] - K \tag{4.1}$$

where $\widehat{p}$ is the expected success probability, equalling the effort level chosen by the manager in equilibrium, of the investment project, depending, as

we will see, on a bank's liquidation efficiency L_i.

Financing by a foreign (local) bank

As the local banks are symmetric concerning the liquidation value L_f they will demand the same repayment D_f in equilibrium[12]. As the liquidation value in this case of a small loan always suffices to repay at least the loan size, the project is riskless to all banks. Note also, that even in the case the liquidation value is very large ($L_i > D_i$), the bank will only be allowed to keep D_i and give the excess liquidation value ($L_i - D_i$) to the investing parent firm. Therefore the local banks will compete themselves down to demand a repayment of $D_f = K$, such that demanded repayment equals the size of the loan and these banks make zero profits in expectation[13].

In order to analyze the effort and monitoring choices inside the firm, which determine rents to be distributed, the problem is solved by backward induction.

If the project is not liquidated before, the project yields a payoff of X_2 in period 2. Due to the non-verifiability of the payoff, the manager can keep the whole payoff to himself. Also, there is no more control right the other stakeholders can use to give the manager an incentive to hand over part of this payoff ex post.

At the end of period 1, at the negotiation stage between parent firm and subsidiary manager, two possible cases are to be distinguished. If the project failed in period 1, yielding a return of 0, which happens with probability $(1 - p_i)$ no payoffs can be transferred from the manager to the parent firm. Therefore the loan can not be repaid to the bank by the parent firm and the bank will liquidate the foreign subsidiary. In this case the manager does not get any rent from the project and bears his effort costs of $C(p_i)$. The investing parent firm's payoff in this case is the excess liquidation value $(L_i - D_i)$ it gets from the bank minus its cost of monitoring $C(\beta_i) = \frac{1}{2}\beta_i^2$. Obviously, monitoring goes to waste, if the project is not successful. If however the project is successful in period 1, which happens with probability p_i, yielding a payoff of X_1, the manager can pay the investor part of period 2 payoffs accruing to him from his share of the first-period payoff, to prevent liquidation

[12]This symmetric equilibrium is a standard result in such a game of Bertrand Competition with perfectly symmetric firms.

[13]As $L_i > K$ it is straightforward that $D_i = K$ leads to zero profits in expectation. If any foreign bank would demand repayment $K + \epsilon$ another foreign bank could win the loan contract and make positive profits by e.g. demanding repayment $K + \frac{\epsilon}{2}$.

of the project by enabling the investor to repay the loan. If the negotiation is not successful, leading to liquidation of the subsidiary, the parent firm gets $\beta_i X_1 + (L_i - D_i) - \frac{1}{2}\beta_i^2$ and the manager's payoff is $(1-\beta_i)X_1 - \frac{1}{2}zp_i^2$. As effort and monitoring levels have already been chosen at the stage of negotiation, therefore also costs of effort and monitoring sunk at this stage, the negotiation-relevant outside option of the parent firm is therefore $(L_i - D_i)$ and 0 for the subsidiary manager, respectively. As continuation is assumed to be efficient we will have the firm and the manager getting their outside option plus their share of the continuation value via renegotiation[14].

Altogether the respective expected payoffs given financing via a foreign bank are then

$$E_I(f) = K + p_f[\beta_f X_1 + (L_f - D_f) + \alpha(X_2 - L_f)] + (1-p_f)[L_f - D_f] - \frac{1}{2}\beta_f^2 \quad (4.2)$$

for the parent firm and

$$E_M(f) = p_f[(1-\beta_f)X_1 + (1-\alpha)(X_2 - L_f)] - \frac{1}{2}zp_f^2 \quad (4.3)$$

for the subsidiary manager.

Foreign banks will compete themselves down to a required require repayment

$D_f = K$. Inserting for D_f into (3.2) then yields

[14]Note however, that two additional constraints have to be fulfilled to prevent inefficient liquidation. For one, the parent firm has to be able to extract enough repayment from the manager to be able to repay the loan, formally $\beta_i X_1 + (L_i - D_i) + \alpha(X_2 - L_i) \geq D_i$ or $\beta_i X_1 + \alpha X_2 + (1-\alpha)L_i \geq 2D_i$, which is fulfilled for the investment project being sufficiently profitable and parent firm bargaining power vis-a-vis its manager sufficiently high (note that with efficient continuation $X_2 > L_i$, so $\frac{\partial \alpha X_2 + (1-\alpha)L_i}{\partial \alpha} > 0$). Additionally, the manager's share of period 1 profits must be sufficiently high to be able to transfer the above payment to the parent firm, formally $(1-\beta)X_1 > (L_i - D_i) + \alpha(X_2 - L_i)$ or $D_i > (1-\alpha)L_i + \alpha X_2 - (1-\beta)X_1$. Note that the latter constraint does not present an upper bound to required repayment levels of banks! I assume both of these constraints to be fulfilled, because else the project would never be continued (if these constraints would not at least hold for one type of bank i). I check all upcoming results on whether they interfere with these constraints but only report when they do so. The implicit constraints will not play any role in the qualitative results but are just stated for the sake of completeness.

$$E_I(f) = p_f[\beta_f X_1 + L_f + \alpha(X_2 - L_f)] + (1 - p_f)L_f - \frac{1}{2}\beta_f^2 \qquad (4.4)$$

To find the equilibrium payoff for the parent firm one has to analyze the effort and monitoring choice of manager and parent firm respectively.

In appendix 1 the equilibrium effort level chosen by the manager under financing by a foreign (local) bank is derived.

$$p_f = \frac{X_1+(1-\alpha)(X_2-L_f)}{z+X_1^2}$$

which is larger zero if project continuation is efficient, and

$$\beta_f = \frac{X_1[X_1+(1-\alpha)(X_2-L_f)]}{z+X_1^2}$$

is the equilibrium monitoring level chosen by the parent firm[15].

The intuition behind the above effects of some right-hand side variables are quite obvious. $(1 - \alpha)$ denotes the bargaining power of the manager in negotiating sharing the second period payoff. The higher the manager's expected share in second period payoff, the higher is his willingness to spend effort, which leads to a higher probability of the project to continue into the second period. From the perspective of the parent firm, this leads to the choice of a higher monitoring level. The reason is that the investor firm can now take a large share of period 1 payoff for himself without harming the managers' incentive to spend effort too much, as the latter is sufficiently incentivised to do so by his high share of second period payoff when the project is continued[16]. Also, a higher continuation value, due to similar reasoning, induces the manager to spend more effort and the parent firm to

[15]Before discussing these intermediate results, one should note, that in the following the analysis for moderately cash-strapped firms (due to the structure of the analysis this restriction does not play a role for the analysis of severely cash-strapped firms) has to be restricted to levels of variables, such that $p_i < 1$ and $\beta_i < 1$,as neither profit shares nor probabilities can be allowed to exceed 100%. Evaluating the inequality at the equilibrium levels of the former variables, we can state this restriction e.g. via the definition of sufficient levels of effort cost parameter z. So the analysis is restricted to effort costs and project payoff characteristics such that

$z \geq Max[(1 - \alpha)(X_2 - L_i)X_1; X_1(1 - X_1) + (1 - \alpha)(X_2 - L_i)]$.

[16]In absolute terms β_f is still restricted, as the manager must still have sufficient liquidity $(1 - \beta_f)X_1$ to induce the parent firm to not let the project get liquidated by the bank.

monitor more. A higher "'marginal"' effort cost z leads both the manager to spend less effort and the parent to monitor less. Whereas the former is obvious, the latter stems from the fact that, with higher effort costs, the parent firm would destroy effort incentives of the manager too much by taking away too large a share of first-period profits.

Financing by the domestic bank

The domestic bank is allowed to generally differ from the local foreign banks by the liquidation value L_d it is able to generate. As the payoff of the parent firm, who chooses the bank it wants to work with, positively depends on the equilibrium monitoring and effort level β_i and p_i, parent firm payoff directly and indirectly depends on the liquidation value of the bank used in financing. Intuitively a higher liquidation value increases the expected payoff of the parent firm when the project fails in the first period, due to a higher excess liquidation value falling back to the parent firm, and also enhances the parent firm's position in bargaining over second period profits. Additionally, a higher liquidation value however reduces the effort the manager will spend for the project, as the outside option of the parent firm in bargaining over second period payoffs increases, leaving less payoff of continuing for the manager in expectation.

As the domestic bank can have a liquidation value differing from the local foreign banks it might be able to demand a higher loan repayment, therefore generating positive profits for the bank. For this bank it need not be true that $D_d = K$.

The expected payoff of the parent firm under financing by a domestic bank is

$$E_I(d) = p_d[\beta_d X_1 + (L_d - D_d) + \alpha(X_2 - L_d)] + (1 - p_d)(L_d - D_d) + K - \frac{1}{2}\beta_d^2 \quad (4.5)$$

which reduces to

$$E_I(d) = p_d[\beta_d X_1 + \alpha(X_2 - L_d)] + (L_d - D_d) + K - \frac{1}{2}\beta_d^2 \quad (4.6)$$

and the expected payoff of the manager is

$$E_M(d) = p_d[(1 - \beta_d)X_1 + (1 - \alpha)(X_2 - L_d)] - \frac{1}{2}zp_d^2 \quad (4.7)$$

The payoff maximizing effort and monitoring levels are of identical structure to the case of financing by a local foreign bank, the only difference being the different liquidation values, formally:

$$p_d = \frac{X_1+(1-\alpha)(X_2-L_d)}{z+X_1^2}$$

and

$$\beta_d = \frac{X_1[X_1+(1-\alpha)(X_2-L_d)]}{z+X_1^2}$$

Note that β_d and p_d are (negatively) depending on the respective banks' liquidation efficiency[17], but not on the size of repayment demanded by the domestic bank.

The optimal choice of the repayment size for the domestic bank

One can now derive what the optimal and feasible repayment for the domestic bank looks like. As the size of repayment D_d does not influence the equilibrium effort and monitoring level, it is true that the optimal demanded repayment D_d equals the maximum feasible (contract-winning) repayment $\overline{D}$. When choosing the level of required repayment the domestic bank has to take into account that, if it requires too large a repayment, the parent firm will instead choose financing by a local bank. So the domestic bank has to choose D_d such that it leaves the parent firm with its outside option, which is the expected payoff for the latter when financing the FDI project via a local bank. Therefore the maximum feasible required repayment $\overline{D}$ can be derived from the condition under which the parent firm is indifferent between using the domestic or a local bank, formally

$$\begin{gathered} p_d[\beta_d X_1 + \alpha(X_2 - L_d)] + (L_d - \overline{D}) + K - \tfrac{1}{2}\beta_d^2 \\ = \\ p_f[\beta_f X_1 + \alpha(X_2 - L_f)] + L_f - \tfrac{1}{2}\beta_f^2 \end{gathered}$$

Solving the indifference condition for $\overline{D}$ yields

$$\overline{D} =$$

$$\underbrace{p_d[\beta_d X_1 + \alpha(X_2 - L_d)] - p_f[\beta_f X_1 + \alpha(X_2 - L_f)]}_{I} + \underbrace{(L_d - L_f)}_{II} - \underbrace{\frac{1}{2}(\beta_d^2 - \beta_f^2)}_{III} + K \tag{4.8}$$

[17] One can easily see that both β_d and p_d negatively depend on L_d, as $\frac{\partial \beta_d}{\partial L_d} = -\frac{(1-\alpha)X_1}{z+X_1^2} < 0$ and $\frac{\partial p_d}{\partial L_d} = -\frac{1-\alpha}{z+X_1^2} < 0$.

The first part (I) of the RHS captures the effort and repayment effect of choosing a domestic instead of a local foreign bank. The second part (II) captures the direct effect of excess liquidation value when choosing a domestic over a foreign bank. The third part (III) shows the effect on monitoring costs, due to different equilibrium monitoring levels chosen by the firm, for different bank types.

Obviously if the domestic bank generates the same liquidation value as the local banks, it can at the maximum require a repayment that leads to zero profits for the bank in expectations $\overline{D} = K$[18].

As I later want to discuss the choice of the domestic bank between following its customer or not, which will affect the liquidation efficiency L_d of the bank, one first has to understand how the maximum requirable repayment for the bank depends on its liquidation value[19].

Differentiating $\overline{D}$ with respect to L_d, as is done in appendix 2, one finds

$$\frac{d\overline{D}}{dL_d} = 1 - \Omega \tag{4.9}$$

with $\Omega = p_d\alpha - \frac{\partial p_d}{\partial L_d}[\beta_d X_1 + \alpha(X_2 - L_d)]$

Intuitively, the maximum repayment premium $\overline{D} - D_f$ over foreign banks the domestic bank can demand equals the investing firm's willingness to pay for the domestic bank's different liquidation efficiency. The firm in general looks for a bank generating a relatively high liquidation value if the resulting benefit of excess liquidation value and an induced higher feasible share in payoffs exceeds the disadvantage of reducing the manager's incentive to spend effort. This is the case if $\Omega < 1$. If the higher liquidation value reduces the manager's effort too much, the parent firm would rather like to work with a bank that achieves a relatively lower liquidation value. This is the case if $\Omega > 1$.

[18]This can be checked easily: If $L_d = L_f$, then β_i and p_i are also the same for both types of banks. The equation boils down to $\overline{D} = K = D_f$.

[19]The constraint that the parent firm has to get a transfer sufficiently high to be able to pay back the firm could potentially be binding here, however only in a quantitative way and only in the case of very large differences in the liquidation efficiency of the domestic bank and its foreign competitors. Qualitatively, given the assumption, that the liquidity constraint holds for zero-profit making banks requiring D_f, the constraint tendentially also holds for $\overline{D} = D_f + \epsilon$. The constraint that the manager has sufficient funds from period 1 profits to transfer back to the parent firm can be neglected here, as, as seen above, this constraint just adds a lower bound to the required repayment D_d.

Technically, the effect of the liquidation value on the effort problem is captured by $\frac{\partial p_d}{\partial L_d} < 0$. The larger this negative effect of a high liquidation value L_d on the manager's effort level p_d, the larger (positive) $-\frac{\partial p_d}{\partial L_d}[\beta_d X_1 + \alpha(X_2 - L_d)] > 0$ and therefore the larger Omega. So $\Omega < 1$ becomes less likely and therefore it is more likely that the firm will prefer a bank with low liquidation value.

What is going to be the situation in the market for this loan?

If the effort problem is sufficiently small, the parent firm has a positive willingness to pay for a higher liquidation efficiency of a bank. Therefore the domestic bank can win the loan contract with a demanded repayment of $\overline{D} > K$ and make positive expected profits, if it can generate a higher liquidation value $L_d > L_f$ from the investment project than the local banks. If, in that case, the domestic bank generates a lower liquidation value than the local banks $K < L_d < L_f$, it could only charge $\overline{D} = D_f = K$ at the maximum, which would lead to zero profits for the bank, whether the contract is won or not (where the domestic bank will straightforwardly not win the contract.).

If however the parent firm, due to the effort problem faced, has a positive willingness to pay for a lower liquidation efficiency, the domestic bank wins the contract and makes positive profits ($\overline{D} > K$), only if it creates liquidation value lower than the local foreign banks. With higher or equal liquidation efficiency the domestic bank will make zero profits[20].

Next up the case of a firm that needs to take up a large loan relative to the size of the investment project is discussed.

The case of a severely cash-strapped firm

The difference between this and the former case is, that the size of the loan K the firm has to take up to finance the project compared to project size is now so large that $K > L_i$, so the liquidation value of the complete project for any bank does not cover the loan. Therefore, from the perspective of the banks, the loan is risky now. In case of a project failure the bank will make a loss $K - L_i$. As all banks will only be willing to supply the loan if expected profit is non-negative, they will all ask for a repayment $D_i > K$ to make positive ex post profits in the case the project is successful.

[20]Note, that the discussion is restricted to cases where all banks have sufficiently high immanent liquidation efficiency, such that $L_i > K$ holds true.

Again the expected profit of the bank is $\pi_i = \widehat{p}D_i + (1-\widehat{p})L_i - K$.

The payoffs for parent firm and subsidiary manager can intuitively be derived again. We will immediately see the difference to the small loan case. If the project fails, it is again liquidated by the loan providing bank. As $L_i < K$ there is no excess liquidation value left for the parent firm. So its payoff in this case is now 0. If the project is successful, the outside option of the investing firm in bargaining with the manager is 0 and the continuation value is now $(X_2 - D_i)$.

The expected payoff of the investing parent firm in general therefore is now

$$E_I = K + p_i[\beta_i X_1 + \alpha(X_2 - D_i)] + (1-p_i)0 - \frac{1}{2}\beta_i^2 \tag{4.10}$$

and the expected payoff of the manager is

$$E_M = p_i[(1-\beta_i)X_1 + (1-\alpha)(X_2 - D_i)] - \frac{1}{2}zp_i^2 \tag{4.11}$$

One again needs to check for the maximum repayment that can be demanded by the domestic bank. In this case, the analysis is very straightforward.

