Does foreign bank branch activity affect lending behavior?[*]

Oskar Kowalewski[*]

IÉSEG School of Management (LEM-CNRS 9221)

Institute of Economics, Polish Academy of Science

Abstract

In this paper we study the effects of foreign branch activity on commercial banks in the Central, Eastern and Southeastern European countries over the period 1995-2015. We show that more foreign bank branches are present in countries that have higher taxes and regulatory restrictions on bank activity. The increased activity of bank branches negatively effects lending of foreign-owned banks and to a lesser extent that of state-owned banks. We attribute it to the fact that branches and foreign-owned banks compete for the same type of clients, namely multinational corporations. Our assumption is confirmed by the fact that the branch effect seems to be larger for corporate loans than consumer loans. Moreover, we find that the negative effect is stronger for foreign banks owned by multinational banks than by non-banks entities.

Keywords: foreign bank branch, lending, subsidiary, crisis, developing markets, EU

1. Introduction

There is an overall consensus in the literature that opening banking sectors to foreign banks results in increased competition that leads to better and less expensive access to credit, especially in developing countries (see De Haas and Van Lelyveld (2006*a*) for an literature review on benefits and risk of global banking). As most of the developing countries have a bank-based financial system the broader access to credit is vital to companies, and henceforth to the economic growth. Usually multinational banks operate in emerging markets using as

---

organizational form subsidiary (Fiechter et al., 2011). It means that they create a separately capitalized bank that is subject to host countries regulations. Banks with significant wholesale operation prefer however using branch as organization form, which allows for cheaper and more flexible transfer of funds between the parent and its foreign entity. Unlike subsidiaries, branches are constitute an inseparable part of the parent organisation and are subject to the host country regulations. Thus, they relay on parent bank capital what allow them to extend much larger loans than foreign banks subsidiaries. On that ground we assume that an increase in activity of foreign bank branches may negatively effect the lending levels of banks in the host country, especially that of foreign bank subsidiaries.

In the study we examine the impact of foreign bank branches on loan growth of foreign-owned as well government-owned banks in Central, Eastern and Southeastern European (CESEE) countries. In CESEE countries the number of domestic banks is small due to the privatization process that took place at the end of the 1990s. As a result 67 out of the 100 largest banks based on the *The Banker's* ranking for 2018 are foreign-owned, which hold about 67% of the assets in the region. But the largest banks by assets in the region are the Polish PKO Bank Polski and Bank Pekao, in which the government has minority shareholding as well a golden share. In almost all of the CESEE countries the government decided to keep direct or indirect control over the largest former state-owned banks, which remain however significantly smaller than most of the multinational banks that operate in the region. We assume that state-owned banks as well foreign-owned banks are most likely to be effected by the increasing role of the foreign bank branches as they all compete for the same type of clients, namely large companies.

The CESEE countries are an interesting testing ground as they are either candidates or members of the European Union (EU) as well some of them joined already the European Monetary Union (EMU). As a result there are few entrance restrictions in place on financial institutions regarding the cross-border expansion as well the organization form in the region for entities with a banking licence in one of the countries belonging to the European Economic Area (EEA)[1]. In fact, the majority of owners of foreign-owned banks in the CEESE

---

[1]EEA links the EU member states and the four countries belonging to European Free Trade Association (EFTA), namely Iceland, Lichtenstein, Switzerland and Norway.

are coming from EEA countries or invest in the region using an already established entity in western Europe. Even though we observe an increase of foreign bank branches only in some of the CEESE countries despite the liberalization of the banking sector and potential advantage of branches as organization form. It is surprising as Fiechter et al. (2011) note that generally branches outnumber subsidiaries in advance economies including western Europe. Henceforth, an increase of number of branches could be expected in the CEESE region with its successfully economic development and the accession into the EU and EMU. Using data on the structure of the banking sectors in the region, we document that the host country banking regulatory restriction on activity as well high corporate taxes determine the choice of branch as organization form in the CEESE countries.

Moreover, by employing bank-level data we show that increasing branch activity influence the lending levels of foreign-owned and government-owned banks. One novelty of this paper is that we not only control for ownership, but also distinguish between bank and non-bank ultimate owners of the foreign banks in the CEESE countries. We assume that non-bank owners are mainly industrial companies, who establish a bank subsidiary abroad to facilitate sale of their products. An example are banks established by car companies, which provide mainly credits and other financial services to car buyers. Henceforth, this type of banks are more likely to be oriented toward retail clients. Conversely, subsidiaries owned by multinational banks are often established to serve corporate clients from the home country abroad. Actually, our results indicate that an increase in foreign bank branch activity to different extend influences the lending levels of the two types of foreign banks. We find that the lending of foreign banks owned by multinational banks is more likely to be negatively effected by an increasing number of branches in the host country. We attribute this results to the increasing competition for the same type of clients, yet branches have a substantial advantage in being able to grant much larger as well significantly cheaper loans than subsidiaries (Fiechter et al., 2011).

