NEXUS BETWEEN FOREIGN BANKS AND FINANCIAL INCLUSION: EVIDENCE FROM THE TRANSITION ECONOMIES

YABANCI BANKALAR VE FİNANSAL İÇERME ARASINDAKİ İLİŞKİ: GEÇİŞ EKONOMİLERİ ÖRNEĞİ

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ABSTRACT

This paper examines empirically the impact of foreign banks on access and use of financial services for a panel of transition economies over the period 2004-2017. Transition economies provide rich evidence for analyzing this relationship given the predominance of foreign banks in their banking systems. The results reveal that foreign bank presence is positively associated with banking sector outreach indicators, such as ATM and branch penetration, after controlling for several macroeconomic, institutional and financial country-specific factors, however foreign bank entry is found to have no impact on the use of financial services, as measured by borrowing per capita. Results from low and high foreign bank threshold subsamples provide further evidence that foreign bank penetration effects on financial inclusion do not vary by thresholds.

Keywords: Foreign banks; Financial inclusion; Banking sector outreach; Transition economies

ÖZ

Bu çalışma, 2004-2017 yılları arasında geçiş ekonomilerinden oluşan bir ülke paneli için finansal hizmetlere erişim ve bu hizmetlerin kullanımı üzerinde yabancı bankaların etkisini ampirik olarak araştırmaktadır. Geçiş ekonomileri bankacılık sektörlerindeki yüksek yabancı banka payı paralelinde bu ilişkinin zengin bir şekilde gözlemlenebileceği bir ülkeler grubudur. Çalışmanın sonuçları, ülke bazında çeşitli makroekonomik, kurumsal ve finansal değişkenlerin etkisi kontrol edildikten sonra, ATM ve şube sayısı gibi finansal hizmetlere erişim göstergeleriyle yabancı banka varlığı arasında aynı yönde bir ilişki olduğunu göstermektedir. Buna karşılık, yabancı banka girişinin kişi başına yapılan borçlanma olarak ölçülen finansal hizmetlerin kullanımı üzerinde herhangi bir etkisi bulunmamıştır. Bunlara ek olarak, düşük ve yüksek yabancı banka paylarına sahip ülke örneklemlerden elde edilen sonuçlar yabancı bankaların finansal içerme üzerindeki etkilerinin eşik düzeyine göre değişmediğini ortaya koymaktadır.

Anahtar Sözcükler: Yabancı bankalar; Finansal içerme; Bankacılık sektörüne erişim; Geçiş ekonomileri

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1. Introduction

Following the intensive liberalization of banking sectors in most of the emerging and developing countries in 1990s, participation of foreign banks in financial intermediation has reached to considerably high levels in recent years. The impact of foreign banks on the structure of the domestic banking systems and financial sector deepening are heavily discussed and explored by academic circles, while the relationship between the foreign bank ownership and financial inclusion has been understated in the existing literature and yet, the debate over this link appears to remain controversial. On the one hand, foreign banks could have potential benefits in terms of further banking sector outreach since large and foreign banks have superior transaction and risk management technologies that allows them to reach all types of clients, including small ones. Moreover, if the aim of achieving local profit is an important driving force for entry, foreign banks are interested in appealing to a broader clientele. There are, on the other hand, some concerns about the possible unfavorable consequences of foreign banks on banking sector outreach. A frequently held view is that foreign banks are mostly uninterested in providing services to clients other than the largest firms and richest individuals in the country. Besides, it is argued that foreign banks are not interested in providing services to the population at large, instead they follow their clients and go abroad to offer services to the overseas operations of their domestic clients. On the contrary, another argument that exists is that even if foreign banks do not serve small clients, outreach could increase in case domestic banks are forced to move down the market, in effect expanding their outreach to serve smaller clients (see, Beck and Martinez-Peria (2010), for broad discussion).

The empirical literature on the link between foreign bank presence and financial sector outreach is scanty and provides contradictory results, while no previous study has investigated this relationship in the context of CESEE and former Soviet Union countries yet. Therefore, this paper aims to fill this gap and, to the best of our knowledge, is the first to explore the impact of foreign bank penetration on use of and access to formal financial services in transition economies. Notably, banking sectors in transition countries differ from their counterparts in many developing and emerging market countries by the high percentage of assets held in banks with majority foreign ownership, ahead of their regional peers. During the transition process, many former communist countries has made significant progress in the restructure and consolidation of the banking sector, which has mostly been achieved by privatizing state-owned banks and opening the banking sector to foreign ownership. Large-scale entry of foreign banks in transition countries began in the 1980's and became more widespread in the second half of the 1990's, resulting in a striking share of foreign banks in the number of total banks in these countries. Particularly Western European banks kept on increasing their presence through expansion of foreign subsidiary and branch networks. Consequentially, the prevalence and predominant role of foreign banks in the region provides an ideal setting to elucidate financial inclusion-foreign bank presence nexus.