Financing by a foreign (local) bank

As local banks are symmetric, they will again compete themselves down to zero profits in expectations, so the demanded repayment D_f is

$$D_f = \frac{1}{p_f}[K - (1-p_f)L_f] \tag{4.12}$$

The payoff of the parent firm when choosing a local bank is now

$$E_I(f) = K + p_f[\beta_f X_1 + \alpha(X_2 - D_f)] - \tfrac{1}{2}\beta_f^2$$

One can again I derive equilibrium effort and monitoring levels (see appendix 3)

$$p_f = \tfrac{X_1 + (1-\alpha)(X_2 - D_f)}{z + X_1^2}$$

and

$$\beta_f = \tfrac{X_1[X_1 + (1-\alpha)(X_2 - D_f)]}{z + X_1^2}$$

Note that the equilibrium effort and monitoring level are now directly negatively depending on the demanded repayment of the respective loan-providing bank.

Financing by the domestic bank

It is straightforward that under financing by the domestic banks expected parent firm payoff, effort and monitoring levels respectively, are simply

$$E_I(d) = K + p_d[\beta_d X_1 + \alpha(X_2 - D_d)] - \tfrac{1}{2}\beta_d^2$$

with

$$p_d = \tfrac{X_1+(1-\alpha)(X_2-D_d)}{z+X_1^2}$$

and

$$\beta_d = \tfrac{X_1[X_1+(1-\alpha)(X_2-D_d)]}{z+X_1^2}$$

The optimal choice of the repayment size for the domestic bank

As $\frac{\partial p_i}{\partial D_i} < 0$ and $\frac{\partial \beta_i}{\partial D_i} < 0$ it is obvious that the payoff of the parent firm is strictly decreasing in the demanded repayment D_i irrespective of a bank's liquidation efficiency.

Therefore the maximum repayment the domestic bank can demand equals the demanded repayment of local foreign banks $\overline{D} = D_f$.

As the local foreign banks compete themselves down to zero profits, $\overline{D} = D_f = \frac{1}{p_f}[K - (1 - p_f)L_f]$ is such that the domestic bank would make zero profits in expectations, if it generates liquidation value $L_d = L_f$, as expected profit of the domestic bank then is

$$p_d D_d + (1 - p_d)L_d - K = p_f D_f + (1 - p_f)L_f - K = 0$$

Therefore the domestic bank would make negative profits if it generates liquidation value lower than the local foreign banks. In that case the domestic bank, in order to break even, would have to demand a larger repayment than feasible $D_d > D_f = \overline{D}$, therefore not winning the loan contract. If it generates higher liquidation value it can demand repayment $D_d = D_f$ and make positive expected profits from winning the loan contract as $(1-p)L_d > (1-p)L_f$.

The results of subsection 2.1 can be subsumed by the following Lemma that can be used in advance.

Lemma 1

The domestic bank will choose the liquidation value-maximizing loan provision mode, if its client is severely cash-strapped or moderately cash-strapped without facing too large a problem of incentivising its subsidiary manager to spend effort ($\Omega < 1$). If the bank's client is moderately cash-strapped and faces a very large effort problem by its manager ($\Omega > 1$), the bank will choose the liquidation value-miminizing loan provision mode, however restricted to $L_d > K$.

4.2.2 Loan provision mode choice and endogenous liquidation value

I now want to discuss, what the liquidation value of the domestic bank might look like, depending on how the bank provides the loan and where it therefore liquidates the project assets.

For starters, the "'basic bank-inherent liquidation value"' of the project is discussed. As the domestic bank already has an existing relationship with the respective firm, all else equal, due to the bank already having extended loans to the firm and therefore possibly having generated information about potential asset takers in the industry in the home country, the domestic bank should have a higher "'inherent liquidation"' efficiency in the home country than the local foreign banks in the foreign country, formally $L_d^0 > L_f^0$.

Let us assume that the domestic bank can not sell the liquidated project assets in the foreign market, if it has no physical presence in this country, as it can not find potential takers in this market[21]. Therefore, if the bank wants to provide the loan from its home office, it has to transfer the liquidated assets back to its home market, where it has knowledge about potential takers of the assets. However, the bank occurs transportation costs by shipping the asset cross-border, such that only a fraction of the value $L_d = (1-t)L_d^0$ arrives in the home country, with $0 < t < 1$.

If the domestic bank follows the customer abroad, establishing a physical presence, it is assumed, that the domestic bank does get to know about potential asset takers in the foreign market aided by its general industry knowledge. However, it does not have as good an idea about potential de-

[21]This rather strict assumption is made for simplicity only. As long as it holds true, that liquidation in a market can be done more efficiently if the respective bank has a physical presence, and therefore e.g. managers that can locally screen the market for asset-takers, the following qualitative results hold true.

mand in the foreign market compared to the home market only generating $L_d = \phi L_d^0$ with $0 < \phi < 1$ when selling the asset abroad.ϕ can be interpreted as a proxy for the local information requirement to find the asset-taker with the highest willingness to pay for the liquidated assets.

The domestic bank's liquidation value of the project is therefore maximized by following its customer, establishing a physical presence abroad, if

$$\phi L_d^0 > (1-t)L_d^0 \text{ or } \phi > (1-t)$$

If $\phi < (1-t)$, the liquidation value is maximized by shipping liquidated assets back home. Therefore the maximum attainable liquidation value is independent of the bank following its customer or not, as the advantage of being present in the local market is not made use of in equilibrium.

Lemma 2

The domestic bank's liquidation value for the project is maximized by establishing a physical presence abroad, if transport costs t of repatriating the physical assets to be liquidated are high relative to the bank's disadvantage when selling the assets in the local market ($\phi > (1-t)$). If $\phi > (1-t)$ the maximum liquidation value achievable by the bank is independent of its loan provision mode choice.

This result does not add too much to a discussion about bank's contingent liquidation efficiencies, compared to the exogenous assumptions about liquidation values made by Marin and Schnitzer (2006). Rather the above setup just acts as a starting point for the further analysis.

Let us now discuss a further interesting endogenization of the transport costs of shipping assets abroad from a political (foreign government) perspective.

Retaining "'local"' assets: Political interference in cross-border asset transfer

Assume now that the project assets include human capital. Imagine the assets of the project that are liquidated to be for example high-tech production machinery lines. Therefore an amount of human capital H_{FDI} is asset-embedded. This notion is not wide-spread in the theoretical literature yet, but a closer look at the intuition shows this concept makes sense. Consider a subsidiary which operates an assembly line. It buys the single machines for

the line. However, to make the line work efficiently the engineering production manager has to align the machinery properly and specify them, so they operate together in an optimal way. By doing so the engineering production manager leverages his human capital onto the physical assembly line. Even if this engineer now is strapped from these assets, part of his human capital in form of his specification/alignment skills are still present in the physical assembly line. When a bank after liquidation decides to transfer these assets back home, therefore the total stock of human capital in the foreign economy decreases by this level.

Foreign's economy-wide production function is assumed to be of the simple form

$$Y = H^{\sigma} K^{1-\sigma} = (H_{FDI} + H_0)^{\sigma} K^{1-\sigma} \tag{4.13}$$

where H_0 is foreign's own endowment in human capital, H_{FDI} is the human capital stock embedded in the assets of the discussed FDI project, and K is the country's capital stock[22].

Assume now that the foreign government can restrict physical asset-transfer out of the country such that a fraction tL_d^0 and therefore tH_{FDI} can be kept in the country. The government can actively choose t by defining physical asset export restrictions. However, if the government does so, it faces costs of $C(t) = \gamma t$, for example because it has to invest in border patrols, or more generally because it looses reputation among potential following foreign investors, or due to other reciprocal actions by other governments.

We assume that the government's objective is simply to maximize gross domestic product Y[23] over t, taking the costs of implementing t into consid-

[22]Let us abstract from the fact that FDI also increases the capital in the country as it does not yield additional insight, and taking this into account could also interfere with the analysis of whether the subsidiary manager can, from a political point of view, actually transfer period 1 profits back to the mother company. Alternatively, one could distinguish between portfolio capital (profit streams) and physical capital (liquidated assets), such that the host country government would be able to block transfers of physical capital, but not of portfolio capital. This assumption would also be absolutely sensible, when you think about trying to smuggle a suitcase across border, compared to trying to smuggle an assortment of large machines across border. In this case the following results on human capital scarcity in the FDI host country would just as well apply to capital scarcity of this country.

[23]This objective function of the government could e.g. be rationalized if the government levies a withholding tax on all value-added in the economy. In this case, tax income, all

eration. So the government maximizes over t

$$Y = (tH_{FDI} + H_0)^{\sigma} K^{1-\sigma} - C(t) \tag{4.14}$$

As shown in appendix 4 the optimal asset export restriction t then is

$$t^* = \frac{(\frac{\gamma}{\sigma K^{1-\sigma} H_{FDI}})^{\frac{1}{\sigma-1}} - H_0}{H_{FDI}} \tag{4.15}$$

The simple point to be made is, that $\frac{dt^*}{dH_0} = -\frac{1}{H_{FDI}} < 0$, so that due to decreasing marginal productivity of human capital a country with a low human capital endowment will be less permissive concerning asset-repatriation than a country with high human capital endowment.

So another intermediate result can be stated.

Lemma 3

"'Transport costs"' for repatriation of project assets from the FDI host country to the (parent firm and bank) home country will be larger, the lower the endowment of the host country in human capital.

So, taking into account Lemma 2, the domestic bank's liquidation value of the project is maximized by following its customer, establishing a physical presence abroad, if the host country is endowed with little human capital, such that $(1 - t^*(H_0))L_d^0 < \phi L_d^0$. In this case the bank attains maximum liquidation value by selling the assets in the host country market. If the respective target country for the firm investment is richly endowed with human capital, such that $(1 - t^*(H_0))L_d^0 > \phi L_d^0$ the domestic bank's ex post liquidation value is maximized by shipping the assets cross-border and sell them in the home market. The threshold value for the human capital endowment in this evaluation is

$$\underline{H}_0 = (\frac{\gamma}{\sigma K^{1-\sigma} H_{FDI}})^{\frac{1}{\sigma-1}} - (1 - \phi)H_{FDI} \tag{4.16}$$

4.2.3 When do banks follow their customer abroad?

Having derived the qualitative optimal liquidation value to be implemented by a domestic bank, as well as the partially endogenized relationship between type of loan provision and respective liquidation value for the domestic bank, these results can now be combined to discuss when a domestic bank should

else equal, would be maximized by a maximization of country GDP.

follow its customer abroad[24]. Fixed costs of entry only act as a tiebreaker in the model if, concerning the liquidation value, the bank is indifferent whether to follow the customer or provide the loan without a physical presence abroad.

The below results directly follow from the previous analysis. For starters, the general structure of the bank decision to follow its customer abroad or not depends on whether the respective loan project favours banks with high or low achieved liquidation values, and how these liquidation values are shaped by the bank's decision to engage in FYC foreign direct investment itself or not. If a maximized liquidation value is profit-maximizing for the bank, it will choose the provision mode that maximizes the liquidation value it can generate. If a (relatively) low liquidation value is profit-maximizing, the bank will choose the loan provision mode that leads to the lowest liquidation value it can generate. Additionally, the relative liquidation value for the domestic bank, compared to the characteristics of local foreign banks, determines whether the loan contract can be won by the domestic bank.

For the latter consideration, two other following threshold levels play a role in the analysis, namely the threshold level for human capital endowment $\overline{H}_0$, such that the liquidation value for the domestic bank, when selling the liquidated asset in its home market, equals the liquidation value for the local foreign banks, formally $(1-t^*(\overline{H}_0))L_d^0 = L_f^0$, and $\overline{\phi}$, such that the liquidation value for the domestic bank when selling the liquidated asset in the host country equals the liquidation value for the local foreign banks, formally $\overline{\phi}L_d^0 = L_f^0$.

Solving for the respective threshold levels yields

$$\overline{H}_0 = (\frac{\gamma}{\sigma K^{1-\sigma} H_{FDI}})^{\frac{1}{\sigma-1}} - (1 - \frac{L_f^0}{L_d^0})H_{FDI} \tag{4.17}$$

and

$$\overline{\phi} = \frac{L_f^0}{L_d^0} \tag{4.18}$$

Taking above results and Lemmas 1-3 together, and taking into account the fixed costs of establishing a physical presence abroad as a tie-breaker, the following final summarizing proposition can be made[25].

[24]I focus on the "'political"' interpretation of cross-border transport costs for assets. Of course, one could just as well discuss results when having t depending on geographical distance.

[25]It is implicitly assumed that, even when the foreign government blocks away a relatively large portion in a cross-border asset flow, the loan for a moderately cash-strapped

Proposition

The domestic bank will follow its customer abroad, establishing a physical presence in the foreign market, and provide the loan to the firm if

a) its customer is either severely cash-strapped ($K > L_i$) or moderately cash-strapped ($K < L_i$),while facing a not too large effort problem of the subsidiary manager ($\Omega < 1$), and the target country for the firm's investment is poorly endowed with human capital ($H_0 < \underline{H}_0$). Additionally the domestic bank must not face too high an informational disadvantage in finding local asset-takers, formally $\phi > \overline{\phi}$.

b) its customer is moderately cash-strapped ($K < L_i$),the firm faces a large effort problem for the subsidiary manager ($\Omega > 1$), and the host country is richly endowed with human capital ($H_0 > \underline{H}_0$). Additionally the domestic bank must face a relatively high informational disadvantage in finding local asset-takers, formally $K < \phi L_d^0 < L_f^0$.

The domestic bank will supply the loan to its customer without a physical presence in the subsidiary's host market if

c) its customer is either severely cash-strapped or moderately cash-strapped, while facing a small effort problem, and the host country is richly endowed with human capital ($(1 - t(H_0))L_d^0 > max[\phi L_d^0; L_f^0]$).

d) its customer is moderately cash-strapped while facing a large effort problem, and the host country is relatively poorly endowed with human capital ($K < (1 - t(H_0))L_d^0 < min[\phi L_d^0; L_f^0]$).

The domestic bank will not supply the loan to its customer, leaving the provision to a local foreign bank if

e) its customer is either severely cash-strapped or moderately cash-strapped, while facing a small effort problem, the host country is poorly endowed with human capital and the local information disadvantage for selling assets in the host market is high for the domestic bank ($L_f^0 > max[(1 - t(H_0))L_d^0; \phi L_d^0]$).

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firm stays non-risky for the domestic bank. This simply restricts the cases to be analyzed, not changing the general qualitative following results. Allowing t to change the risk type of a loan from a non-risky to a risky loan would simply add the result, that the lower the human capital endowment of a host country, the more likely the FDI project is risky from the point of view of the banks. Then unambiguously the optimal strategy of the domestic bank is to follow its customer abroad, if this bank is able to overcome the informational disadvantage of selling the potentially liquidated assets in the host country. This finding simply reinforces the notion that a domestic bank's physical presence in the FDI host country maximizes its liquidation efficiency on its client's assets, if the host country is characterized by human capital scarcity.

f) its customer is moderately cash-strapped, while facing a large effort problem, the host country is relatively richly endowed with human capital and the local information disadvantage for selling assets in the host market is low for the domestic bank ($K < L_f^0 < min[(1 - t(H_0))L_d^0; \phi L_d^0]$).

Concerning cases where liquidation value should be minimized by the domestic bank two remarks have to be made. For one, these cases are restricted to moderately cash-strapped firms ($K < L_i$), so e.g. minimizing liquidation value by selling assets abroad without a physical presence is ruled out ($L_d = 0$). The domestic bank only wants to reduce liquidation value to the lower bound $\underline{L}_d = K$ in these cases. Below this threshold level the project would be ex post (after choosing the provisioning mode) risky, which changes the objectives of the bank.

Additionally it is straightforward that, down to this threshold level $\underline{L}_d$, it is not ex post inefficient for the bank to liquidate the assets in the lowest value-yielding way, as ex post all excess liquidation value ($L_d - K$) is transferred to the client firm.

To sum up, in general the loan provision mode choice of the domestic bank can be mapped by the type of client (Ω, K), the type of host country (H_0, ϕ, L_f^0), and bank-specific characteristics L_d^0.

The two following illustrations summarize the qualitative provision mode outcomes, showing the equilibrium provisioning outcomes given client firm and country/market characteristics.

