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## Essays on foreign ownership in transition banking

Poghosyan, Tigran

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## *Chapter 1*

# Introduction

## 1.1 Background and Motivation

How does foreign bank participation affect banking systems in host countries? Should countries encourage foreign bank entry or should they instead create more favorable business conditions for domestic banks? In the present globalized world, these questions rank high on the agenda of both academic researchers and policymakers. The issue is particularly complicated, since the theoretical literature does not provide unambiguous answer to these questions (Williams, 1997). Due to the absence of a unified theoretical framework, providing the answer to these questions remains largely an empirical issue.

The empirical assessment of the impact of foreign bank participation on domestic banking systems can be performed from different (but closely interconnected) perspectives. First of all, it is important to investigate the impact of foreign bank participation on the overall performance of banks. It is widely recognized that foreign bank entry may boost the performance of banking sectors in host countries due to better managerial expertise, application of modern technologies, and wider access to international financial markets. However, foreign banks can also perform worse than domestic banks due to asymmetric information problems and the low quality of

governance in host countries (Lensink et al., 2008). Altogether, the assessment of the impact of foreign participation on bank performance may be a daunting task given the sample selection problems associated with the foreign entry decisions. Next, from a social welfare perspective, it is important to examine the impact of foreign bank participation on the market structure in the banking sectors and their competitive stance. Here again, the direction of the impact of foreign bank entry is difficult to anticipate a priori. Opening borders can boost bank competition due to the exposure of the domestic market to competitors from abroad (Sengupta, 2007). However, market concentration can also increase following foreign entry if better performing foreign banks drive out less efficient domestic competitors (Detragiache et al., 2008). The impact on the market structure might also depend on the mode of foreign entry (Lehner and Schnitzer, 2008). While entry via establishment of a new banking institution (greenfield investment) results in an increase in the number of banks in the host country, entry via takeover of a domestic bank (cross-border acquisition) leaves the total number of banks unchanged, affecting only the ownership distribution. Finally, given that the banking sector remains the most important external source of finance for firms, it is important to investigate the impact of foreign bank participation on the cost of bank financing. The net interest margin, defined as the difference between the average interest rate received by banks for their lending activities and the average interest rate paid to depositors for their funds, serves as a good benchmark for analyzing the impact of foreign bank participation on the cost of financing. Theoretical models of interest margin determinants do not discuss the impact of bank ownership, but suggest that the main factors through which foreign bank participation can influence the cost of bank financing are related to the performance of banks and market competition (Maudos and Fernandez de Guevara, 2004). Whether foreign bank participation can have a direct impact on bank financing after accounting for its impact on performance and competition needs to be analyzed empirically.

The aim of this book is to provide a comprehensive empirical assessment of foreign bank entry and its implications for banking systems in former socialist economies (FSEs). There are several reasons why FSEs provide a fertile ground for analyzing implications of foreign bank entry on domestic banking systems. First, FSEs have experienced the largest inflow of foreign bank participation in the world (IMF, 2000). This provides a large amount of observations at individual bank level, which is essential for conducting an empirical analysis. Second, FSEs have started from a very low level of foreign bank participation in mid 1990s (EBRD, 2006). Transition from a largely domestic-owned banking system to a largely foreign-owned banking system during a relatively short period of time provides a unique opportunity to analyze the implications of ownership change for various aspects of banking system performance. Finally, despite a common socialistic heritage, FSEs remain heterogeneous in terms of the progress of their economic reforms, institutional background, and level of integration into the European Union (EU) (EBRD, 2006). Such heterogeneity enables analyzing the mediating effects of the macroeconomic and institutional environments on the relationship between foreign bank participation and banking system performance. Given these unique characteristics of the FSE banking sectors, the outcomes of our analysis in terms of answers to the aforementioned questions can be generalized.

The remainder of this introduction discusses the empirical methodology used in the analysis and provides an outline of the thesis, briefly reviewing each of the chapters and their value added to the literature.