Gopalan and Rajan (2018) discuss and provide some empirical evidence that countries need to satisfy some threshold level in foreign bank participation in order to benefit from the likely positive impact of foreign banks in enhancing financial inclusion. Within this scope, CESEE and former Soviet countries provides rich evidence given the significant differences in their foreign bank presence levels. In particular, even though transition economies have reached high degrees of financial integration and have recorded an increasing share of foreign bank assets in total bank

assets following the mid-1990s, dominance of foreign banks seem to be considerably different among countries. More specifically, assets of foreign banks constitute over 90 percent of the total banking system in some countries like Czech Republic and Lithuania, while their share are about or below 10 percent in some of the others such as Russian Federation and Azerbaijan.

Against this backdrop, the main motivation of the study is to contribute to the literature by examining the effect of foreign bank penetration on financial inclusion in transition countries and analyzing whether this impact varies across countries with different thresholds of foreign bank participation spanning the period 2004-2017. In doing so, fixed effects panel estimation is applied to scrutinize the role of foreign bank presence on financial sector outreach as measured by alternative indicators capturing the accessibility and usage aspects of financial inclusion. Further, the analysis is conducted for subsamples of countries with low versus high foreign bank presence threshold in order to analyze whether the impact of foreign banks on financial inclusion is asymmetric depending on the threshold levels of foreign banks. The empirical findings have displayed that foreign bank penetration increases banking sector outreach but has no significant effect on usage of financial services, after controlling for several country characteristics. Besides, the positive impact on outreach indicators is found to be unrelated with the initial level of foreign bank share in the countries.

The paper is organized as follows. Next, Section 2 presents the review of literature. Section 3 outlines the empirical methods and model, while Section 4 explains the data employed in the study. Section 5 discusses estimation results. Finally, Section 6 provides concluding remarks.

2. Literature Review

The effect of foreign bank entry on banking outreach is an interesting and policy-related issue that has not yet gained much clarity and has not been explored much in literature. Indeed, opposite opinions exist in this literature regarding the implications of foreign bank participation for having access to finance. On one hand, it is argued that foreign bank penetration tends to improve access to formal financial services by increasing competition and thereby, leading to a reduction in spreads and in the cost of credit, which would likely to result in the expansion of the client base. In that case, enabling a higher usage of banking services by major portions of the population; financial providers contribute to greater financial inclusion (Ellis, 2007). On the other hand, an opposing frequently held view is that foreign banks tend to cream-skim the wealthiest and financially transparent customers. Appealing such a narrow segment of population, foreign-owned banks in the sector does not make finance more inclusive for all individuals and enterprises, especially the SMEs, in the economy, and hence access to formal financial services remains rather limited for vast majority of the poor (Dell'Arricia and Marquez, 2004; Stiglitz, 2005; Sengupta, 2007; Ghormley, 2010).

The relationship between foreign bank penetration and financial sector outreach has been analyzed in a few studies[1], which in general are limited in scope and do not provide conclusive results. Among these studies, some report a negative association between foreign bank presence and financial inclusion while some find evidence towards a positive link. In their study, Beck et al. (2007a) measure the financial breadth and explore its determinants across a sample of 99 countries covering both developed and developing economies for the years 2003-2004.

1 Another strand of empirical literature examines the impact of foreign bank presence on households and firm's access to credit at micro level. For instance, see Gormley (2010); de la Torre et al. (2010).