Figure 4.2: Equilibrium Bank Strategies - The Case of Severely Cash-Strapped or Moderately Cash-Strapped/Small Effort Problem Firms

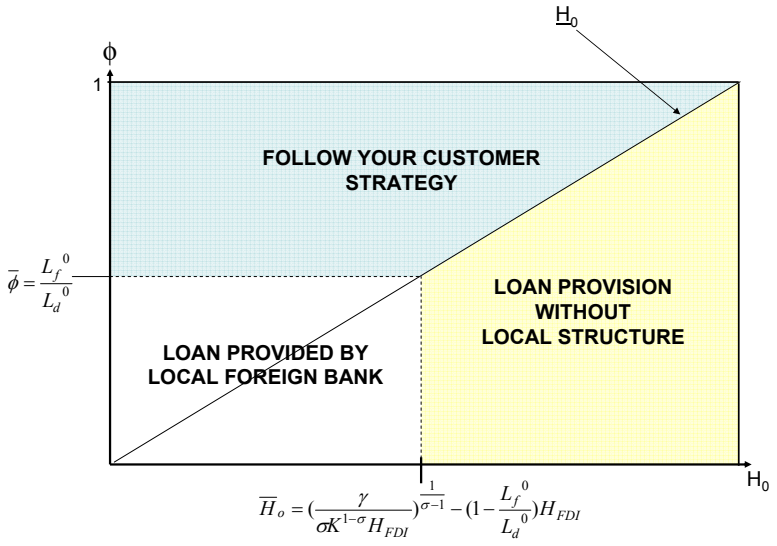
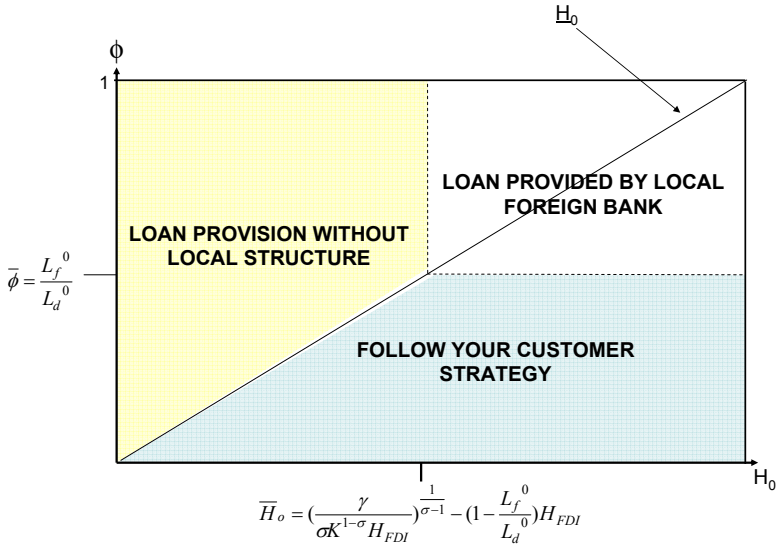


Figure 4.3: Equilibrium Bank Strategies - The Case of Moderately Cash-Strapped Firms with a Large Effort Problem



Basically the optimal provision mode (Follow your customer FDI versus staying at home) of the domestic bank is a non-unique function of the

provision mode-specific liquidation value attainable. The optimal and the liquidation value-maximizing provision mode are identical in two out of three project/firm-characteristics cases. However, in the case of a moderately cash-strapped firm facing a severe effort problem concerning the manager, this result does not hold true. The liquidation-value maximizing mode is shown to be a function of country-specific characteristics.

So, for the majority of cases discussed, the domestic bank will follow its customer abroad if the latter enters a country relatively poorly endowed with human capital.

4.3 Conclusion

I proposed a model yielding insight into the decision of banks to enter a foreign market physically to follow an existing customer abroad or to serve this customer from home.

The building stone for the analysis is the paper by Marin and Schnitzer (2006)[97], who discuss the choice of financing mode for an investor/parent firm engaging into foreign direct investment, taking into account a double moral hazard problem on the side of the host country subsidiary manager concerning effort and repayment. Building on their model, the possibility of profit-making domestic banks, having the choice to follow their customer abroad, has been added, as well as, in a stylized way, an endogenous provision mode-dependent arising difference in this bank's liquidation efficiency. The former remodelling is done to bring in a dimension of general strategic choice for banks to be analyzed, while the latter uses a simple "'political"' story to specify the effect of host country characteristics on bank follow your customer FDI.

Through these additions to the model I am able to discuss bank-,

project/firm- as well as country specific determinants of whether a bank follows its customer abroad or not.

It is first shown that banks unambiguously choose the liquidation-value maximizing strategy if the respective customer is severely cash-strapped, making the loan risky from the perspective of banks. Then the liquidation-value maximizing strategy given country characteristics is described.

I find that, in this case, follow-your customer induced bank FDI tendentially takes place if the host country is poorly endowed with human capital. Principally it could also be shown, that follow your customer FDI takes place if home and host country are distant from each other (high t exogenously) or, in a slightly twisted setup, if the host country is poorly endowed with

capital. Additionally the client-following bank must have a sufficiently high immanent liquidation advantage over local foreign banks to overcome its informational disadvantage ($\phi < 1$) in the local market, or stated in another way, this informational disadvantage must not be too high.

As could be expected from the basic model by Marin and Schnitzer (2006)[97], the bank will not necessarily choose the liquidation value-maximizing provision mode, if the respective customer is only moderately cash-strapped, such that its FDI project can be considered non-risky from a bank's perspective.

The intuitive difference to the former case, from the point of view of banks, is, that an increased liquidation value does not directly affect bank profits. Ex post, the loan providing bank will always get K if the financed multinational firm subsidiary fails, if the loan is small compared to the size of the project and its assets. Therefore the liquidation value only indirectly determines the maximum repayment that a bank can require in case of a successful project outcome, as well as whether the bank can actually win the loan contract without making negative expected profits.

In this case one additionally needs to distinguish between firms that, due to the exogenous relative bargaining power of parent firm and subsidiary manager, the structure of effort costs for the subsidiary manager and payoff characteristics of the project, face a high or low problem in implementing sufficient effort spent by the manager.

In the subcase of a small effort problem the domestic bank will choose the liquidation value-maximizing provision mode, but not so if the effort problem of its customer is large. In the latter subcase, the bank will choose the liquidation value-minimizing mode (restricted to $L_d > K$), as in this case the negative effect of a high liquidation value on the manager's effort outweighs the positive effects on excess liquidation value and on the fraction of profits transferred from the manager to the parent firm.

I think the analysis helps understand what might be deemed to be a small puzzle of follow your customer FDI by banks. Considering the banking sector, there does not seem to be a sufficiently satisfying reason why banks should follow their customers abroad to extend loans to them and not simply provide the loan cross-border (directly or indirectly) from home, as "'transport costs"' in the classical sense do not really seem to apply to such cross-border transactions. Also, considering the literature on multinational banking, which discusses information asymmetries between local and potential entrant banks (e.g. Dell'Arricia, Friedman and Marquez (1999)[47], Dell'Arricia and Marquez (2004)[48]) and how to solve the problem of informational disadvantages by physically entering the market compared to

cross-border lending (e.g. Lehner (2007)[92]), such considerations should only play a minor role in supplying a loan to a customer the respective bank already has an existing loan relationship with, therefore already possessing knowledge about the firm.

Follow your customer-behaviour by banks here is explained by the incentive to alter the liquidation efficiency of the respective bank on a customer project abroad in a profit-enhancing way. One argument in this reasoning is, that even though transport costs should not play a large role in the provisioning of loans directly, they do play a role in the loan provision mode decision when it comes to the liquidation of assets, if these assets are of physical nature, e.g. an assembly line or similar machinery. Transport costs in various forms might then occur when shipping these assets to the market where they generate the highest market value for the liquidating bank.

Introducing country characteristics in the model might help explain why we observe bank foreign direct investment in countries that at first sight do not seem to be too attractive for market-seeking bank FDI. Indeed, as shown in the introduction of this thesis, bank foreign direct investment in developing countries has increased significantly over the last decade. In the proposed model, underdeveloped countries with low human capital endowment would attract follow your customer-induced bank FDI following some real sector investment projects.

One could however argue, that these countries should also tendentially not be likely targets for horizontal real sector FDI. But if these countries e.g. are attractive targets for outsourcing, they do attract vertical real sector FDI. Within my story, these FDI projects would then yield an incentive for banks to engage in follow your customer bank FDI in this country themselves, if the respective real sector firms would (weakly)[26] prefer to finance the project with a "'high liquidation efficiency"' bank type.

Another implicit result, that is not openly discussed in this paper, stemming from the model structure, is, that a parent firm starting up a subsidiary abroad would always demand to be the only party allowed to repay the loan. If the subsidiary manager itself would be allowed to repay the loan, the parent firm would never be able to extract more than D from the manager, because the latter could else simply repay D to the bank himself to prevent liquidation of the project. In contrast, with exogenous bargaining power, the parent firm could extract more than repayment $R > D$ if it can threaten to break off renegotiation resulting in the liquidation of the project.

[26]In the case of a severely cash-strapped firm, the firm is really indifferent between banks concerning their liquidation value.

Introducing follow your customer strategies in this model world also sheds some light on the discussion of Marin and Schnitzer (2006)[97]. By introducing cases where debt financing would be conducted by local banks, they discuss settings in which Foreign Direct Investment by firms does not constitute a capital flow into the respective host country. They also show empirically that the financing of inward FDI by local banks is a significant source of financing for entering firms.

However, in their model, they do not allow for bank FDI. Empirically, their dataset unfortunately restricts them to discuss ex post-local banks, so that they can not distinguish between local foreign banks and local subsidiaries of banks from other countries.

The above theory suggests, that a significant part of these local inward FDI financiers might actually be subsidiaries of entrant firms' home country banks. If these subsidiaries primarily refinance themselves from home country deposits and/or other domestic sources of finance, real sector FDI financed by these subsidiaries, even when the former does not constitute a direct capital flow, leads to an indirect capital flow via the bank structure. So, even though in a strict sense, indeed some FDI projects would not constitute a direct capital flow, they still might lead to capital flows via local bank subsidiaries of home country banks financing these projects.

The proposed model yields a variety of testable hypotheses. However, numerous obstacles for empirical testing of the model exist. For one, bilateral in-depth bank-firm data for each loan project involving a multinational firm subsidiary is needed to observe the pattern of bank provision mode for different firm-/project characteristics. Even country characteristics can not be discussed without information about firm characteristics, due to the interaction of both types of characteristics.

Also, concerning the discussion of country characteristics on the level of bank foreign direct investment, one would need explicit information about whether an observed bank foreign direct investment project is motivated by follow your customer-considerations, or whether the project is conducted for local market-seeking reasons. In the latter case, one would expect a positive influence of the level of host country development on the total volume of bank FDI inflows, whereas in the above follow your customer-story the effect works in the opposite direction.

As I at this time do not have access to such a data set, empirical testing of the proposed theory has to be left to future research.

APPENDIX

Appendix 1: Equilibrium effort and monitoring levels in case of small loan and financing by a local bank

The parent firm maximizes its expected payoff E_I over the choice of the monitoring level β given the financing is conducted by a local foreign bank.

$$Max_{\beta} E_I = p_f[\beta_f X_1 + L_f + \alpha(X_2 - L_f)] + (1 - p^f)L_f - \tfrac{1}{2}\beta_f^2$$

Simultaneously the subsidiary manager maximizes his expected payoff E_M over the choice of effort level p given the financing is conducted by a local foreign bank.

$$Max_{p_f} E_M = p_f[(1 - \beta_f)X_1 + (1 - \alpha)(X_2 - L_f)] - \tfrac{1}{2} z p_f^2$$

The reaction functions for the parent firm and manager respectively are

$$\beta_f = p_f X_1 \text{ and } p_f = \tfrac{(1-\beta_f)X_1 + (1-\alpha)(X_2 - L_f)}{z}$$

Inserting reaction functions into each other then yields

$$p_f = \tfrac{X_1 + (1-\alpha)(X_2 - L_f)}{z + X_1^2}$$

and

$$\beta_f = \tfrac{X_1[X_1 + (1-\alpha)(X_2 - L_f)]}{z + X_1^2}$$

Appendix 2: Maximum feasible required repayment $\overline{D}$ and bank's liquidation value

I start with the equilibrium maximum feasible required repayment $\overline{D}$, which is

$$\overline{D} = p_d[\beta_d X_1 + \alpha(X_2 - L_d)] - p_f[\beta_f X_1 + \alpha(X_2 - L_f)] + (L_d - L_f) - \tfrac{1}{2}(\beta_d^2 - \beta_f^2) + K$$

The derivative $\frac{\partial \overline{D}}{\partial L_d}$ is then

$$\tfrac{\partial \overline{D}}{\partial L_d} = 1 - \alpha p_d + \tfrac{\partial p_d}{\partial L_d}[\beta_d X_1 + \alpha(X_2 - L_d)] + \tfrac{\partial \beta_d}{\partial L_d}[p_d X_1 - \beta_d]$$

As we know from the payoff-maximization problem of the parent firm $\beta_d = p_d X_1$ the final term is zero, yielding

$$\frac{\partial \overline{D}}{\partial L_d} = 1 - \alpha p_d + \frac{\partial p_d}{\partial L_d}[\beta_d X_1 + \alpha(X_2 - L_d)]$$

Appendix 3: Equilibrium effort and monitoring levels in case of severely cash-strapped firm and financing by a local bank

The parent firm again maximizes its expected payoff E_I over the choice of the monitoring level β given the financing is conducted by a local foreign bank.

$$Max_\beta E_I(f) = p_f[\beta_f X_1 + \alpha(X_2 - D_f)] - \tfrac{1}{2}\beta_f^2$$

Simultaneously the subsidiary manager maximizes his expected payoff $E_M(f)$ over the choice of effort level p given the financing is conducted by a local foreign bank.

$$Max_p E_M = p_f[(1 - \beta_f)X_1 + (1 - \alpha)(X_2 - D_f)] - \tfrac{1}{2} z p_f^2$$

The reaction functions for the parent firm and manager respectively are

$$\beta_f = p_f X_1 \text{ and } p_f = \frac{(1-\beta_f)X_1 + (1-\alpha)(X_2 - D)}{z + X_1^2}$$

Inserting reaction functions into each other then yields

$$p_f = \frac{X_1 + (1-\alpha)(X_2 - D_f)}{z + X_1^2}$$

and

$$\beta^* = \frac{X_1[X_1 + (1-\alpha)(X_2 - D_f)]}{z + X_1^2}$$

Appendix 4: The foreign government's choice of t

The governments maximization problem is

$$max_t Y = (tH_{FDI} + H_0)^\sigma K^{1-\sigma} - C(t)$$

The First Order Condition then is

$$K^{1-\sigma}\sigma(tH_{FDI} + H_0)^{\sigma-1} H_{FDI} - \gamma = 0$$

Solving for t then yields

$$t^* = \frac{(\frac{\gamma}{\sigma K^{1-\sigma} H_{FDI}})^{\frac{1}{\sigma-1}} - H_0}{H_{FDI}}$$

Chapter 5

The Effect of Bank Sector Consolidation through M&A on Credit Supply to Small and Medium-Sized Enterprises

5.1 Introduction

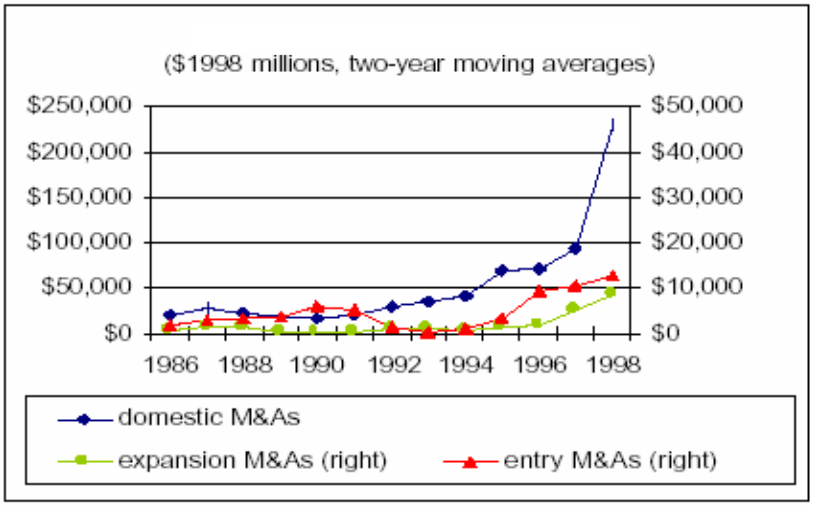
In recent years the evolution of market structure in banking can be described by two characteristics: An overall consolidation of the banking sector, strongly driven by Mergers and Acquisitions, and an internationalization of banking institutes driven by Foreign Direct Investment[1]. This evolution was made possible by improvements in information technology, financial deregulation, globalization of real and financial markets and, for Europe, the abolition of exchange rate risks.

International consolidation in the 1990s was partly driven by multinational banks establishing subsidiaries in foreign markets through the acquisition of local incumbent banks. The volume of cross-border M&A involving target banks in emerging economies for example rose from about 6 billion USD in the period 1990-1996 to about 50 billion USD in the period 1997-2000[63].

[1] As is discussed in the introductory chapter of this thesis.