## 1.2 Methodology

Given the empirical nature of the book, the main contribution to the literature is related to the application of new empirical techniques, which enable analyzing research questions that were overlooked in previous studies. In this respect, two innovative

approaches used in this study are worth mentioning. The first one is the application of a two-step approach for analyzing possible endogeneity in the relationship between foreign ownership and bank performance. Most previous studies employed a stochastic frontier analysis, in which the efficiency of a bank is modeled as a function of its ownership, usually measured through a dummy variable distinguishing between domestic (dummy = 0) and foreign (dummy = 1) banks. A drawback of this approach is that the impact of foreign ownership on bank efficiency will be overestimated in the presence of the *cream-skimming* effect, according to which foreign banks are targeting more efficient domestic banks for acquisition. To account for possible endogeneity due to sample-selection, in the first step the propensity of a domestic bank being acquired by foreign investors is estimated using instrumental variables. In the second step, the dummy variable of bank ownership is replaced by the estimated propensity score indicator. The coefficient of the propensity score variable is free from endogeneity effects. It provides support for the existence of the *cream-skimming* effect, suggesting that previous results on the relationship between bank ownership and its efficiency should be interpreted with care and, in some cases, reconsidered.

The second methodological innovation is the application of latent class techniques. These techniques are computationally intensive and became feasible to econometricians only recently, along with the advancement of computer technologies. Application of the latent class stochastic frontier methodology for analyzing bank performance allows accounting for differences in technological regimes in banking. Empirical analysis lends statistical support for the existence of different technological regimes in banking. These differences have not been discussed in most previous studies, which may have led to overestimation of bank inefficiency as differences in technological regimes were mistakenly attributed to underperformance. In addition, application of latent class logit analysis enables testing for the importance of various

institutional factors driving foreign bank entry. Previous studies based on a pooled logistic model did not account for environmental heterogeneity, which has proven to be a statistically significant driving factor.

### 1.3 Outline of the Thesis

This thesis consists of five chapters addressing the impact of foreign bank participation on banking systems in host countries. Chapter 2 assesses whether bank efficiency endogenously determines decisions on foreign acquisition (*cream-skimming* effect). Chapter 3 focuses on the institutional determinants influencing decisions of foreign banks to go abroad. Chapter 4 analyzes how the impact of foreign ownership on bank performance can be moderated by differences in banking technology regimes. Chapter 5 investigates the impact of different modes of foreign entry (greenfield investments and cross-border acquisitions) on bank competition in host countries. Chapter 6 evaluates the impact of foreign bank participation on financial intermediation costs. The final chapter concludes.

*Chapter 2* addresses the question of the impact of foreign bank participation on bank performance. When policymakers in FSEs liberalized their banking markets and encouraged foreign entry, they were largely motivated by potential efficiency gains that foreign entry would bring to domestic banking systems. The aim of the chapter is to test whether these expected benefits have materialized after two decades of liberalization reforms using individual bank data. A two-stage stochastic efficiency frontier model is applied, in which the probability that a domestic bank will be taken over by a foreign bank, obtained in the first stage, enters the second-stage specification among the cost efficiency determinants. The outcomes from this model are compared to estimates obtained from the more conventional single-step model in which a foreign ownership dummy variable enters the specification among the cost efficiency determinants (e.g., Bonin et al., 2005, Fries and Taci, 2005). The

comparison of the two models provides support for the *cream-skimming* hypothesis (sample selection), according to which foreign banks target more efficient banks in FSEs. This makes the interpretation of the positive impact of foreign ownership on bank efficiency reported in previous studies less convincing.

*Chapter 3* focuses on the institutional environment in host countries. Two competing hypotheses explaining the decision of foreign banks to enter FSEs are distinguished (Lanine and Vander Venet, 2007). According to the *efficiency* hypothesis, the main motivation of foreign entry is the extraction of extra revenues resulting from the upgrade of the efficiency of acquired banks, while the *market power* hypothesis suggests that the extra revenues are expected to be obtained from possessing additional market power. The relative strength of these competing hypotheses is tested using a multilevel mixed-effect logistic model.<sup>1</sup> The merit of this methodological approach in comparison to the simple logistic model applied in previous studies is that it allows conditioning the entry decision on the heterogeneity of institutional conditions in FSEs. The results clearly highlight the importance of the institutional background and economic development of FSEs in influencing foreign entry decisions (EBRD, 2006). Support for the *efficiency* hypothesis is found for foreign entry into more developed FSEs, while the *market power* hypothesis is confirmed for foreign entry into less developed FSEs with weak institutions. These findings suggest that foreign banks find it more beneficial to upgrade efficiency of target banks in relatively more advanced FSEs with better economic prospects, while reaping monopolistic rents is more easily attainable in less developed FSEs with a weak regulatory framework.