According to the results of the study, the share of foreign-owned banks in the financial sector seems to exert a significant negative impact on loan and deposit per capita indicators. On the contrary, the findings lack to provide a significant effect of foreign bank participation on financial access indicators such as branch and ATM intensity in demographic and geographic terms. Therefore, the paper provides no evidence in favor of cherry-picking behavior of foreign banks by which they tend to lend more opaque and wealthier customers. Detragiache et al. (2008) focus on the impacts of foreign bank penetration on the development of financial sector in poor countries. In the empirical analysis of the study, foreign banks presence is found to be negatively related with several financial access indicators, namely demographic and geographic branch penetration and deposits accounts per capita, for a sample of low income countries during 2003-2004. Using cross-country data of 50 emerging and developing countries during 2004-2009, Gopalan and Rajan (2018) explore the impact of foreign bank presence on accessibility and usage dimensions of financial inclusion in their recent paper. The findings demonstrate that foreign banks significantly improve financial access. On the other hand, a negative association is observed between financial usage and foreign bank participation. Furthermore, the impact of foreign bank penetration is found to be stronger in countries having high shares of foreign affiliated banks in their system. As a country-specific study, Beck and Martinez-Peria (2010) investigate the link between foreign bank participation and banking sector outreach in Mexico over the period 1997-2005 by performing country-, bank-, and bank-municipality-level estimations. The findings display a decrease in the number of loans and deposit accounts following foreign bank acquisitions, while this decline appears to be more pronounced in poorer and less urban municipalities.

The above empirical literature suggests that link impact of foreign bank presence on financial inclusion vary considerably among countries, while no previous study has been investigated this relationship for the CESEE and former Soviet Union countries. In particular, regarding transition countries, most analysis are limited to analyze the role of foreign banks on the development of financial systems or on credit dynamics in the region and especially, following the 2008 global financial crisis, the potential risks associated with them.[2] To the best of our knowledge, this is the first study that explores the link between foreign banks and financial inclusion in transition economies context and it is more detailed than the previous studies on this issue considering its time span covered.

3. Empirical Model and Methodology

Following Gopalan and Rajan (2018), financial inclusion is modeled as a function of foreign bank presence and several control variables accounting for macroeconomic and institutional aspects of an economy which are thought to have an impact on the extent of financial inclusion. Accordingly, the baseline empirical specification is as follows:

$$FI_{i,t} = \alpha_i + \beta FB_{i,t} + \theta X_{i,t} + \eta CRISIS_t + \varepsilon_{i,t} \quad (1)$$

with i=1,……,N and t=1,….., T where N is the number of countries and T is the final year. In Eq. 1, $FI_{i,t}$ represents the financial inclusion indicators, $FB_{i,t}$ stands for foreign bank share measure, $CRISIS_t$ denotes the 2008 global financial crisis dummy, while matrix $X_{i,t}$ incorporates several control variables including GDP per capita, urbanization rate, overhead costs, institutional

2 See, among others; Naaborg et al. (2003); De Haas and Van Lelyveld (2006); Cull and Martinez-Peria (2013), Arekelyan (2018).

quality, infrastructure. In this benchmark specification, the estimated value of the foreign bank indicator coefficient is the primary focus of the analysis. Then, in order to explore whether the effect of foreign bank presence on financial inclusion differs by thresholds, the mean of foreign banks assets share (62 percent) is considered as the threshold level and accordingly, the whole sample is divided into two subsamples, specifically as countries below and above this threshold, and Eq. 1 is estimated separately for subsamples of low versus high foreign banks threshold.

The use of panel fixed-effects model, which allows controlling for unobserved country specific fixed characteristics, is considered as an initial step. This estimator addresses the possible omitted variable bias and remains robust only when the potential source of endogenity arise as a result of the correlation between the time invariant part of the error term and the related regressor (Gopalan and Rajan, 2018). Furthermore, Hausman (1978) test is carried out for the choice of panel estimation technique and it is found that fixed effects specification is appropriate since Hausman test does not reject fixed effects estimation in favor of random-effects model. In this way, the fixed effects panel regression is applied to the panel of transition countries under investigation.

Moreover, an endogeneity problem could arise since foreign banks tend to penetrate in countries with well-developed financial systems after all and it would be difficult to figure out whether changes in foreign bank share anticipated the changes in banking sector outreach. Accordingly, additional estimations are carried out for two alternative specifications of the baseline model in order to minimize the endogenity concerns and check the robustness of the findings. First, an alternative specification, where the contemporaneous foreign bank presence variable is replaced by its lagged value, is estimated to avoid the endogenity bias.[3] Second, a dynamic panel model in which the lagged value of the dependent variable is incorporated to capture the persistency of financial inclusion measure is estimated by using the generalized-methods- of moments (GMM) panel estimator developed by Arellano and Bover (1995) and Blundell and Bond (1998). In that respect, the following dynamic empirical model is considered:

$$FI_{i.t} = \alpha_i + \gamma FI_{i.t-1} + \beta FB_{i,t} + \theta X_{i,t} + \eta CRISIS_t + \varepsilon_{i,t} \quad (2)$$

The system GMM estimator uses moment conditions in which lagged differences are employed as instruments for the level equation. In the presence of country-specific fixed effects and possible endogeneity problem, this estimator would provide efficiency and consistency given that the model is not subject to second-order serial correlation and the chosen instruments are valid.