Still, most of M&A activity in the banking sector was on a national level, possibly as a reaction to the threat of multinational bank entry, as the following graph (taken from Berger et al.(2000)[12] illustrates.

Figure 5.1: Volume of M&A Activity in the Banking Sector



Source: Securities data company

In these surroundings two widely-voiced concerns about the changing structure of the banking sector have come up in public discussion in recent years.

For one, there is growing concern in OECD countries, that the consolidation of the banking sector might lead to reduced credit availability to small firms. The BIS Group of Ten report on Consolidation [23] identifies two possible underlying hazardous processes. First, close to the theoretical story by Stein (2002)[123], larger and more complex credit institutions arising through consolidation might have a lower propensity to lend to small firms. Second, as it is widely accepted that "'relationship lending"' is an important characteristic of credit contracts between banks and small firms (e.g. Berger and Udell (2002)[19], a problem on the market level may arise. Relationship banking is often described to be on the basis of soft, non-verifiable information such as management character and this type of information by design is hardly transferable between banks in contrast to hard, verifiable information

like balance sheets or other audited statements. Therefore, small firms loosing their old loan relationship with a bank due to consolidation might face difficulties finding new credit partners.

Indeed, Sapienza (2002)[117] finds indication that smaller borrowers are at the loosing end of bank consolidation, as long-standing credit relations are disrupted and client information transmission to other banks is hard to process.

If this negative effect is for real, it constitutes a serious challenge to developed economies. First of all, SMEs should be more harmed by a contraction of credit available to them than large firms, as the former tend to be predominantly financed by bank credit (see BIS G10 report)[23]. From the point of view of the whole economy, small and medium-sized companies accounted for 66% of total employment in Europe on average and above 50% in the U.S. and Canada in 1996 (Source: Eurostat). Also SMEs are supposed to be more flexible than large firms making them key drivers of innovation and sectoral change. So if possible concerns about small business financing are right, the problem is of severe economic magnitude.

At the same time there has been growing concern in Less Developed Countries (LDCs), that foreign bank entry is non-beneficial or even harmful to small firms in host countries. Stiglitz[2] stated that

'Foreign bank entry in Argentina.....failed in terms of providing adequate financing for small and medium-sized enterprises"'.

One important thing to note here is, that "'cross-border market penetrations are often performed via M&As, rather than via opening new branch offices"'(Berger et al.(2000)[12].

Therefore one could argue that both concerns are tightly linked. As a matter of fact, market entry through M&A is not fundamentally (qualitatively) different from in-market or in-country M&A in the banking sector, at least not in the sense proposed in the following. However, as will be briefly discussed in an informal extension of the following model, due to home country effects the impact of national versus multinational consolidation on SME credit availability may differ in its strength.

I follow the literature by Diamond (1984)[53] in that small firms in respect to banking really differ from large firms in that they are "'informationally opaque"'. Like Stiglitz and Weiss (1981)[124] point out, "'the informational wedge between insiders and outsiders tends to be more acute for small companies, which makes the provision of external finance particularly challenging"'.

In this chapter a theory is developed, incorporating both the notion of

[2]in: El Pais, 10.1.2002

the influence of organisational characteristics of banks on their lending behaviour, using a twisted version of a general model on firm organization and information processing proposed by Stein (2002)[123], as well as the idea of relationship banking between banks and small firms, to give an explanation for the potentially adverse effects of bank sector consolidation through M&A on credit availability for SMEs. To that end, a fraction of the setup proposed by Stein (2002)[123], who models the influence of internal capital markets on management decision making, is used. I twist the model by changing its objectives, introducing managerial choice in a bank on which type of loan to specialise on, which allows for a direct discussion of the impact of organizational change on lending strategies, which also enables me to extend the model to incorporate the idea of relationship banking. In contrast to Stein (2002)[123], the model is therefore able to yield results concerning the impact of organizational change within one bank on small firm credit availability on the market level. Through the notion of relationship banking one can indirectly incorporate third bank behaviour into the model. Additionally, the chapter discusses rather informal extensions usable to analyze optimal (small) firm policy towards the banking sector, as well as the possible difference between national and international M&A from the perspective of small firms.

Agreeing with Stein (2002)[123], that the simple notion of a technological disadvantage of large banks in dealing with small firms in an overall sense is rather too vague, this disadvantage is traced back to the organizational setup of banks. Also I follow his idea "'that the key distinguishing characteristic of small-business lending is that it relies heavily on information that is soft ..... that cannot be verified by anyone other than the agent who produces it."'[123]. In contrast, banks extend credit to large firms based on hard-information such as detailed income statements, balance sheets, etc.., which in the following model can be learned about by other agents (CEO) inside the bank but not by the bank's outside investors. So, to sum up, it is assumed, that transaction-based lending [3] is predominant in large firm credit supply, while relationship-based lending dominates with small firm credit.

Large institutions typically show more layers of hierarchy than small ones. Assuming that at least some of the decision power lies within higher levels of the hierarchy, the importance of being able to pass on information to the next level is more critical to the bottom (loan) manager than in small institutions. This leads to the manager in a small bank being more likely to

[3]Each transaction stands on its own such that information from the relationship is irrelevant. Transaction-based lending can be further differentiated in financial statement lending, asset-based lending and credit scoring.

focus on projects generating soft information, small-firm credit, than one in a large bank. In the following model the effectiveness of soft information as a means to get to know loan projects' outcomes additionally depends on the length of the bank-borrower relationship capturing the notion of relationship banking. Due to this aspect, it is also less likely that small firms attain credit from third banks, after their old relationship is cut. I will show that in the following model, even if the dropped small firms attain credit from a third, non-consolidated, bank, this will most likely come at the expense of other small firms.

The chapter proceeds as follows. Section 2 gives a brief overview about recent developments in the banking sector, as well as an overview of the empirical and theoretical literature about possible motives of (cross-border) consolidation through M&A. In section 3 the basic model about managers' specialization decisions in small and large banks is laid out. Section 4 analyzes the market level effects of M&A on small firm financing for a variety of cases. Section 5 briefly discusses the possible difference between inter- and intranational bank sector consolidation. Section 6 deals with consequences of M&A as described in the existing literature and other related facts about banking that can get some new formal explanation from my model. Section 7 concludes.

5.2 Bank Sector Consolidation: An Overview

Before analyzing possible consequences of (cross-border) consolidation through M&A, I first want to give an overview about possible motives and underlying factors for this kind of consolidation.

Why has consolidation in this industry picked up steam recently? For sure, changes in the institutional environment like the Riegle-Neal and the Gramm-Leach-Bliley Act in the U.S.[4] and the Single Market Program as well as the monetary union in the EU, enabled banks to consolidate in a variety of new ways and at lesser costs.

Concerning bank's incentives to take an active part in consolidation, practitioners interviewed in a study by the bank for international settlements (BIS) mention revenue enhancement and cost savings as the primary motives

[4]The Riegle-Neal Act lifted restrictions on interstate banking for U.S. banks, enabling the industry to consolidate across U.S. states. The Gramm-Leach-Bliley Act allowed banks to operate in both the commercial and investment banking segment, therefore making consolidation across these segments legally feasible.

for such activity (BIS 2001)[23].Motives unmentioned, quite understandably, are managerial motives for M&A.

5.2.1 Revenue enhancement as a motive for bank sector M&A

Revenue enhancement through M&A could come through the following forms

- Economies of Scale and (Geographic) Scope
- Increase in market power

Revenue economies of scale and (geographic) scope

One of the possible motives for/drivers of international bank expansion overall, and for international M&A as a means of that, is the increased demand for international financial services by multinational corporations. Trade in goods increased from 21% of world GDP in 1987 to 40% by 1997 (see World Bank (2004)[7]. Besides that, the volume of FDI and therefore the geographic separation of production also increased. Such internationally operating firms may be in need of an established banking partner in each of the places they produce or sell their goods. Several empirical studies underline this "'follow your customer"'-strategy of banks. For example, Goldberg and Gross (1994) found, that foreign direct investment in a U.S. state was strongly positively linked with foreign banking assets in this state[68](see chapters 2 and 4 for further studies). Revenue economies of geographic scope therefore arise in the sense, that firms might be willing to pay premia for a bank's services if the same bank can provide services to the firm in other regions of operation, too.

Special to universal banks providing a large variety of financial services, scope economies could be at hand through consumers' willingness to pay a premium for one-stop shopping, maybe also driven by the consumer's unwillingness to share his private information with more than one financial institution[5] , and through "'reputation economies"'. The latter may arise if a universal bank is able to transfer its superior reputation in one banking service to another by collective branding (Rajan, 1996)[114].

[5]A simple line of reasoning would be transaction costs of documenting information each time, another reasoning could be along the line of sharing market information with banks that also provide services to competitors of the respective firm.

However there might also be diseconomies of scope in the (banking) industry, arising from less specialisation leading to less tailor-made products and therefore lower prices chargeable, or due to customer worries that combining services might lead to conflicts of interest within the bank (e.g. Berger et al. (2000)[12].

Increase in market power

This motive is most probably a prevalent one for national or even regional bank M&A, to a lesser degree for cross-border consolidation. In general, the market level price effect of M&A depends on the induced increase in local market concentration and the general demand structure.

In-market M&As in small (local) markets, with the demand side having few outside options (e.g. small businesses who seem to strongly depend on local banks for financing)[6], could most probably enable a consolidating institution to charge higher prices from their customers through e.g. lower deposit rates and higher small business loan rates (see e.g. Berger et al.(2000))[12].

Empirical studies back up this conjecture. Banks tend to have better and more permanent margins in more concentrated markets[7].

From a market perspective cross-border consolidation, or even the threat of it, could however decrease the exercise of market power because of increased market contestability in any given country. However, the empirical results on this are mixed (e.g. Molyneux et al. (1994)[101], Bikker and Groeneveld (1998)[22] and Cerasi et al.(1998)[32]).

5.2.2 Cost saving as a motive for bank sector M&A

Possible cost savings theoretically arise through

- Economies of Scale
- Economies of Scope
- Increase in Cost X-Efficiency

[6]Kwast, Starr-McCluer and Wolken (1997) find that households and small businesses almost always choose a local financial institution[90].

[7]They charge higher rates on small business loans and pay lower deposit rates (Berger and Hannan (1997)[13] and react slower to changes in open-market interest rates (Jackson (1997)[83].

Cost economies of scale

Practitioners often mention scale as an important means of reducing average costs in the banking industry [12]. However several empirical studies for the U.S. found a rather U-shaped relationship between scale and average costs, suggesting that medium-sized banks ($100 million – $10 billion in assets) are slightly more cost efficient than either large or small banks[8].

But as Berger et al.(2000)[12], as well as several other studies (see The Economist (2006)[127], mention, most of this empirical literature relies on data from the 1980s. The former authors argue, that, due to both technological process (Automated Teller machines (ATMs, Internet Banking, Risk Management IT) as well as new dimensions of financial engineering (international placement of bonds, larger scale economies may have arisen. In retail business, the emergence of internet banking is a classic example for conducting banking services in an environment of high fixed costs (such as the development of the portal) and low variable costs due to less staffing required per transaction. Other possible sources of cost scale economies are call centers and payment processing.

However from a broader perspective these latter scale economies, due to the fact that these processes hardly function as USPs[9] of a bank, could probably be just as well be achieved by small banks outsourcing parts of these processes or building networks[10]. If banks in general outsource the parts of their value chain, that feature cost economies of scale, such effiency considerations concerning the size of the respective bank vanish. One example for such outsourcing in Germany is Postbank taking over transaction services for both Deutsche Bank and Dresdner Bank.

Cost economies of scope

Theoretically there are two main contradicting arguments concerning cost economies of scope in the banking sector. On the one hand re-usability of customer information for many products may lead to scope efficiency (e.g. Greenbaum et al. (1989)[72]), as duplication of effort in information research is impeded. On the other hand a shift away from core competencies always may lead to additional administrative costs as well as foregone cost reductions along the learning curve (see Winton (1999)[132]).

[8]see e.g. Bauer, Berger and Humphrey (1993)[9] and Clark (1996)[36].

[9]Unique selling positions

[10]Therefore one could expect banks to rather downsize by vertical disintegration of operations, outsourcing e.g. call centers to specialised provider.

Cost X-Efficiency

Improvements in X-efficiency through M&A can be achieved, if the acquiring bank has superior managerial skill or organizational practice which spills over to the target bank.

Simulations by Savage (1991)[118] and Shaffer (1993)[120] lead to the conclusion, that X-efficiency can significantly be raised if inefficient targets are restructured by X-efficient acquirers.

However empirical research yields weaker results on whether actual M&As increased costs X-efficiency[11].

5.2.3 Efficient Risk diversification as a motive for bank sector M&A

Scale and scope economics in risk management

One very plausible motive for (international) consolidation via M&A for a bank is to improve the risk-expected return tradeoff.

Under the modern theory of financial intermediation (e.g. Diamond (1984)[53], Diamond (1991) [54]) this argument holds against the traditional view of capital markets, that investors optimize their portfolio in the risk-return dimension themselves.

It is hard to differentiate however, whether observed risk-adverse behaviour of large U.S. banks (see e.g. Hughes and Mester (1998)[81] is for the benefit of the shareholder or due to managerial objectives.

Literature does not find that scale plays a very important role for the tradeoff (except when you think about banks getting so big that they "'can not fail"' because of state intervention (see Berger et al. (2000)[12]), but enhancing scope through geographic and service portfolio diversification might very well reduce risk without a similar decrease in expected returns.

The possibility for international risk diversification in the banking industry can be observed in Figure 5.2, which is taken from Berger et al.(2000)[12]. One striking example for such diversification possibilities is the correlation between banks' Return on Equity (ROE) in France and the U.S. in the span between 1979 and 1996 which is -0,815.

[11]For the U.S. most studies find positive, but small effects (e.g. De Young (1997)[50]). Vander Vennet (1996,1998)[128][129] for Europe found that cross-border consolidation increased X-efficiency, but national M&A often failed to do so.

Figure 5.2: Correlation Analysis of Bank ROE among Nations

-- Correlation Analysis of Bank ROE Among Nations, Annual Data 1979-1996.

	SPAIN	FRANCE	AUSTRIA	BELGIUM	LUXEMBOURG	NETHERLANDS	GERMANY	UK	ITALY	PORTUGAL	DENMARK	FINLAND	GREECE	SWEDEN	JAPAN	US
SPAIN	1.000															
FRANCE	0.742	1.000														
AUSTRIA	0.274	0.586	1.000													
BELGIUM	-0.573	-0.654	0.019	1.000												
LUXEMBOURG	-0.463	-0.854	-0.324	0.705	1.000											
NETHERLANDS	0.170	0.223	0.768	0.185	0.102	1.000										
GERMANY	-0.286	-0.236	0.229	0.188	-0.336	0.210	1.000									
UK	-0.460	-0.543	-0.137	0.798	0.648	0.084	0.384	1.000								
ITALY	0.518	0.926	0.519	-0.436	-0.912	0.126	0.248	-0.473	1.000							
PORTUGAL	0.158	0.514	-0.250	-0.364	-0.229	-0.673	-0.176	-0.386	-0.025	1.000						
DENMARK	-0.240	-0.154	0.213	0.358	0.080	0.475	0.527	0.532	-0.182	-0.024	1.000					
FINLAND	0.419	0.519	0.526	0.077	-0.404	0.533	0.465	0.089	0.533	0.035	0.562	1.000				
GREECE	0.123	0.117	-0.296	-0.260	-0.329	-0.685	0.336	-0.075	0.099	0.475	-0.201	-0.207	1.000			
SWEDEN	0.207	-0.084	-0.283	0.013	0.292	-0.296	-0.203	0.082	-0.362	0.085	-0.005	-0.114	0.675	1.000		
JAPAN	0.268	0.740	0.654	-0.362	-0.783	0.314	0.393	-0.460	0.885	0.045	-0.017	0.455	-0.027	-0.473	1.000	
US	-0.588	-0.815	-0.522	0.477	0.585	-0.182	0.206	0.761	-0.686	0.079	0.243	-0.307	-0.278	0.015	-0.490	1.000

Source: All data taken from "Bank Profitability," OECD publication, 1998. Annual data from 1979-1996 for Spain, Germany, Luxembourg, Portugal, Denmark, Finland, Sweden, Japan, and the US. Annual data from 1981-1996 for Belgium. Annual data from 1984-1996 for Italy and the UK. Annual data from 1987-1996 for
Austria and the Netherlands. Annual data from 1988-1996 for France. Annual data from 1989-1996 for Greece.
ROE = aggregate commercial bank "profit after taxes" divided by aggregate commercial bank "capital and reserves."

5.2.4 Managerial motives for bank sector M&A

The existing principal-agency literature gives a broad range of reasons why managers might want to pursue M&As, both nationally and internationally, as acquirers.

So-called empire-building tendencies of managemers[12] have received ample interest in theoretical literature. For all kinds of M&As, the sphere of control of the acquiring institution's manager becomes larger which increases manager's utility mostly through reputational effects as well as to a lesser extent through possible increased compensation (e.g. Chevalier and Avery (1998)[33]).