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<sup>1</sup> Our analysis is based on a discrete choice modeling framework, in which cross-border acquisition is defined as the acquisition of more than 50% of the outstanding equity of domestic bank by a foreign investor. An alternative approach would be to use a continuous variable measuring the percentage of shares acquired by foreign banks and to utilize a standard regression framework. However, as shown by Lensink et al. (2008), foreign banks mostly acquire dominating shares when entering emerging markets. Therefore, we believe that both approaches would probably lead to similar results.

*Chapter 4* provides further insights on the importance of country-specific environmental characteristics for the performance of banks. Environmental differences among FSEs hamper comparative analysis of bank performance, since technological regimes of banks may be influenced by the macroeconomic and institutional environment of the countries in which they operate. Ignoring these environmental differences may result in biased estimates of bank performance. The implication of environmental differences for the efficiency of banks across FSEs is explicitly tested using the latent class stochastic frontier model, which is more general than the standard stochastic efficiency frontier model employed in previous studies. The main advantage of the latent class framework is that it allows testing for the impact of environmental differences on technological regimes of banks and does not impose a priori restrictions on the sample. We show that there are three distinct technological regimes in FSE banking, characterized by different levels of efficiency, technological progress, and country coverage. Comparative analysis of different regimes suggests that there exists a tradeoff between bank efficiency and technological progress. For instance, banks located in the new members of the European Union exhibit more technological progress and lower efficiency than banks located in CIS. Moreover, foreign entry improves performance of banks located in the new members of the European Union, with better progress in economic reforms, while the impact on banks in less developed CIS countries is ambiguous. This finding is in line with the previous result, according to which foreign bank entry is motivated by efficiency considerations in more advanced FSEs.

*Chapter 5* analyzes competition aspects of foreign bank participation. Foreign bank participation was expected to lead to a more competitive and vibrant banking environment in FSEs. Although the concepts of competition and performance are intrinsically interrelated, most previous work analyzed them separately. In contrast, this chapter tests whether foreign bank entry boosts competition in host countries by



taking into account a possible impact of bank efficiency on market competition. To test this hypothesis, we explicitly differentiate between two modes of foreign entry: establishment of greenfield subsidiaries and cross-border acquisitions. While cross-border acquisitions aim at expanding the business to the FSEs, the greenfield entry is primarily motivated by serving the clients of the parent bank abroad. Empirical analysis provides support for the hypothesis of increased competitive pressure following foreign entry, but only for the case of cross-border bank acquisitions. Greenfield entry does not result in higher competition, which may be due to the relationship lending of greenfield banks to their clients abroad. Increased foreign participation has not led to a fully competitive market structure in FSEs.

*Chapter 6* studies the impact of foreign bank participation on financial intermediation costs in host countries. Foreign bank participation was expected to improve accessibility of finance in FSEs and to decrease the cost of credit via efficiency improvement and greater competition. Using net interest margins as proxy for financial intermediation costs, we analyze the impact of these channels using the *dealership* model as an underlying theoretical framework (Ho and Saunders, 1981). This model assumes that banks serve as risk-averse dealers in the deposits and loans market, bearing the risk of refinancing due to the possible mismatch between the arrival of deposits and demand for loans. It has become a standard benchmark in empirical studies of interest margin determinants. We show that when all theoretically motivated (e.g., market concentration, credit and market risks, bank risk aversion) and environmental variables (e.g., liquidity) are taken into account, foreign bank participation has no direct or indirect significant effect. This result calls for reassessment of some of the previous studies.

The final chapter summarizes the main findings of the study and discusses its policy implications.