4. Data

The relationship between foreign banks and financial access to banking services is examined by employing an unbalanced annual panel dataset of emerging and transition economies over the period 2004-2017. A detailed list of countries is given in the Appendix Table A. Data on financial inclusion measures are gathered from the International Monetary Fund's Financial Access Survey.[4] GDP per capita, urbanization rate, overhead costs and infrastructure variable data

3 Results are consistent with the baseline model's findings and not reported for sake of brevity.
4 Ideal approach would be to use financial inclusion indicators that capture both the supply-side and demand -side factors. Unfortunately, World Bank's Global Financial Inclusion database provides cross sectional user-side data on financial behavior at the individual level, which lacks for time series dimension. Hence for the specific aim of this study, supply-side indicators of financial inclusion are adopted in the panel regression models.

are extracted from World Bank's Global Financial Development Database. The data regarding share of foreign banks on the basis of total assets from 2004 to 2013 are drawn from the Bank Ownership Database compiled by Claessens and van Horen (2014, 2015), while the data for 2014-2017 period are either calculated from ECB Statistical data for the EU members or collected from the official websites of several national authorities for the remaining countries. Lastly, data for institutional quality is obtained from World Bank Governance Indicators.

In the analysis, four different indicators of financial inclusion suggested by the earlier theoretical and empirical studies are employed. Beck et al. (2007a) distinguish between the two different aspects of the concept of financial inclusion. While the first dimension is to access to financial services, the second one is the actual use of financial services. Accordingly, alternative measures of financial inclusion appealing both of these accessibility and usage dimensions are utilized as dependent variable. To this end, three indicators of financial sector outreach are considered: (i) number of automated teller machines (ATM) per 100,000 adults (*atm_pc*) (ii) number of automated teller machines per 1,000 square kilometers (*atm_den*) (iii) the number of commercial bank branches per 100,000 adults (*branch*). While first measure is included to account for physical dimension of accessibility to financial services by firms and households, the other two proxies, i.e. ATM and branch density scaled by geography, capture the demographic outreach aspect of financial inclusion. In addition to these accessibility indicators, (iv) the number of borrowers at commercial banks per 1,000 adults (*borrower*) is included as a measure of the use of banking services to account for usage dimension of financial inclusion. The number of deposit accounts per 1,000 adults and loan accounts per 1,000 adults are other potential candidate indicators that have been widely used in the literature as a proxy for usage dimension. However, the available consistent data on usage indicators are limited for the countries in the sample, which could lead to some potential concerns regarding econometric estimation. Therefore, just the number of borrowers per capita is utilized as a proxy of usage aspect in the empirical specifications since it is postulated to be a more suitable indicator given the fact that the other two measures tend to overstate the usage dimension as stated by Gopalan and Rajan (2018).

Figure 1 shows the extent of financial access measured by number of automated teller machines per 100,000 adults for the top five transition countries; i.e. Russian Federation, Croatia, Slovenia, Estonia, Bulgaria, in the sample during the period 2004-2017. The global financial crisis appears to have no considerable impact on demographic outreach dimension of financial inclusion proxied by ATMs per capita.

Regarding the foreign bank presence variable, the share of foreign bank assets among total bank assets (fb) is used as an indicator to control for the impact of foreign bank penetration on access to and use of financial services. As the primary focus of the paper is to test impact of foreign bank participation rather than foreign bank entry or their cross-border flows, the share of banking assets hold by foreign-owned banks provides a convenient measure within the scope of the analysis. The expected sign of the coefficient of fb variable in empirical specifications is ambiguous, since the arguments regarding the relationship between financial inclusion and foreign bank presence seems to be controversial and empirical evidence on that issue provide mixed results as mentioned in the Introduction.