Cross-border consolidation especially might be motivated from a managerial point of view by two additional points.

First, with shareholders on average still mostly stemming from a firm's home country[13], establishing additional business abroad instead of at home

[12]e.g. Jensen and Murphy (1990)[84]

[13]This home bias in equity has first been first discussed by French and Poterba

might enable a manager to enjoy more perquisites or slack off. The reasoning would be, that home country shareholders normally know less about economic conditions abroad than at home adding more uncertainty about payoffs which the manager may use to increase his perks or reduce his effort. Shareholders would then hardly know whether reduced profit (efficiency) is due to conditions in the new host country or due to changed behaviour of management.

Also, cross-border consolidation might be comfortable for managers in that it can reduce risk (see subsection above) increasing their job security [14], even if this risk reduction is inefficient from the shareholder's point of view, in that yields too low a level of risk-adjusted expected return.

After discussing some motives for banks engaging in (cross-border) M&As, the focus is now on the main topic of the chapter, namely how such activity effects a specific firm segment in the market.

5.3 The Model

The setup differentiates between large and small banks by their organizational characteristics. A small bank is assumed to consist of a single loan manager, whereas a large bank consists of two such loan managers plus a CEO on top of the organization.

Both kind of banks are exclusively funded by risk-neutral outside investors with an outside option of zero. Whereas in a small bank the financing relation is directly between loan manager and outside investor, in a large bank the capital runs through the hands of the CEO, who receives capital from the outside investor and subsequently allocates it among his two loan managers. After a round of lending activity the investor gets back his initial investment plus all monetary return on investment.

In both banks loan managers have to decide whether to specialise on supplying credit to large firms (L) or small firms (S) ex ante. Let us assume that the only difference between these two types of firms is the type of information the bank loan manager can extract from them. To be precise, loan managers in both type of banks can only extract "'soft information"' from small firms, which is non-verifiable to investors and other agents inside the bank, whereas dealing with large firms yields "'hard information"' that is still non-verifiable to outside investors, but verifiable to other agents inside the bank.

(1991)[64].

[14] see e.g. Morck, Shleifer and Vishny (1990)[102]

No matter what kind of credit the loan manager specialises on, he is assumed to always be able to choose between two potential loan projects. Each loan can take on size $K = \{0, 1, 2\}$. The projects can either be in a good state of the world (G) yielding return $g(K)$ or in a bad state of the world (B) yielding return $b(K)$. Both states have ex ante probability 1/2. The respective projects' states are non-correlated. Total returns for loan projects controlled by manager i are denoted c_i.

To structurize the problem and later reduce notational clutter, the following assumptions about project returns are made[15].

1. $-2 < b(2) < -1 < 0 < g(1) < 1$
2. $g(2) = 2g(1)$
3. $b(2) < min[3b(1) - g(1); 2b(1)] = 3b(1) - g(1)$
4. $g(1) > -b(1)$

Each loan manager can learn about the actual state of either both of his possible projects or none of them before deciding how to allocate his capital under control. The probability of the manager learning about the projects' actual state of the world is

$$\mu = \left\{ \begin{array}{ll} \sigma^{1/t} & \text{for small firms} \\ \theta & \text{for large firms} \end{array} \right\} \qquad with\ 0 < \sigma, \theta < 1 \tag{5.1}$$

σ is a general efficiency parameter for a loan manager generating information about a small firm project. It is assumed, that this signal becomes more informative, though with decreasing marginalities, over the length of relationship $t \in [1; \infty[$ between the bank and the respective small firm client[16]. This seems to be a very intuitive setup as soft facts like management character usually take some time to explore. To further simplify the problem it is assumed that there are always two possible small firm loan projects at hand

[15]Assumption 1 gives us a well-constrained problem to work on. Assumption 2 is made just to reduce notational clutter. Assumption 3 leads to simplified equilibria later on and will be discussed in advance. However, this assumption doesn't change the qualitative results. Intuitively it states that funding a bad project with 2 units of capital yields very bad results, therefore such funding is tried to be ruled out by decision makers in the model. Assumption 4 is necessary for investors funding the bank with, as it guarantees positive expected profits for investors.

[16]I assume without a prior relationship between bank and firm that $t = 1$.

that have same relationship length with the respective bank. In the basic model analysis each small firm has only on existing banking relationship. The chapter discusses the multiple relationship case in an extension.θ is the respective efficiency parameter for a manager generating information about a large firm loan. As hard information is mostly passed on through standardized financial statements the signal has a constant value of information independent of the specific relationship.

To make this problem interesting, θ is assumed to increase over time (or for that matter, σ to have fallen), else there will hardly have any interesting equilibria on changing loan strategies in banks[17].

Finally, as in contrast to Stein (2002) this model is less one of mechanism design, but rather of a combined Nash-Bayesian game, one needs to characterize prior believes of agents in the model. It is assumed, that all players in the game ex ante always believe that other players will not be successful in their research ex ante. However, except the extreme case, that players believe with probability 1 that others will be successful in their research, the qualitative results are unchanged.

All agents, loan managers and a possible CEO, have utility functions

$$U_i = K_i + c_i \tag{5.2}$$

where K_i is the amount of capital and c_i the net cash flow of projects under control of agent i. Agents therefore act like "'efficient empire-builders"', so agents' are interested in both getting as much capital as possible under their control as well as use the allocated capital efficiently. These preferences, together with the non-verifiability of project information to outside investors, leads to financing constraints for banks in equilibrium, as discussed in Lemma 1.

Lemma 1

Investors will finance small banks with two units of capital in equilibrium if $g(1) + b(1) > 0$ *and* $b(2) < 2b(1)$*, where the latter is fulfilled by assumption.*(see Appendix for proof)

Lemma 2

If Lemma 1 holds investors will finance large banks with four units of capital

[17]The rise of θ can very intuitively be explained by e.g. progress in auditing technology over time. For transition economies a fall in σ could easily be explained by a loss of social capital in the transition process.

I will only discuss this intuitively, as this Lemma obviously follows from Lemma 1 in combination with assumed prior beliefs of players in the model. In such a setup expected payoffs for outside investors' funding a large bank with K units are exactly like funding two small banks with $K/2$ units, therefore Lemma 2 holds.

Having laid out the general problem, one can now discuss the specialisation decision in both types of banks.

5.3.1 Inside the small bank

I start out with the much easier case of a small bank. The single loan manager of this bank will choose his specialisation based on his expected utility level. As shown above he will always have two units of capital to allocate on his projects. His expected payoff, depending on allocative action and state of information, can be summarized by the following payoff matrix (with chosen allocation on the left and information on project 1 and 2 respectively received by the manager at the top).

A — I	{GG}	{GB}	{BG}	{BB}	{None}
(2;0)	$2g(1)$	$2g(1)$	$b(2)$	$b(2)$	$g(1) + \frac{b(2)}{2}$
(1;1)	$2g(1)$	$g(1) + b(1)$	$g(1) + b(1)$	$2b(1)$	$g(1) + b(1)$
(0;2)	$2g(1)$	$b(2)$	$2g(1)$	$b(2)$	$g(1) + \frac{b(2)}{2}$

With the assumptions on project return structures made, one can straightforwardly see that the manager will choose

- Allocation (1;1) if he does not receive any information or if information is {BB}
- Allocation (2;0) if he receives information {GB}
- Allocation (0;2) if he receives information {BG}
- Any feasible allocation if he receives information {GG}

His expected utility specialising on small firm loans will then be

$$EU(S) = \sigma^{1/t} \times \left[\frac{3g(1)}{2} + \frac{b(1)}{2}\right] + (1 - \sigma^{1/t}) \times [g(1) + b(1)] + 2 \qquad (5.3)$$

His expected utility specialising on large firm loans will then be

$$EU(L) = \theta \times \left[\frac{3g(1)}{2} + \frac{b(1)}{2}\right] + (1-\theta) \times [g(1) + b(1)] + 2 \qquad (5.4)$$

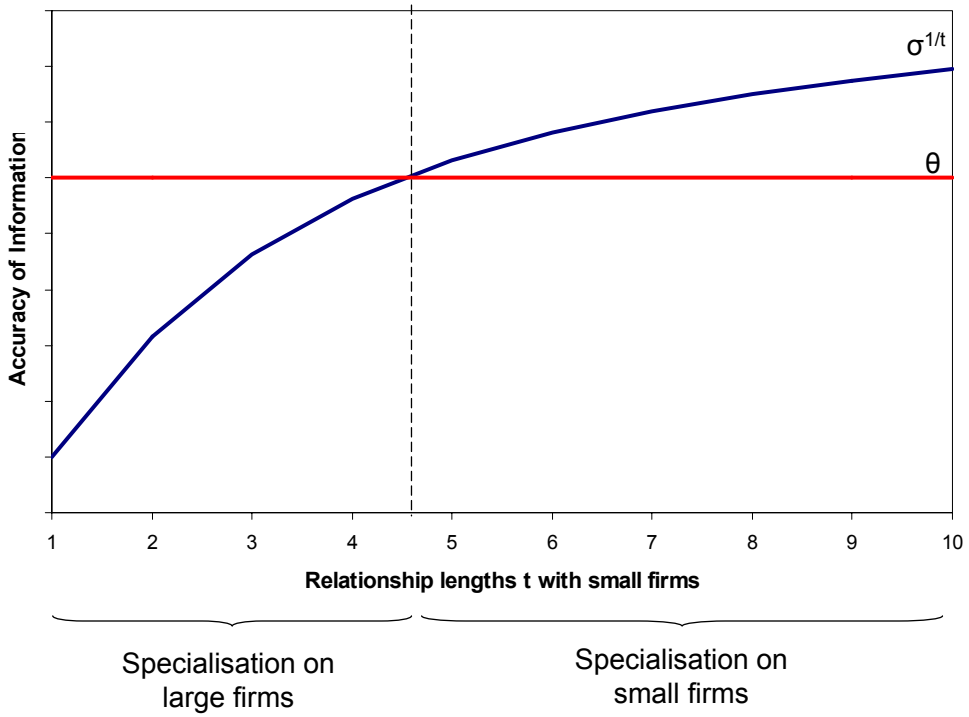
By comparing the utility levels one can come up with a causal relation between the specialisation decision and the length of established relationships at the point of decision between the loan manager and his existing small firm client base.

Proposition 1

A small bank loan manager will specialise on small firm loans if he has long-standing relationships with his existing small firm base. Else he will specialise on large firm loans. The less efficient general research about small firms is relative to research efficiency about large firms, the longer the critical length of relationship between small firm and bank to ensure further financing of the small firm. The critical length of relationship is $\underline{t} = \ln \sigma / \ln \theta$. (Proof: See Appendix)

The following graph illustrates the specialisation decision.

Figure 5.3: Relationship Length and Specialisation Decision[18]



In this case small banks that have existing relationships with small firms with length $t > 5$ will specialise on small firm credit and small banks with $t < 5$ will specialise on large firm credit.

5.3.2 Inside the large bank

The case of the large bank is far more interesting, as it includes strategic interaction.

There are four different stages to be analyzed to find the equilibrium specialisation decision.

1. Unit manager specialisation decision
2. Unit manager decision on whether to report information to CEO or not
3. CEO decision on capital allocation to loan managers
4. Manager decision on capital allocation to loan projects

[18]For $\sigma = 0,1$ and $\theta = 0,6$

The model can be solved by backward induction.

Stage 4

From the small bank case we already know the equilibrium allocation strategy when a loan manager controls two units of capital (Case 1).

However in the case of a large bank managers might have anywhere from 1–4 units of capital to work with.

Case 2) Manager has one unit of capital

The manager's problem can be summarized by the following payoff matrix

A — I	{GG}	{GB}	{BG}	{BB}	{None}
(1;0)	$g(1)$	$g(1)$	$b(1)$	$b(1)$	$\frac{g(1)}{2} + \frac{b(1)}{2}$
(0;1)	$g(1)$	$b(1)$	$g(1)$	$b(1)$	$\frac{g(1)}{2} + \frac{b(1)}{2}$

So maximizing his expected payoff the manager will choose allocation (1;0) in case he receives information {GB} and allocation (0;1) in case he receives information {BG}. For any other information he will be indifferent between feasible allocations.

Case 3) Manager has three units of capital[19]

A — I	{GG}	{GB}	{BG}	{BB}	{None}
(2;1)	$3g(1)$	$2g(1) + b(1)$	$b(2) + g(1)$	$b(2) + b(1)$	$\frac{3g(1)}{2} + \frac{b(2)}{2} + \frac{b(1)}{2}$
(1;2)	$3g(1)$	$b(2) + g(1)$	$2g(1) + b(1)$	$b(2) + b(1)$	$\frac{3g(1)}{2} + \frac{b(2)}{2} + \frac{b(1)}{2}$

Maximizing his expected payoff the manager will choose allocation (2;1) in case he receives information {GB} and allocation (1;2) if he receives information {BG}. For any other information he is indifferent between feasible allocations.

Case 4) Manager has four units of capital

Here the only feasible allocation is (2;2),as loan volume per project is restricted to $\overline{K} = 2$.

Stage 3

Given that the CEO knows the optimal allocation decision of managers at the loan level he will assign capital to the loan managers such as to maximize his expected utility. His allocation will therefore be determined by the information he receives from his loan managers. Remember that the large bank will be funded with four units of capital in equilibrium. Due to the non-verifiability of soft information, the manager's preference structure and the research success of loan managers being insecure, the CEO will not be able to distinguish between good and bad soft information and "'silence"' on the side of the manager due to finding bad hard information[20].

With the CEO prior probability belief about managers' research success being zero[21], his contingent payoff matrix can be subsumed as in the table in Appendix A[22].

We can then identify the optimal contingent capital allocation strategy for the CEO, as shown in the following table.

[20]Non-documentable information as non-verifiable to the CEO will not be taken into consideration by the CEO, as he understands the manager to always claim to have found his projects to be in the good state of the world.

[21]Therefore, if the manager does not report any documented information, the CEO will assume that the manager failed in learning about the projects.

[22]We do not need to differ between cases (GB) and (BG) so the later is subsumed in the former.

Information received	CEO utility maximizing allocations
{GG}{GG}	(4;0);(3;1);(2;2);(1;3);(0;4)
{GG}{none}	(4;0)
{GG}{GB}	(4;0);(3;1);(2;2)
{GG}{BB}	(4;0)
{GB}{GG}	(2;2);(1;3);(0;4)
{GB}{none}	(2;2)
{GB}{GB}	(2;2)
{GB}{BB}	(3;1);(2;2)
{BB}{GG}	(0;4)
{BB}{none}	(2;2)
{BB}{GB}	(2;2);(1;3)
{BB}{BB}	(2;2)
{none}{GG}	(0;4)
{none}{none}	(2;2)
{none}{GB}	(2;2)
{none}{BB}	(2;2)

These optimal allocations follow directly from the analysis of expected payoffs of the CEO given the information received.[23]

Stage 2

One can now analyze the optimal information strategy of a manager towards the CEO. At this stage it must be differentiated between managers who have chosen to specialise (at stage 1) on small firms, possibly generating soft information, and those who have focused on large firms, possibly generating hard information. It is of no matter whether soft information gets passed on to the CEO because the latter won't value this information at all. Also the manager can not pass on any kind of information if he hasn't gathered any. So we can restrict analysis to managers who have gathered hard information from large firms. These managers can choose whether to report their documented information to the CEO or keep quiet/just state that their projects are in a good state. The capital allocation to this manager i, conditional on

[23]Here is where assumption 3 plays a quantitative role. If not for this assumption, there would be unclear optimal allocations for information tuples {none}{BB} and {BB}{none}, as the optimal allocation in these cases depends on the relative size of$b(1)$, $b(2)$ and $g(1)$. However, the qualitative results are not changed by the assumption.

reporting or not, can be analyzed with the help of the following table[24].

The following table gives the expected capital allocation for each manager contingent on the information he and the other manager j passes on to the CEO.

i — j	{GG}	{GB}	{BG}	{BB}	{None}
{GG}	(2;2)	(3;1)	(3;1)	(4;0)	(4;0)
{GB}	(1;3)	(2;2)	(2;2)	(2,5:1,5)	(2;2)
{BG}	(1;3)	(2;2)	(2;2)	(2,5:1,5)	(2;2)
{BB}	(0;4)	(1,5;2,5)	(1,5;2,5)	(2:2)	(2;2)
{none}	(0;4)	(2;2)	(2;2)	(2:2)	(2;2)

The resulting optimal information strategy towards the CEO has the following main characteristics. First, passing on information to the CEO when information about both projects is bad is weakly dominated by not reporting this documented information ("'none"'). Therefore the manager will always not report the documented information in that case. Second, for all other successfully gathered information reporting the actual information to the CEO always weakly dominates not reporting.