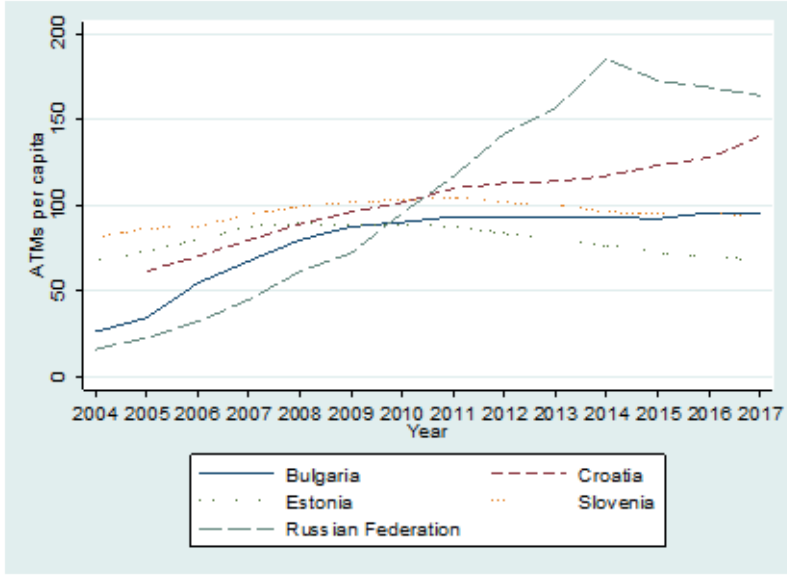

Figure 1. ATMs per capita for selected transition countries

Consistent with the previous literature, a selected set of regressors are included into the empirical model to control for several macroeconomic, institutional and financial factors that have been pointed out as likely determinants of financial inclusion in a country. Accordingly, X i,t is a vector of these control variables that includes: GDP per capita (*gdppc*), measured by gross domestic product divided by midyear population in constant 2010 U.S. dollars and is expected to have a positive impact on financial inclusion since it is an indicator of higher development level of a country (Clarke et al.2001, Sarma and Pais, 2011, Kim et al., 2018; Sethi and Acharya, 2018); urbanization (*urban*), calculated as share of urban population to the total population, is anticipated to exert a positive influence on access and use of finance as the more urban a country is, the higher level of financial inclusion is likely to persist (Beck and Martinez-Peria, 2010, Sarma and Pais, 2011); institutional quality (*insquality*), measured as the simple average of six indicators of World Bank Governance Indicators (i.e. accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption), and included because better institutional quality in an economy indicates a reliable legal system and stronger contract and property rights associated with greater transparency, which are all expected to enhance financial sector outreach (Beck et al., 2007b; Allen et al. 2016); overhead costs (*overhead*),calculated as the ratio of bank overhead cost to total assets, is incorporated as a proxy of bank operating expenses and assumed to display a negative association with financial inclusion since banks with high operating costs are less likely to expand outreach especially in terms of providing physical access for financial services delivery (Beck and Martinez-Peria, 2010; Gopalan and Rajan, 2018); infrastructure variable, proxied by fixed telephone subscriptions per 100 people (*telephone*), and is expected to affect financial inclusion positively (Beck et al., 2007a, Sarma and Pais, 2011). Finally, a dummy variable (crisis), which takes the value 1 for years 2008 and 2009, and 0 otherwise, is included to capture the possible impact of the recent global financial crisis on financial inclusion in transition countries. Descriptions of the variables are given in Table

1, while descriptive statistics are provided in Table 2.[5]

Table 1. Description of the variables

Variable	Notation	Description
Financial inclusion I (access/outreach)	atm_pc	Number of ATM per 100,000 adults
Financial inclusion II (access/outreach)	atm_den	Number of ATMs per 1,000 square kilometers
Financial inclusion III (access/outreach)	branch	Number of commercial bank branches per 100,000 adults
Financial inclusion IV (usage)	borrower	Number of borrowers at commercial banks per 1,000 adults
Foreign bank presence	fb	Foreign bank assets to total bank assets (%)
GDP per capita	gdpc	GDP divided by midyear population (in constant 2010 U.S. dollars)
Urbanization	urban	Urban population to total population (%)
Overhead costs	overhead	Bank overhead cost to total assets (%)
Institutional quality	insquality	Simple average of six indicators of World Bank Governance Indicators
Infrastructure	telephone	Fixed telephone subscriptions per 100 people

Table 2. Summary Statistics

Variable	Observations	Mean	Std. Dev.	Min.	Max.
atm_pc	361	52.0222	30.9881	0.6026	185.3242
atm_den	361	29.9639	22.0375	0.1094	91.6087
branch	368	26.6199	16.6562	0.4539	92.1731
borrower	186	259.3657	183.4487	11.5526	680.2496
fb	325	62.1305	29.1789	1	100
gdpc	378	8562.638	6068.444	748	25662
urban	378	59.6940	10.0035	35.284	78.134
overhead	351	4.2490	5.3195	0.67	81.9
insquality	376	0.0073	0.6589	-1.5466	1.2200
telephone	376	24.3410	10.3323	35.284	78.134

5. Empirical Results

The benchmark Eq.1 is estimated to test for the effect of foreign bank participation on financial inclusion and Table 3 presents these estimation results associated with alternative financial inclusion measures.

5 Summary statistics are reported before corrupt observations controlled for.

Table 3. Estimation Results for the Whole Sample

	Model 1 (*atm_pc*)	**Model 2 (*atm_den*)**	**Model 3 (*branch*)**	**Model 4 (*borrower*)**
fb	0.4234*** (0.1265)	0.2328** (0.0937)	0.1402* (0.0703)	0.5517 (0.9792)
gdpc	0.0080** (0.0029)	0.0038** (0.0011)	-0.0006 (0.0005)	-0.0087 (0.011)
urban	5.1721** (2.1854)	2.3195* (1.1440)	-0.3101 (0.8529)	4.9221 (8.3509)
overhead	-0.0761 (8.601)	-0.1119 (0.1054)	0.0540** (0.0236)	-16.5711*** (2.7756)
insquality	0.0446 (0.1593)	0.0469 (0.1034)	0.0977 (0.0701)	3.8980*** (0.9354)
telephone	-0.0435 (0.3935)	-0.3508 (0.2168)	0.3537** (0.1585)	0.0369 (3.2593)
crisis	0.5667 (2.1238)	0.5467 (1.0188)	2.9187*** (0.7332)	0.1839 (10.9536)
No of obs.	297	297	303	147
R^2	0.7405	0.8916	0.9239	0.9254

Notes: The values in parenthesis are robust standard errors clustered for countries.
***,**,* denote statistical significance at 1%, 5% and 10% levels, respectively.

As Table 3 shows, in regression results obtained from Model 1 through Model 3, coefficients on foreign bank variable are statistically significant and positive for all of the financial outreach indicators: *atm_pc*, *atm_den* and *branch* are found to increase with foreign bank participation at significance levels of 1%, 5%, and 10 % respectively. As for the measures of ATM intensity in both geographic and demographic terms, a stronger statistically significant relationship is observed when compared with the branch intensity indicator. This result conforms to the previous findings of Gopalan and Rajan (2018) and supports the assertion that, as opposed to bank branches, ATMs would be a superior indicator for financial inclusion, especially in the case of foreign banks, owing to their better cost-efficiency tradeoff. On the other hand, as the results of the Model 4 is considered, the coefficient estimate attached to foreign bank presence turns out be insignificant for the indicator capturing the usage dimension, namely borrower per capita. This finding indicates that foreign banks positively affect access dimension of financial inclusion -i.e. banking outreach tend to increase as foreign bank participation increases, whereas foreign bank presence seem to have no impact on the actual usage of the financial services in transition economies. These fixed effects estimates of the foreign bank presence variables have two major implications. First of all, it seems that foreign banks in the CESEE and former Soviet Union countries do not tend to attract financially transparent and risk-free customers, In other words, the findings provide a lack of support for the argument stating that foreign affiliated banks tend to cream-skim wealthier clients and do not lend to small and opaque customers as result of asymmetries of information in financial markets. On the contrary, the results of the study demonstrate that, rather than catering to a limited segment of the society, foreign bank penetration appears to provide opportunities and improve access to financial services for the vast majority of the population in transition countries. Secondly, when the access and usage dimensions are accounted, the results pinpoint

that physical outreach points for financial services improve with foreign bank penetration, which in turn facilitates the delivery of financial services and enhance financial inclusion. However, entry and presence of foreign banks does not seem to facilitate a wider usage of these services.

Among the control variables, GDP per capita and urbanization rate are statistically significant and sign of their coefficients are consistent with the prior expectations in Model 1 and 2. On the other side, overhead costs is found to be statistically significant only in models comprising number of bank branches and borrowers, and while its impact is positive in Model 3, it turns out negative for Model 4.