One obvious advantage of specialising on large firm loans potentially yielding hard information is evident here. Positive hard information passed on to the CEO can increase the capital available to the respective loan manager to 2+ units. At the same time negative hard information can be hidden from the CEO (not passed on to him), therefore no counteracting negative effect of generating hard information exists.

Stage 1

With the help of results from stages 2-4 a manager's decision on whether to specialise on small or large firms can now be derived. Note that in this final step one not only has to worry about how the specialisation decision affects capital allocation among managers but also about the way the specialisation decision changes the projects' expected net cash flows due to differences in research efficiency and capital allocation.

I analyze a normal game between the two loan managers in a large bank to find conditional Nash Equilibria for specialising on small firms. In order to do so, first each manager's expected utility contingent on his own and the

[24]For multiple allocation equilibria (see stage 3).I assume that the manager assigns same probability to all of those optimal allocations and furthermore use the expected allocation for the analysis.

other managers specialisation decision is analyzed[25].

Given that manager j chooses to specialise on large firms, manager i's expected utility specialising on small firms is:

$$EU_{i,j=L}(S) = E(K_i|i = S, j = L) + E(c_i|i = S, j = L) \tag{5.5}$$

Using the results from stages 2 and 3 (and weighing them with respective probabilities) yields

$$E(K_i|i = S, j = L) = 2 - \frac{\theta}{2} \tag{5.6}$$

Note that the expected amount of capital received in this case depends negatively on research efficiency for hard information. This is very intuitive: The more likely the other manager, specialising on large firms, attains hard information about his project the more likely he will get more funding from the CEO at the cost of the manager specialising on small firms.

Adding the results from stage 4 yields

$$EU_{i,j=L}(S) = 2 - \frac{\theta}{2} + (1 - \frac{\theta}{4}) \left[(g(1) + b(1) + \sigma^{1/t}(0,5g(1) - 0,5b(1))\right] \tag{5.7}$$

Given that manager j chooses to specialise on large firms ,manager i's expected utility specialising on large firms is:

$$EU_{i,j=L}(L) = E(K_i|i = L, j = L) + E(c_i|i = L, j = L) \tag{5.8}$$

Again, using results from stages 2-4 yields

$$EU_{i,j=L}(L) = 2 + (\theta^2 - 6\theta)\left[1/8(b(1) - g(1))\right] + g(1) + b(1) \tag{5.9}$$

Once more this shows two intuitive characteristics. For one, capital allocation to each manager is independent of research efficiency, as both managers specialise on hard information with same efficiency. Expected utility as a whole is increasing in θ as allocation among loan projects becomes better, therefore the expected cash flows of the pool of both projects under control are higher[26].

[25]Note that by the structure of the game the specialisation decision is made before the manager learns about the then-available loan projects' state of the world.

[26]When e.g. one project is in the good state and the other in the bad state, c_i will be $g(1) + b(1)$ when the manager does not get information about the project states and has 2 units of capital to work with and $2g(1)$ when the manager learns about the states and can therefore allocate all capital to the "'good"' loan project.

The other two conditional expected utilities are constructed in the same way and are

$$EU_{i,j=S}(S) = 2 + g(1) + b(1) + \sigma^{1/t}(0,5g(1) - 0,5b(1)) \tag{5.10}$$

and

$$EU_{i,j=S}(L) = 2 + \frac{\theta}{2} + g(1) + b(1) + \theta[g(1) - 0,5b(1)] \tag{5.11}$$

We can put these results in the following simplified standard game form Defining

$X \equiv EU_{i,j=S}(S)$
$Z \equiv EU_{i,j=L}(S)$
$V \equiv EU_{i,j=S}(L)$
$Y \equiv EU_{i,j=L}(L)$
yields the following normal game form of the problem.

Manager i – Manager j	Small Firms	Large Firms
Small Firms	X;X	Z;V
Large Firms	V;Z	Y;Y

One can now analyze the critical length of relationship $\underline{t}$ which leads to both managers specialising on small firms.

Obviously, specialisation on small firms $(S;S)$ is a Nash Equilibrium if $X > V$ and it is unique if $Z > Y$. As managers in large banks are homogenous in this model it is actually pretty intuitive that the only reasonable equilibria are $(S;S)$ and $(L;L)$.

Inequality 1 $(X > V)$ is fulfilled for

$$\begin{gathered} 2 + g(1) + b(1) + \sigma^{1/t}(\tfrac{1}{2}g(1) - \tfrac{1}{2}b(1)) \\ > \\ 2 + \tfrac{\theta}{2} + g(1) + b(1) + \theta(g(1) - \tfrac{1}{2}b(1)) \end{gathered}$$

Rearranging yields

$$\sigma^{1/t} > \theta\frac{1 + 2g(1) - b(1)}{g(1) - b(1)} \tag{5.12}$$

Solving for t yields two case-dependent results:

$$t > \frac{\ln \sigma}{\ln \left[\theta(1 + \frac{1+g(1)}{g(1)-b(1)})\right]} \tag{5.13}$$

for $\theta < \frac{g(1)-b(1)}{1+2g(1)-b(1)}$

and

$$t < \frac{\ln \sigma}{\ln \left[\theta(1 + \frac{1+g(1)}{g(1)-b(1)})\right]} \tag{5.14}$$

for $\theta > \frac{g(1)-b(1)}{1+2g(1)-b(1)}$

Case 1 (θ not too large) yields a feasible threshold level for relationship length

$$t_1 = \frac{\ln \sigma}{\ln \left[\theta(1 + \frac{1+g(1)}{g(1)-b(1)})\right]} \tag{5.15}$$

above which $(S; S)$ is a Nash-Equilibrium. Case 2 would yield a negative threshold level meaning that for large values of θ $(S; S)$ is never a Nash-Equilibrium. In this case $\theta\frac{1+2g(1)-b(1)}{g(1)-b(1)}$ is larger than one, so no relationship length, leading to an increased allocation efficiency of the manager for a given volume of capital to work with, is sufficient to offset the possible capital allocation advantage (getting more capital from the CEO to work with) of choosing to specialise on hard information projects.

Inequality 2 ($Z > V$) is fulfilled for

$$\begin{gathered} 2 - \tfrac{\theta}{2} + (1 - \tfrac{\theta}{4}) \left[(g(1) + b(1) + \sigma^{1/t} \left(\tfrac{1}{2}g(1) - \tfrac{1}{2}b(1)\right)\right] \\ > \\ 2 + (\theta^2 - 6\theta) \left[\tfrac{1}{8} \left(b(1) - g(1)\right)\right] + g(1) + b(1) \end{gathered}$$

Rearranging yields

$$\sigma^{1/t} > \theta[1 + \frac{1 + g(1)}{1 - \frac{\theta}{4}(g(1) - b(1))}] \tag{5.16}$$

Again solving for t, we got to distinguish between two cases, $RHS < 1$ yielding feasible relationship lengths and $RHS > 1$, where in the latter case no t can be sufficiently large.

I find, that for $\theta > \phi - \sqrt{(-\phi)^2 - 4}$ with $\phi = \frac{4+9g(1)-5b(1)}{2(g(1)-b(1))}$ no t exists such that inequality 2 holds.

For $\theta > \phi - \sqrt{(-\phi)^2 - 4}$ we get

$$t > \frac{ln\sigma}{ln[\theta[1 + \frac{1+g(1)}{1-\frac{\theta}{4}(g(1)-b(1))}]} \tag{5.17}$$

So inequality 2 is fulfilled for $t > t_2$ (and low levels of θ) with

$$t_2 = \frac{ln\sigma}{ln[\theta[1 + \frac{1+g(1)}{1-\frac{\theta}{4}(g(1)-b(1))}]} \tag{5.18}$$

Summing up the two results, for low enough levels of efficiency in generating hard information and for sufficiently high relationship lengths to small firms at hand, loan managers in large banks will specialise on loan provision to small and medium-sized enterprises[27].

The following proposition summarizes the above findings on stage 1.

Proposition 2

Loan managers in large banks will always specialise on large firms, if research efficiency when dealing with hard information is sufficiently large ($\theta > \frac{1}{1+\frac{1+g(1)}{g(1)-b(1)}}$)*, independent of available relationships to small firms.*

They will also definitely specialise on large firms, even if θ is small, if they do not have very long standing relationships with small firms ($t < \frac{\ln \sigma}{\ln\left[\theta(1+\frac{1+g(1)}{g(1)-b(1)})\right]}$)*.*

Specialising on small firms in a large bank is an equilibrium strategy iff $\theta < \frac{1}{1+\frac{1+g(1)}{g(1)-b(1)}}$ *and* $t > t_1 = \frac{\ln \sigma}{\ln\left[\theta(1+\frac{1+g(1)}{g(1)-b(1)})\right]}$*. It is an unique equilibrium iff* $\theta < \phi - \sqrt{(-\phi)^2 - 4}$ *and* $t > t_2 = \frac{ln\sigma}{ln[\theta[1+\frac{1+g(1)}{1-\frac{\theta}{4})(g(1)-b(1))}]}$*.*

5.3.3 Small business financing in small and large banks

To sum up, small banks will lend to small firms if they have existing relationships with small firms with length at least

$$\underline{t} = \frac{\ln \sigma}{\ln \theta} \tag{5.19}$$

[27]This is a results that differs from the line of arguing of Stein (2002)[123], where from his theory one can derive, that large banks would always choose to finance large firms.

In comparison, even in the best possible case for small firms (low θ and managers coordinate on equilibrium $(S;S)$), large banks will only lend to small firms with which they have at least relationship length

$$t_1 = \frac{\ln \sigma}{\ln \left[\theta(1 + \frac{1+g(1)}{g(1)-b(1)})\right]} \tag{5.20}$$

It can easily be shown that $t_1 > \underline{t}$ (see proof in Appendix 3). This means, that small firms having a relationship with their respective bank of length t, with $\underline{t} < t < t_1$, will get a positive expected loan volume[28] in the period of interest, if their bank stays small, but zero loan volume for sure if their bank becomes part of a larger bank structure.

Proposition 3
Small banks are more likely to extend credit to small firms than large banks. Large banks are more likely to extend credit to large firms than small banks. Small business clients, in the period of interest, with relationship lengths $\underline{t} < t < t_1$ *with their respective banks will attain an expected loan volume of* 1 *if their bank is small, but no loan if their bank is large.*(Directly follows from proof in Appendix 3)

In the following, let us focus on firms with such relationship lengths t with the consolidated institution as the basis of further analysis, as these are the interesting cases to be studied.

5.4 The Role of Consolidation

Now when one thinks of consolidation as a merger or acquisition between two small banks, leading to the evolution of a large bank with the respective loan managers still in place but now headed by an additional CEO, one can easily discuss the consequences of consolidation on small firm credit on a bank and market level. In the proposed basic model setup the organisational change has no impact on bank technological parameters θ and σ and all banks share the same technology.

[28] If a client of a small bank, the small firm with respective t as above will get an expected loan volume of $(1-\sigma^{1/t}) \times 1 + \sigma^{1/t}[0,25 \times 4 + 0,25 \times 0 + 0,5 \times 1] = 1$, which can directly be seen from the expected capital allocation of the manager as laid out in the section on small banks.

There is one, though hardly interesting, first result, namely consolidation will never have any adverse effect on small firms if $\theta = 0$. Let us rule out that possibility for now.

5.4.1 Changing credit supply within the merged bank

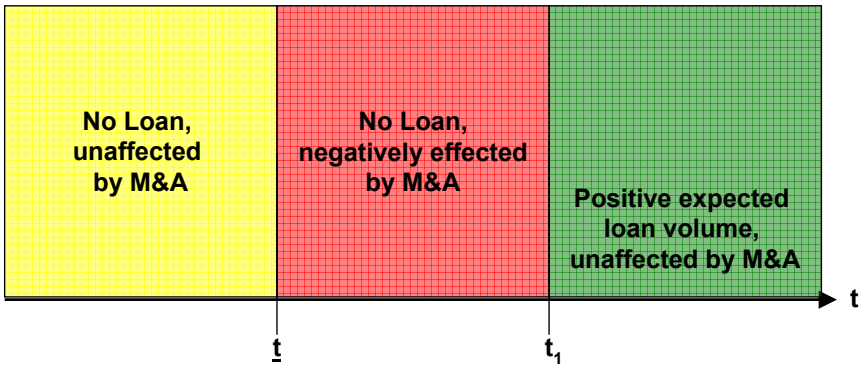
Proposition 4

Small firms with relationship length t with $\underline{t} < t < t_1$ with their respective small bank will not be supplied with loans in the analyzed period, if their bank merges or is acquired, while they would have been financed with an expected loan volume of 1 *by this bank if it had stayed independent.*

This result directly follows from Proposition 3, as consolidation via M&A simply changes the structure of the respective banks from small to large. As was shown in the case of a small bank, small firms with relationship length $t < \underline{t}$ would not have received credit from their respective small bank even if it stayed independent. Even in the best possible case small firms with relationship length t, with $\underline{t} < t < t_1$, will not receive credit from the new banking structure their old bank is consolidated into, but would have done so, if the small bank had stayed independent.

The following figure subsumes, which bank-firm relationships are affected by the respective bank being involved in M&A activity.

Figure 5.4: Bank-Firm Relationships Affected by M&A



5.4.2 SME credit supply at the market level

Whether small firms are in the end adversely affected by consolidation depends on whether other small banks make up for the lost loan supply from the consolidated bank.

For starters let us focus on the case where small firms only have an existing relationship with just one bank.

If small firms have only one standing relationship with a small bank, then the firms definitely adversely affected by consolidation will be those who had relationship length t with $\underline{t} < t < t_1$ with one of the consolidated small banks. Again this is straightforward. The small firms identified are those who had a relationship with one of the consolidated banks but will not get financed by it again in the period of interest.

With any other bank, small or large, they have relationships with length $t = 1$.

As a direct consequence from the results of the basic model above, it must be true, that these firms will never receive credit from another large bank.

Whether they stand any chance to receive credit from another non-consolidated small bank depends on whether this small bank has existing relationships to small firms and how research efficiency parameters look like.

Small firms in general attain credit from small banks in the period of interest, if they have at least relationship length $\underline{t} = \ln\sigma / \ln\theta$ with this bank. As $t = 1$ for the small firm it will only possibly get funded by this third small bank if $\sigma > \theta$, whereas it would have received credit if its old relationship bank had stayed independent if $\sigma^{1/t} > \theta$, which is a less binding constraint for $t > 1$ with the old bank.

If this third small bank had formerly specialised on small firms it will have relationship length $t > 1$ with at least two small firms. In this case the small firm set free by a consolidated institution will not receive credit from the third bank, even if $\sigma > \theta$, as the loan manager in this bank achieves higher expected utility from sticking with supplying loans to its incumbent small firm clients, due to better knowledge about them leading to more efficient allocations of loans.

So one can conclude that small firms will not only be affected by the merger through the direct effect, that it is less likely that the newly merged bank, in which at least one former part was their credit partner, will extend credit to them, but also by the fact that it is a lot less likely that they receive credit from a third non-consolidated bank, which constitutes a real problem at the market level[29].

Proposition 5

[29]To be precise the only potential source of credit for the analyzed firm are new entrant

Small firms with a single relationship with a consolidating bank will suffer in overall credit availability in expectations through this consolidation. They will be less likely to get credit from the consolidated institution, as well as be less likely to receive credit from other banks in the market, due to their lack of a relationship with other banks. The only potential source of finance are small new entrant banks in a setting where $\sigma > \theta$.

5.4.3 Small firms with multiple bank relationships – The odd firm out

The impact of consolidation on small firms above was concerned with small firms only having an existing relationship with one bank.

Let us now consider the case where these firms have $n > 1$ relationships with at least one of the banks not being part of a M&A process, so the respective firm had taken up a loan from 2 banks in its history at some differing times.

In this case there exist different possible scenarios for the overall credit availability to small firms. The easiest case in thinking about the problem is an economy with three banks i,j,k where i and j are small banks that merger while k stays independent and the loan market situation for small firm s is analyzed[30]. It should be clear, that a small firm s with relations to banks i and j will not fare any better than if the firm only had a relationship with either i or j, as both banks merge together.

The respective length of relationships between the small firm and the banks are $t_{i,s}$,$t_{j,s}$ and $t_{k,s}$.

Already knowing that, if bank k is a large bank it will likely not supply credit to firm s, we focus on the more interesting case of bank k being small.

The benchmark for the following analysis is a single relationship small firm who will not attain credit from the consolidated institution. So, for additional insights compared to the case of a single firm-bank relationship, the focus is on the case $t_{i,s} < t_1$.

Case 1: Bank k has been specialising on large firms so far and $t_{k,s} > \underline{t}$

banks. Because if the other type of incumbent small banks, that have specialized on large firms to date, exists, these will not supply positive expected loan volume to the analyzed small firm in the period of interest, given the assumption of rising θ over time. This is shown in appendix 4.

[30]I do not discuss bank entry here.

Due to the assumption of rising θ over time this case does not exist[31].