Table 4. Estimation Results for the Whole Sample-System GMM

	Model 1 (*atm_pc*)	**Model 2 (*atm_den*)**	**Model 3 (*branch*)**	**Model 4 (*borrower*)**
FI (-1)	0.8160*** (0.0158)	0.9049*** (0.0142)	0.8416*** (0.0429)	0.8612*** (0.0769)
fb	0.2724** (0.0401)	0.2820* (0.0182)	0.1322* (0.0331)	0.3342 (0.3444)
gdpc	0.0034* (0.0029)	0.0026*** (0.0001)	-0.0011 (0.0002)	-0.0079 (0.0022)
urban	0.6809*** (0.1714)	0.7731*** (0.0867)	-0.0666 (0.1093)	2.2929 (2.1110)
overhead	-0.0279 (0.0514)	-0.0188 (0.0301)	0.0555* (0.0435)	-3.2679* (2.6855)
insquality	0.1194 (0.1593)	0.1767 (0.6079)	0.1756 (0.6960)	3.2342*** (0.9590)
telephone	-0.0324 (0.0984)	-0.2406 (0.0486)	0.1861** (0.0701)	0.9164 (0.9219)
crisis	0.8907 (1.4617)	0.4595 (1.0637)	1.6677* (1.1179)	0.3479 (4.9913)
No of obs.	276	276	283	133
Sargan (p-value)	0.4052	0.3835	0.4529	0.2874
AR(1), AR(2)	0.00, 0.13	0.00, 0.37	0.00, 0.22	0.00, 024

Notes: The values in parenthesis are robust standard errors clustered for countries.
***,**,* denote statistical significance at 1%, 5% and 10% levels, respectively.

As discussed in section 2, the baseline model is re-estimated with a system GMM estimator in order to deal with the potential endogenity problem and thereby, check the robustness of the findings. The system-GMM estimation results are displayed in Table 4. It is worth noting that the results do not vary drastically as the coefficients attached to foreign bank presence variable, which is the primary focus of analysis, and control variables, have slight differences in terms of absolute value, but do not change sign and significance. These findings, overall, provides further support for baseline model's findings.

Table 5. Estimation Results for the High Foreign Bank Threshold Sample

	Model 1 (*atm_pc*)	**Model 2 (*atm_den*)**	**Model 3 (*branch*)**	**Model 4 (*borrower*)**
fb	0.2851** (0.1217)	0.1555* (0.0809)	0.1472* (0.0766)	-0.8282 (1.3388)
gdpc	0.0040*** (0.0010)	0.0030*** (0.0006)	-0.0005 (0.0008)	-0.0237 (0.0140)
urban	3.7435*** (0.9224)	1.2180** (0.6134)	-1.0775 (1.3444)	-8.4054 (5.6299)
overhead	-1.3616* (0.6949l	-1.1121** (0.4621)	0.2451 (0.4642)	-17.2840*** (3.6536)
insquality	0.3180*** (0.1011)	0.1946** (0.0672)	0.1810* (0.0994)	5.8149*** (1.5074)
telephone	-0.1943 (0.2752)	-0.4343 (0.1830)	0.3120* (0.1376)	-0.3215 (2.6775)
crisis	2.7534 (2.2643)	1.3473 (1.5059)	3.0322** (0.9262)	-7.7692 (16.7314)
No of obs.	185	185	185	101
R^2	0.8239	0.8437	0.9056	0.9163

Notes: The values in parenthesis are robust standard errors clustered for countries.
***,**,* denote statistical significance at 1%, 5% and 10% levels, respectively.

Table 6. Estimation Results for the Low Foreign Bank Threshold Sample

	Model 1 (*atm_pc*)	**Model 2 (*atm_den*)**	**Model 3 (*branch*)**	**Model 4 (*borrower*)**
fb	0.5672* (0.2957)	0.3036** (0.1034)	0.0317 (0.0819)	0.8311 (1.0921)
gdpc	0.0138 (0.0084)	0.0017** (0.0005)	-0.0005 (0.0007)	-0.0036 (0.0152)
urban	3.4490 (2.2591)	3.5576** (1.0125)	0.0564 (0.9444)	30.8502** (9.4285)
overhead	-0.0285 (0.0939)	-0.0514 (0.0583)	0.0135 (0.0123)	6.4890 (10.8765)
insquality	-0.1677 (0.2604)	-0.1220 (0.1394)	-0.0736 (0.0878)	3.1948 (2.1254)
telephone	-0.4689 (1.3012)	-0.0165 (0.2204)	0.5189* (0.1899)	0.4126 (6.7272)
crisis	-3.5494 (5.2194)	0.5953 (1.5170)	2.5027** (0.7076)	-5.5939 (18.3438)
No of obs.	112	112	118	46
R^2	0.7144	0.9441	0.9581	0.9676