Case 2: Bank k has been specialising on large firms so far and $t_{k,s} < \underline{t} < t_{i,s}$

If so, the small firm will definitely not receive any credit from any incumbent bank whereas it would with positive probability, if bank i had stayed independent.

Case 3: Bank k has specialised on small firms serving firms l,m and $t_{k,s} < t_{k,l} = t_{k,m}$.

Even if $t_{k,s} > \underline{t}$ the small firm will not receive credit from the third bank k because the loan manager of the bank has longer standing relationships at hand, therefore better knowledge about these firms and therefore higher expected utility serving firms l,m instead of s.

Case 4:Bank k has specialised on small firms serving firms l,m and $t_{k,s} > t_{k,l} = t_{k,m} > \underline{t}$

This is the case, where the firm suffering from M&A activity is not the one set free by a consolidated institution, but other small firms are negatively affected by such a development.

Here firm s will attain positive expected loan volume from bank k but only at the expense of either firm l or m. Remember that small banks in the model are restricted to only screen two possible loan projects. So even though in this case firm s still possibly attains credit, at least one other small firm will be adversely affected by the ripple effect of consolidation through M&A.

The case analysis can be subsumed in the following proposition.

Proposition 6

Keeping up multiple relationships with banks decreases the probability of a small firm being negatively affected by consolidation through M&A. However, as a group, small firms overall suffer from consolidation. Small firms negatively affected by consolidation need not be direct clients of the consolidated institution.

[31]With rising θ if $t_{k,s} > \underline{t}$ in the period of interest it must be true that $t_{k,s} > \underline{t}$ in the period before. Therefore bank k would have specialised on small firms in the earlier period.

5.5 National versus Multinational Consolidation through M&A and heterogeneous countries

Up to this point I have established a model giving insights into potential effects of overall M&A in the banking sector on small firm credit availability. Let us now discuss an international perspective namely whether in the eye of small firms consolidation involving a foreign bank is better or worse than pure intranational active consolidation.

How could these two types differ in a non-trivial way[32]?

One potential difference might come in the form of a home country specific bank heterogeneity in research efficiency. As stated in the basic setup, the research efficiency on hard information should intuitively be rather independent of length of relationship between bank and large firm, due to the standardization of research on hard information. But one factor of how good managers inside a bank do research on hard information should be the amount of times they have done that which means the population of large firms the manager has dealt with. This is simply the idea of "'learning by doing"'(e.g. Krugman (1987)[89]. As the globalization of financial services is a rather new phenomenon the size of the home country large firm population should therefore have a positive effect on the respective banks' research efficiency concerning hard information[33]. One possible functional form, similar to the one used for learning in an international environment by Krugman (1987)[89], for research efficiency of bank i is

$$\theta_i = \min(\alpha \sum_{T=1}^{P} [X_{i,T} + \delta X_{j,T}]\,; 1) \tag{5.21}$$

with $0 < \alpha < 1; X \geq 0; 0 < \delta < 1$

[32]Of course intranational M&A, besides changing the organizational structure of banks, also reduces the number of banks in the market whereas international M&A only changes the structure of one local bank, leaving the number of banks operating in the market constant. Let us abstract from this simple difference.

[33]One could of course also argue, that the difference between national and foreign banks might also depend on the efficiency σ of generating soft information. As Berger and Udell (2002)[19] put it "'Cross-border consolidation may create additional problems for relationship lending because a foreign-owned bank may come from a very different market environment, with a different language, culture,...."'.

where $X_{i,T}$ denotes the size of the large firm population in the bank's home country at time T, $X_{j,T}$ is the former in all other countries, δ gives the level of learning by international spillovers and P is the period of interest.

At the maximum the manager always learns about the actual state of large firm credit projects, so learning is bounded at maximum 1.

If bank research efficiency on hard information depends on the size of the population of large firms in their respective home country, banks from "'larger"' countries will have higher research efficiency on hard information than banks from "'small"' countries, as long as $\theta \neq 1$ in all the respective countries, as $\frac{\partial\ theta_i}{\partial X_{i,T}} > 0$ in that case.

What follows from this for the analysis on bank sector consolidation?

If a country is small in the above sense, all else equal, national banks will have a rather small degree of research efficiency on hard information θ_{medium}. A foreign bank from an even smaller country would show even smaller θ_{low} . In contrast a foreign bank stemming from a larger country would feature a large θ_{high} . Now assume that any of these banks take over or merge with another domestic bank, with hard information research efficiency equal to the maximum of these efficiencies of both merging banks.

Remember, that in the best case from the point of view of small firms this bank will only lend to small firms if

$$t > t_1 = \frac{\ln \sigma}{\ln \left[\theta(1 + \frac{1+g(1)}{g(1)-b(1)})\right]} \tag{5.22}$$

It can easily be shown for bank i that $\frac{\partial t_1}{\partial X_i} > 0$ for $\theta_i < 1$[34].

So even if a higher θ, induced in the consolidated institution by a merger with a foreign bank from a large country, does not lead to the bank not providing loans to any small client firm anymore, no matter the lengths of relationships at hand, it does increase the minimum relationship lengths required to keep up financing of small enterprise customers.

Summarized, the higher the research efficiency of the consolidated bank the less likely the bank keeps serving its existing small firm client base.

Proposition 7

Result 1: Bank sector consolidation should have worse effects on small firm credit supply, the larger the respective country's large firm population is.

[34] $\frac{\partial t_1}{\partial X_i} = \frac{\partial t_1}{\partial \theta} \times \frac{\partial \theta}{\partial X_1}$.

It is easy to show that $\frac{\partial t_1}{\partial \theta} = \frac{\ln \sigma}{-\theta(\ln \theta)^2} > 0$.

As $\frac{\partial \theta}{\partial\ X_1} > 0$ it follows that $\frac{\partial t_1}{\partial X_i} > 0$.

Result 2: Consolidation through M&A involving foreign banks is more harmful to small firms than pure national consolidation, if the foreign acquiring/merging bank stems from a country "'larger"' than the host country, whereas national consolidation is more harmful if the foreign banks come from a "'smaller"' country.

5.6 The Empirics of Small Business Lending and Consequences of Bank M&A

What does existing literature have to say about the characteristics of bank lending to SMEs and consequences of M&A activity in the banking sector?

5.6.1 Characteristics of Small Business Lending

As is assumed in the setup of the model, one very important feature of small business lending is that it is quite substantially relationship-based. Numerous studies employing a variety of methods to measure relationship strength between bank and borrower (e.g. length of relationship, exclusivity of credit relationship, service scope of relationship) find, that strength of relationships has positive implications for the respective borrower, in that the latter for example pay lower interest rates (e.g. Berger and Udell (1995)[17]) and are more likely to get funded by a respective bank (e.g. Scott and Dunkelberg (1999)[119]).

5.6.2 Consequences of (Cross-border) Consolidation on Small Business Lending: The Existing Literature

What does the existing literature have to say about the consequences of (cross-border) M&A in the banking sector on small firms?

For in-market M&A, leading to increased market concentration, loan interest rates and service fees might increase due to the increased market power of banks in this market. Theoretically, small firms might be most affected by this development, due to the fact that they are found to be rather immobile concerning their source of funding (Kwast et al.(1997)[90].

Indeed, studies (e.g. Akhavein, Berger and Humphrey (1997)[2]) find that in-market M&As, substantially increasing market concentration, empower banks in this market to charge higher prices.

In terms of cross-border consolidation, this is typically not a kind of in-market M&A from the perspective of small firms, even though it might be for large wholesale customers in investment banking, so it seems that national M&A in this respect is more likely to be harmful to small firms.

Besides the market power implications, M&As also change three characteristics of the involved banks, which, after reviewing the literature, might affect small business credit supply (see Berger et al.(2000)[12], where the second and third characteristics are the one the proposed model deals with:

- Increase in consolidated bank scale (and scope)
- Increase in consolidated bank organizational complexity
- External effects on the lending behaviour of other banks in the market

In general an increase in bank size might lead banks to shift their strategic focus from small business loans to wholesale services such as underwriting and other investment banking activities. An explanation could be, that capital market services can only be provided by large banks due to e.g. a critical mass of depositors. If banks face an upward sloping supply curve of capital this possible new market, now feasible to be served, would reduce the capital of this bank allocated to small business financing.

For bank scope effects, as Berger et al.(2000)[12] mention Williamson-type organizational diseconomies of scale, large banks might be ill-equipped to conduct relationship-based lending.

Empirical studies concerning the U.S., like Berger and Udell (1996)[18] and Berger et al.(1998)[16], indeed find a negative relationship between a bank's size and the proportion of its assets employed in providing small business credit.[35]

Raising the topic of large banks' relationship lending-capabilities, Cole, Goldberg and White (1999)[38] and Berger et al.(2002)[15] find, that large banks tendencially engage transaction-based lending to small firms, whereas relationships play a much larger role in lending between small banks and their respective small business clients.

However, whereas ex ante bank scale seems to be a negative indicator on whether small firms receive credit from the respective bank at all, quite a

[35]The latter study observed, that small banks (below $100 million assets) use 9% of assets on small business lending, very large banks (above $10 billion assets) only 2%.

few studies show evidence, that large banks seem to be safe havens for the small firms they after all serve in times of financial distress. Hancock and Wilson (1998)[75] for the U.S. find that financial distress reduced small firm credit in large banks way less than in small banks. DeHaas and van Lelyveld (2002)[46] come up with the same results for Eastern Europe for large foreign banks compared to relatively smaller national banks. For the latter it is quite unclear whether this in an effect of bank scale or rather (geographic) scope. Houston et al.(1997)[79] for the U.S. find that loan growth of banks in U.S., who are part of a Bank Holding Company (BHC) was less depending on those banks own than on the holding's financial health, cementing the idea that these holdings serve as internal capital markets.

The effect of an increase in organizational complexity on small business credit is theoretically analyzed in my model. Numerous studies investigate this relation also looking on the difference between pure national and multinational banks.

For example out-of-state ownership of a bank in the U.S. predominantly had a negative effect on small business credit in the respective banks (e.g. Berger et al.(1998)[16]. Being part of a bank holding had an effect in the same direction (e.g. Berger and Udell (1996)[18].

In order to understand the effect of consolidation on the market level, one has to analyze how other banks react to M&As in their market in respect to small business lending.

The empirical literature gives mixed results. Berger et al.(1998)[16] point to indication, that other banks more than offset the negative effect on small business lending in a consolidated institution by expanding their business in this field. However, contrary to this point, Berger et al.(1999)[11] find a neglectable external effect of M&A on other banks' small business lending, with only mature small banks being affected positively in their lending activity in this segment.

Furthermore, Berger et al.(1999)[11] discover a positive effect of consolidation on market entry in the banking industry. Combined with the generally found empirical results, that de novo banks tend to have the highest share of assets invested in small business loans[36], this induced (additional) entry might help offset bank-level negative effects of consolidation on the credit availability for small and medium sized enterprises.

In a recent contribution, Bonaccorsi di Patti and Gobbi (2007)[52] study the effect of bank mergers and acquisitions on credit supply to Italian firms,

[36]This has been found by several studies e.g. Goldberg and White (1998)[91], Berger, Bonime, Goldberg and White (1999)[11] and DeYoung, Goldberg and White (1999)[115].

with the firm dataset including mainly small and medium sized enterprises. Supporting the above model's propositions the authors find, that these firms are at least in the short-run negatively affected by such change in the market. To be precise, such reorganization within the banking sector leads to a drop in credit of 9%. However, not captured by our model, they find that credit levels for these firms revert to old volume after three years.

5.6.3 Bank sector consolidation and relationship management strategies of small businesses

One indirect result of the model is, that for the single small company the threat of bank sector consolidation, and therefore the fear of loosing its credit partner, should give an incentive to have lending relationships with multiple banks. Even though such multi-sourcing is theoretically expensive (even more so than for transparent firm) as soft information has to be transferred a number of times [37], the empirical literature does support the idea that firms use multiple banks as sources of finance (e.g. Detragiache et al.(2000)[49].

Berger et al.(2001)[14] argue more or less exactly to my point, that "'informationally opaque firms are more likely to have multiple lenders.....This is because after being cut off by the primary bank, opaque firms are likely to encounter more difficulty in finding additional lenders and/or have less favourable loan terms until their new relationships mature."'

This is very close to the theoretical story suggested above, as the major problem of small businesses in finding new credit partners is here, that the former do not have an existing relationship with the latter.

5.7 Findings and Shortcomings

In this paper I have developed a model taking up concerns about the effect of consolidation in the banking sector through M&A on credit availability for small firms, combining the notion that banks differ in their lending strategy because of different organizational setup with the idea that relationship lending plays a large role in small business lending. I come up with the result that consolidation via M&A indeed reduces the availability of small business

[37] Costs could come in the form of simple transaction costs, duplicated effort and free-rider problems. Also, firms might be reluctant to share confidential information to multiple banks who also have relationships with their competitors (e.g. Chiesa et al.(1995)[21].

lending in the economy. A reasoning on why firms might want to keep up lending relationships with several banks can be derived in consequence.

Unfortunately a discussion on welfare effects of such changes can not be made, as the loss in potential loan provision for SMEs is the gain in potential loan provision for large informationally non-opaque firms in this model. Welfare discussion would therefore need a further assumption on which type of firm should be the favoured main recipient of bank finance. As it is often argued, that small, new firms are the backbone of technological development, whereas large firms tend to operate in saturated markets, it might be true form an economy-perspective that loan provision to SMEs should be the priority. This would then tentatively suggest that welfare is reduced by such a shift in loan supply from small to large firms.

The model probably gives a good first formal market-level insight into the topic, but might fail to fully explain the reality because of a few shortcomings[38].

One might be, that consolidated banks might often organize in a decentralized way, for example by having each unit perform like a financial center, which would not lead to the evolution of an internal capital market. This in turn would keep the manager's specialisation decision in the old incentive surroundings of a small bank. Also banks might organize in a way to completely disentangle large and small firm credits personnel-wise.

So it looks like their might be scope for organizational strategy reducing the hazardous effect of consolidation on small firm lending. It seems like the main point of bank organization in the view of small firms would be decentralized financing negating the effect of the existence of internal capital markets on lending strategy.

Also, I implicitly employ the idea, that soft, relationship information is rather bank-specific than manager-specific. If, realistically the information is with the manager, the manager of a merged bank might simply leave the consolidated bank taking his relationships with him and starting up a new small bank. Whether they do so would then depend on their expected utility in the new bank compared to the consolidated institution.

Sticking with the manager's objectives, one though vague argument might also be a misspecification of manager's preferences. Managers might have

[38]Of course, the result that there simply will be no more provision of loans to some SMEs in some circumstances has to be seen as rather qualitative. Realistically small firms might not be completely excluded from loans, but rather would have to pay higher interest rates than without consolidation. Still the result that consolidation in the way discussed in my model is harmful to SMEs would hold.

a really strong preference to keep up existing relationships due to personnel friendships with small firm clients' management, social standing in the community, etc. offsetting potential empire-building tendencies. Changing preferences that way would lead to the conclusion that small business lending might actually be of larger volume than efficient, as even non-performing loans in expectations could be handed out due to these kind of preferences.

Another point to notice is that I implicitly assume that both types of banks, small and large, are ex ante capable of supplying both loans to large firms and small firms. However due to risk-regulation and the possibly differing nature of bank relationships with small and large firms this might not be the case[39].

For all of the above reasoning, a large variety of possible avenues for further theoretical research exists. Also, discussing entry motives of multinational banks or motives for intranational M&A and how they are intertwined with consequences of such actions should be very interesting, because motives should shape strategies which should determine the effects of such actions. Concerning empirics, the literature on the effects of in-market consolidation or foreign bank entry via M&A on SME loan supply still needs further work, as results seem ambiguous on quite a lot of questions about the topic. One important point is an international comparison of effects of M&A on small business lending. At the moment most of the research is based on U.S. data, so there is not much leeway to understand whether and how the underlying processes differ between countries.

One final important line of research to us would also be how the Basel II rules change the picture on small firm lending. On the one hand, Basel II is not in accordance with relationship lending threatening small firms relying on this type of credit. On the other hand with the clear knowledge about information requirements through the communication of Basel II small firms will be pushed to increase their level of hard information, which should enable them to be more competitive with large firms in the market for loans.

Within this thesis one final point that can be made is that, stemming from the above analysis, one would expect foreign bank entry via Greenfield Investment to be the optimal entry mode from the perspective of small and medium-sized enterprises, because this mode of entry, contrary to entry via acquisition, does not directly lead to one small bank in the market becoming integrated in a large bank structure, therefore the negative effect of such firms

[39]For example a large firm might need multiple services from one bank such as wholesale banking. Small banks might simply not have the scale to compete in these lines of business thereby loosing businesses like credit procurement from large firms as well.

set free by the new organizational structure and not finding a new bank for loan provision, does not apply to entry via Greenfield Investment.

APPENDIX

Appendix 1: Proof of Lemma 1

The expected net payoff of investor financing a small bank with K units of capital is respectively

- $EP(1) = \frac{g(1)}{2} + \frac{b(1)}{2}$
- $EP(2) = g(1) + b(1)$
- $EP(3) = \frac{3g(1)}{2} + \frac{b(1)}{2} + \frac{b(2)}{2}$

Overall, a financing volume K is feasible if $EP(K) > 0$ (outside option)

For $g(1)+b(1) > 0$, which is fulfilled by assumption 4, banks are therefore able to obtain two units of capital.

For $b(2) < 2b(1)$ expected net payoff of investing three units of capital is negative:
To show:

$$\frac{3g(1)}{2} + \frac{b(1)}{2} + \frac{b(2)}{2} < 0 \rightarrow b(2) < -b(1) - 3g(1)$$

for $g(1) + b(1) > 0$ follows

$$-b(1) - 3g(1) < 2b(1)$$

by assumption 3 $b(2) < 2b(1)$ therefore

$$b(2) < -b(1) - 3g(1) \rightarrow EP(3) < 0$$

Appendix 2: Proof of Proposition 1

The small bank loan manager will strongly prefer specialisation on small firm loans over specialisation on large firm loans iff

$$EU(S) > EU(L)$$

or

$$\sigma^{1/t} \times \left[\frac{3g(1)}{2} + \frac{b(1)}{2}\right] + (1 - \sigma^{1/t}) \times [g(1) + b(1)] + 2$$
$$>$$
$$\theta \times \left[\frac{3g(1)}{2} + \frac{b(1)}{2}\right] + (1 - \theta) \times [g(1) + b(1)] + 2$$

Rearranging yields

$$\sigma^{1/t} > \theta$$

and, using the log

$$t > \frac{ln\sigma}{ln\theta}$$

Therefore the minimum relationship length inducing the manager to again lend to small firms in the period of interest is

$$\underline{t} > \frac{ln\sigma}{ln\theta}$$

Appendix 3: Proof of difference in SME loan supply small banks/large banks

I want to show $\underline{t} < t_1$

Inserting yields

$$\underline{t} = \frac{\ln \sigma}{\ln \theta} < t_1 = \frac{\ln \sigma}{\ln\left[\theta(1+\frac{1+g(1)}{g(1)-b(1)})\right]}$$

which can be simplified to

$$\frac{1+g(1)}{g(1)-b(1)} > 0$$

which is fulfilled as by the assumption necessary for bank operations to be funded $g(1) - b(1) > 0/g(1) > 0$.

Appendix 4: Third banks behaviour formerly specialised on large firms

I proof by contradiction that banks formerly specialised on large firms will not supply a positive expected loan volume to the analyzed firm set free by a consolidated institution.

Define θ_{-1} as the hard information research efficiency in the former period and θ_0 as the parameter in the period of analysis, with by assumption $\theta_{-1} < \theta_0$.

A bank will only supply positive expected loan volume to a firm with it has relationship lengths $t = 1$ in the period of interest iff

$$\sigma > \theta_0$$

The bank specialises on large firms in the earlier period iff

$$\sigma < \theta_{-1}$$

So a bank specialised on large firms will provide positive expected loan volume to the small firm in the analyzed period iff

$$\theta_0 < \sigma < \theta_{-1}$$

which is a contradiction to

$$\theta_0 > \theta_{-1}$$

Appendix A: CEO payoffs given information received and subsequent capital allocation

I — A	(4;0)	(3;1)	(2;2)	(1;3)	(0;4)
{GG}{GG}	$4g(1)$	$4g(1)$	$4g(1)$	$4g(1)$	$4g(1)$
{GG}{none}	$4g(1)$	$\frac{7g(1)}{2} + \frac{b(1)}{2}$	$3g(1) + b(1)$	$\frac{b(2)}{2} + \frac{5g(1)}{2} + \frac{b(1)}{2}$	$2g(1) + b(2)$
{GG}{GB}	$4g(1)$	$4g(1)$	$4g(1)$	$3g(1) + b(1)$	$2g(1) + b(2)$
{GG}{BB}	$4g(1)$	$3g(1) + b(1)$	$2g(1) + 2b(1)$	$b(2) + g(1) + b(1)$	$2b(2)$
{GB}{GG}	$2g(1) + b(2)$	$3g(1) + b(1)$	$4g(1)$	$4g(1)$	$4g(1)$
{GB}{none}	$2g(1) + b(2)$	$\frac{5g(1)}{2} + \frac{3b(1)}{2}$	$3g(1) + b(1)$	$\frac{b(2)}{2} + \frac{5g(1)}{2} + \frac{b(1)}{2}$	$2g(1) + b(2)$
{GB}{GB}	$2g(1) + b(2)$	$3g(1) + b(1)$	$4g(1)$	$3g(1) + b(1)$	$2g(1) + b(2)$
{GB}{BB}	$2g(1) + b(2)$	$2g(1) + 2b(1)$	$2g(1) + 2b(1)$	$g(1) + b(1) + b(2)$	$2b(2)$
{BB}{GG}	$2b(2)$	$b(2) + b(1) + g(1)$	$2g(1) + 2b(1)$	$3g(1) + b(1)$	$4g(1)$
{BB}{none}	$2b(2)$	$b(2) + \frac{3b(1)}{2} + \frac{g(1)}{2}$	$3b(1) + g(1)$	$\frac{b(2)}{2} + \frac{3g(1)}{2} + \frac{3b(1)}{2}$	$2g(1) + b(2)$
{BB}{GB}	$2b(2)$	$b(2) + b(1) + g(1)$	$2g(1) + 2b(1)$	$2g(1) + 2b(1)$	$2g(1) + b(2)$
{BB}{BB}	$2b(2)$	$b(2) + 2b(1)$	$4b(1)$	$b(2) + 2b(1)$	$2b(2)$
{none}{GG}	$2g(1) + b(2)$	$\frac{b(2)}{2} + \frac{5g(1)}{2} + \frac{b(1)}{2}$	$3g(1) + b(1)$	$\frac{7g(1)}{2} + \frac{b(1)}{2}$	$4g(1)$
{none}{none}	$2g(1) + b(2)$	$\frac{b(2)}{2} + 2g(1) + b(1)$	$2g(1) + 2b(1)$	$\frac{b(2)}{2} + 2g(1) + b(1)$	$2g(1) + b(2)$
{none}{GB}	$2g(1) + b(2)$	$\frac{b(2)}{2} + \frac{5g(1)}{2} + \frac{b(1)}{2}$	$3g(1) + b(1)$	$\frac{5g(1)}{2} + \frac{3b(1)}{2}$	$2g(1) + b(2)$
{none}{BB}	$2g(1) + b(2)$	$\frac{b(2)}{2} + \frac{3g(1)}{2} + \frac{3b(1)}{2}$	$g(1) + 3b(1)$	$b(2) + \frac{g(1)}{2} + \frac{3b(1)}{2}$	$2b(2)$

Chapter 6

Conclusion and Outlook

The ongoing globalization of the banking industry has raised a number of questions on the entry motives and strategies of banks going abroad, as well as the impact of the change of market structures in the banking industry, that has accompanied this process.

This thesis has started out with giving an overview about what existing economic literature has to say about a large array of questions arising in the discussion about multinational banks and then has offered an insightful practitioners' view on strategic decisions within multinational banks via the case study of Bank Austria Creditanstalt in Central and Eastern Europe.

In the following this body of work has focused on, directly and indirectly, shedding new light on three specific issues that have arisen in the analysis of multinational bank behaviour and the consequences of associated changes in banking markets' structure.

Chapter 2, after giving an overview about the existing literature on multinational banking, yielded the following main insights via the case study conducted on the Austrian market leader in one of the core regions of multinational bank expansion world-wide, Central and Eastern Europe. In general, a highly complex relationship between a bank's core business strategy and its home market, its mode and timing for entry into foreign markets, its strategy in building business in these markets as well as the geographic pattern of a banks geographic expansion, was found. Retail-oriented and wholesale-oriented banks seem to differ significantly in their timing and choice of entry mode into foreign markets, with wholesale-oriented institutions seeming far more inclined to grow foreign business organically via Greenfield Investment, whereas successful retail banking in foreign markets seems to require non-mobile assets only available via the acquisition of local incumbents. Addi-

tionally, having a sufficiently large commercial client customer base to follow abroad seems to enable wholesale-oriented banks to enter markets at earlier stages of economic development, as entry into such a market can be profitable almost from the beginning with such sources of revenue at hand. Concerning empirical identification strategies of factors underlying the location decision of multinational banks, it is concluded from the findings, that, at least for regions economically integrating and with similar law and bank regulation, focusing on single host country characteristics might be inefficient, as location strategies might a broader regional, not country-specific, type[1].

Chapter 3 theoretically discussed the choice of entry mode of multinational institutions into foreign markets in general, not restricted to the banking industry. Whereas the existing literature discusses the choice of companies whether to enter a foreign market via the setup of a completely new structure (Greenfield Investment) or via the acquisition of an incumbent company in the host market in a completely static way, my proposed model incorporates a more "'dynamic"' view. In a market that is entered sequentially by foreign companies the choice of entry mode of the early mover affects the entry decision of potential subsequent entrants, where early entry via Greenfield Investment has the strategic advantage compared to entry via acquisition, that profit-reducing sequential entry via Greenfield Investment becomes less likely. The basic model thus yields a reasoning, why Greenfield Investment makes up such a substantial share of foreign direct investment in general, especially concerning the number of occurrences, whereas recent theoretical literature has focused on adding further explanations for entry via M&A, especially focusing on the analysis of asset-complementarity of acquirer and target. It is also found, that a perverse effect of limited takeover possibilities in markets to be entered further increases the attractiveness of Greenfield Investment for early market entrants. Whereas such a basic model can explain why Greenfield Investment should be an important entry path for e.g. the wholesale banking industry, an extension is additionally proposed that yields the tentative prediction, that entry via M&A should be a favoured entry mode into foreign markets in the retail banking industry. Incorporating the notion of market-specific learning by doing effects we find M&A to be the early entry mode deterring harmful sequential entry, if the respective industry is characterized by a low degree product differentiation between firms in the market. Due to generally assumed low ex ante product differentiation and heterogeneous regulation across countries, we deem this

[1] A variety of further results, new or confirming existing literature, can be found in the conclusion of the case study.

extension to be a good fit for the analysis of the retail banking industry.

The theory proposed in Chapter 4 offered new insights into a type of banking foreign direct investment, that has not received sufficient formal treatment in the existing literature though being heavily discussed both in general business literature as well as empirically, namely banks going abroad to provide services locally to its existing multinational firm customer base. In my model, which bases on a recent theoretical contribution by Marin and Schnitzer (2006)[97], a bank's decision whether to follow its customer abroad or not for loan provision is discussed. The model yields that this location decision of banks is shaped by an interaction of client-specific and host country-specific characteristics. Tendentially[2] banks will follow their customers abroad if their multinational customer enters what might be called a non-fully developed country characterized by a low endowment in human capital. The argument runs along the line of collateral, where it is derived, that governments' of such countries might be more inclined to block outflow of valuable asset-embedded human capital, creating the need for banks to sell such assets of a non-performing loan project locally in the host country. Doing so efficiently however requires a physical presence abroad to be able to identify potential local asset-takers. This line of argument is close to concerns of practitioners that mentioned, that issues arising about the cross-border liquidation of collateral are an important reason for banks to follow customers abroad[3].

Chapter 5 again did not primarily focus on multinational banking per se, but uses a theoretical model to analyze the effect of general re-organization of the banking industry on loan supply for small and medium-sized enterprises characterized by their informational opacity. To be precise the effect of M&A in the banking sector on the former is analyzed theoretically, where the general process applies to in-market consolidation as well as foreign bank entry via M&A. It is shown, that the likelihood of loan provision to small firms is reduced by M&A activity in the banking sector due to two modelled reasons. For one, a small firm is likely to loose its loan relationship with its small bank when this bank integrates into a large bank structure via either being a target or an acquirer in an M&A deal, due to loan managers incentives for specialising on large firm loans being larger in large, hierarchical banking institutions. Incorporating the notion of relationship-based banking for the SME sector, such that soft, non-verifiable, information becomes better the

[2]As the following argument holds true for two out of three types of clients discussed.

[3]I'd like to thank Jana Schwarze (Commercial Clients, Stadtsparkasse Muenchen) and Christoph Schropp (formerly Dresdner Bank AG) for pointing out this issue to me.

longer the respective bank-client relationship, I find that these firms set free by the consolidated institution are unlikely to attain loans from other small banks in the market due to a missing relationship with these institutions. Concerning the general focus of this thesis, it can tentatively be concluded, that foreign bank entry via Greenfield Investment should not have an adverse effect on the availability of loan financing for SMEs, whereas entry via M&A should be harmful to this client group.

Numerous unanswered questions concerning future developments in the multinationalization of the banking industry persist.

For one, the basic business strategies of banks are undergoing a major change. Banks increasingly focus on off-balance sheet activity, abandoning their role as risk-takers in their financing business by passing on securitized debt to other financial market participants such as hedge funds. Increasingly leaving such financial services of the balance sheet banks do not act as financial intermediaries in the classic sense anymore, rather acting as information brokers and sales channels for other financial market participants. As a result of this development, banks are in less need of long-term refinancing via deposits, shifting their retail strategies to act as a sales channel for higher-margin investment products such as certificates and investment funds. Instead of refinancing via deposits banks therefore increasingly refinance via the capital market as well as more short-term the interbanking market. As the classic intermediation role between depositor and borrower therefore becomes less important, and services such as asset management and investment banking services such as bond underwriting seem to require sufficient scale, an arising specialisation of banks on subsegments of the value chain is probably just in its beginning. Such specialisation is already found in Central and Eastern Europe in a recent study by Dinger and von Hagen (2007)[55], who find that old established banks in the region use their large existing branch network to focus on raising deposits and subsequently transfer these assets to new (mostly foreign) banks via the interbanking market, whereas the latter new banks focus on the provision of loans, backed by refinancing through the interbanking market. How such changing business strategies of banks will influence the further globalization of the banking industry remains to be seen.

At the same time new political discussions about restricting entry (especially via the acquisition of incumbent national firms) in key industries have gained momentum, with examples being the prevented takeover of Spanish energy national champion Endesa by German E.ON or recent discussion about prohibiting majority stakes of foreign investment funds in core industries in Germany. With the banking industry still perceived to be of

strategic importance for the economy, further globalization of the industry might be made infeasible by political interventionism[4]. Even without such political barriers, according to the economic literature (e.g. see Berger et al.(2000)[12]) the globalization of the banking industry might be restricted to an incomplete level compare to other industries, as informal barriers to entry in the commercial SME and retail banking sector coupled with a multinational banks' potential partial inability to successfully integrate acquired smaller local incumbents, might leave at least some banking services markets in the hands of smaller local players.

Finally, the internationalisation of the banking industry might also come under scrutiny by typical home countries of such multinational banks, as the international exposure of home banks might be cause for concern of home country governments. The latest development in the sub-prime mortgage loan crisis in the U.S. has left numerous foreign financial institutions[5] in bad condition. As a result of this exposure of foreign banks to U.S. market risks, indication has pointed to these institutions also restricting loan business in their home countries. Such development might lead to political claims towards domestic institutions to decrease their scope of business in (risky) foreign markets.

[4]Which, at least for the case of foreign bank entry via M&A, could possibly be rationalized by the findings in Chapter 5 of this thesis.

[5]Banks that have publicly been heavily discussed to be severely affected by this crisis are British Northern Rock and German Banks IKB and Sachsen LB.

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Curriculum Vitae Peter Beermann

Personal Data

Name	Peter Beermann
Date of birth	January 20th, 1977
Place of birth	Munich, Germany

Working Career

Since Nov. 2007	*L.E.K. Consulting GmbH, Munich* **Associate**
Dec. 2002 – Sept. 2007	*LMU University of Munich* *Chair for International Economics,, Prof. Dr. Dalia Marin* **Research and Teaching Assistant**
Apr. 2001 – Oct. 2002	*ifo Institute for Economic Research, Munich* *Directorate of social policy and labour markets* **Student worker**
May 2001 – Aug. 2001	*Logistics Gateway Inc , Toronto (CAN)* **Intern Business Development**
Apr. 1998 – Apr. 2001	*The Boston Consulting Group, Munich* **Student worker**
June 1999 – Aug. 2000	*tecis FDL AG, Munich* **Trainee / Junior Consultant**

Military Service

09/1996 – 06/1997	Military service in Lenggries and White Sands, Texas (USA)

Academic Career

Apr. 2003 – Jan. 2008	*LMU University of Munich* **Doctoral Student in Economics**
11/1997 – 11/2002	*LMU University of Munich* **Diploma-Student of Economics**
09/1987 – 06/1996	*Maria Theresia Gymnasium, Munich* **High School Student**