Notes: The values in parenthesis are robust standard errors clustered for countries.
***,**,* denote statistical significance at 1%, 5% and 10% levels, respectively

The estimation results obtained from fixed effects panel analysis of the subsamples of high foreign bank threshold and low foreign bank threshold are presented in Table 5 and Table 6, respectively. Regarding the models measuring financial inclusion in terms of accessibility, in all but one case the coefficients attached to foreign bank presence indicator are statistically significant with positive signs. Foreign bank participation still remains statistically insignificant in the specifications comprising borrowers per capita as the dependent variable. This result provides evidence for a lack of considerable difference in terms of the impact of foreign bank ownership on financial access that prevails between low and high threshold samples of foreign bank presence in transition countries. The statistically significant coefficients of foreign bank presence in both cases indicate that a threshold level of foreign bank participation does not lead to an asymmetric relationship as foreign banks tend to promote financial services outreach in each of the low and high threshold country samples. Hence, the impact of foreign bank ownership on accessibility to financial services does not appear to be higher for countries with a larger initial foreign bank share. In terms of the magnitude, surprisingly, foreign bank participation effects on financial inclusion are relatively larger for low foreign bank threshold sample.

A noteworthy result obtained from the fixed effect estimates of these alternative specifications is that the 2008 global financial crisis and infrastructure seems to be sensitive only to financial inclusion measured by the extent of bank branches. Another notably important finding from the empirical analysis is about the impact of institutional quality on financial inclusion, since it appears to be a significant determinant of financial inclusion in countries which are above the considered foreign bank threshold. In particular, the coefficient of institutional quality enters all regression specifications in the high threshold sample as being positive and significant, whereas it turns out to be insignificant for the subsample of countries with lower foreign bank presence.

6. Concluding Remarks

Numerous studies have assessed the role of foreign banks on development of financial sector; but evidence regarding the nexus between foreign banks and financial inclusion is still scarce. CESEE and former-Soviet union countries provide rich evidence for analyzing this relationship as they witnessed a significant rise in foreign bank participation following the mid-1990s. To this end, this study aims to contribute to the previous literature through examining the impact of foreign banks on financial inclusion in transition economies and searching for any potential difference in this effect that may prevail between countries with larger versus lower foreign bank presence.

Against this background, the relationship between foreign banks and financial access to banking services is examined for a panel dataset of transition economies over the period 2004-2017. Fixed effects panel regression models are applied by utilizing alternative indicators of financial inclusion as explanatory variables to cover outreach and usage dimensions. The empirical results have shown that foreign bank penetration increases banking sector outreach but has no significant effect on usage of financial services, after controlling for several country characteristics. More specifically, foreign bank entry positively affects the financial inclusion in terms of outreach dimension measures of ATM per capita, ATM density and branch intensity, but this effect impact is reported to be insignificant for measures capturing usage aspect of financial inclusion, i.e. borrower per capita. Furthermore, the positive impact on outreach indicators is found to be unrelated with the initial level of foreign bank share in the countries as no significant difference could be reported between the subsamples of low and high foreign bank threshold levels.

In sum, the empirical results do not provide evidence in favor of cream-skimming behavior of foreign banks in transition economies, while an overall evaluation of findings regarding the usage and outreach dimension of financial inclusion implies that access to financial services can be enhanced to a great extent by settling physical access points through foreign bank penetration. The findings are of significant importance in terms of disclosing the influence of foreign bank presence on financial sector outreach together with the main determinants of financial inclusion in transition countries, and could help to design better policies in broadening the use of and access to financial services.

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Appendix

Table A. Country Sample

Albania	Lithuania
Armenia	Macedonia
Azerbaijan	Moldova
Belarus	Mongolia
Bosnia and Herzegovina	Montenegro
Bulgaria	Poland
Croatia	Romania
Czech Republic	Russian Federation
Estonia	Serbia
Georgia	Slovakia
Hungary	Slovenia
Kazakhstan	Ukraine
Kyrgyzstan	Uzbekistan
Latvia	