Our study is motivated by, and contributes to, two stands of literature. The first strand are studies that examine the organization choice of multinational banks for entering and operating abroad. Cerutti et al. (2007) investigate the impact of macroeconomic factors on the choice of using a branch versus subsidiary as an entrance mode into emerging markets.

3

They find there is a positive and statistically significant relation between the top corporate tax rate in a host country and the decision of a bank to incorporate its local business as a branch. Additionally, they report that economic and political risk matter on the choice of organization form. They find that branches are less common in countries with highly risky macroeconomic environments. Conversely, they find branches to be the preferred mode of entry in countries with high political risk as it mitigate the risk of nationalization. Moreover, they report that branches are more likely when foreign operations are smaller in size and do not have retail operation. The importance of the scope of services of the foreign bank in the host country for the choice of organization form were also underlined by Fiechter et al. (2011) who did a comprehensive study of branch vis-à -vis subsidiary foreign expansion strategies. They conclude that a branching strategy offers a broader provision of services to core clients, better liquidity and risk management, and better cost efficiency. In contrast, a subsidiary strategy is better able to contain loss and works better for retail banks. Hoggarth et al. (2013) using bank-level data for the UK confirms that the business model of foreign bank branches is different to that of state-owned and foreign-owned banks. They show that branches provide a significant amount of lending to private non-financial corporations and are important players in the domestic interbank market. We supplement this literature by showing that the activity of branches negatively effects the corporate lending of state-owned and foreign-owned banks. Moreover, we show that some of the macroeconomic factors influencing the choice of organization form hold despite the removal of barriers that limit foreign bank entry including its form. Lastly, we show that other factors as common currency in the host and home country may determine the choice of organization form by multinational banks abroad.

Second, we contribute to the literature on foreign bank lending in developing countries and provide additional evidence to the literature on cross-border shock transmission via the lending channel. Motivated by De Haas and Van Lelyveld (2006a) and Cull and Peria (2013) we examine the impact of foreign bank branches penetration on foreign-owned and government-owned banks lending patterns before and during domestic and the global financial crisis of 2008. De Haas and Van Lelyveld (2006a) show that foreign bank subsidiaries did not reduce lending during a host banking crisis in Central and Eastern European countries (CEE), but

his positive stability effect was driven by greenfield foreign banks subsidiaries. While, Cull and Peria (2013) and Allen et al. (2017) find that foreign bank total loan growth decreased to a greater extent than that of domestic private banks during the crisis of 2008 in the CEE countries. Bonin and Louie (2017) separate foreign banks in the CEE into two categories - subsidiaries of the European multinational banks that dominate in the region and all other foreign-owned banks. They find that the first type of banks remained committed to the region in that their lending behaviour, which was not different from that of domestic banks. Conversely, Bonin and Louie (2017) shows that other foreign banks decreased their lending aggressively during the crisis of 2008. We supplement their findings as we control for different types of foreign banks ownership and show that it is important in understanding the lending patterns in the host countries.

Cull and Peria (2013) document that the credit growth of government-owned banks exceeded that of domestic and foreign-owned banks in Latin America during the crisis of 2008. However, the authors did not find evidence that government-owned banks in CEE stepped up their lending compared to privately-owned banks. Conversely, De Haas and Van Lelyveld (2014) and Allen et al. (2017) find weak evidence that government-owned banks reduced credit growth in CEE countries to a lesser extent than privately-owned banks in 2009. According to the authors, some governments might have used state-owned banks to smooth aggregate lending when privately-owned banks began to deleverage. We find some weak supporting this argument, yet we show that it is important to control for exchange rates, which fluctuate a lot during a crisis especially in developing countries. In fact, when we convert the bank-level data into the U.S. dollars we find strong evidence for the supporting role of government-owned banks during the global crisis. Contrariwise, when use the data in local currencies the results for state-owned banks are insignificant. Hence, we argue that it is important to control for the exchange rates as it may bias the results.

Hoggarth et al. (2013) show that in the UK branches provided more credit than domestic and foreign banks prior the crisis of 2008, yet at the same time contracted more than this types of banks during the crisis. The sharp decrease in lending of foreign branches, the authors attribute to their reliance on cross-border wholesale funding. They argue that it is likely that the parent banks decided to reduce their exposures to the UK and redirect funds to

other parts of the banking group. In fact, Danisewicz et al. (2017) argue that foreign bank subsidiaries are more independent in their lending policy than branches. In their study they analyse the changes in lending provided by branches and subsidiaries owned by the same parent bank in the UK in response to changes in regulations in the home market. They find that changes in home regulation might result in reduced lending growth by branches in comparison to subsidiaries, yet only in the interbank market. Thy link this effect to higher degree of control which parent banks hold over branches compared to subsidiaries. We supplement their findings and present that subsidiaries, which have simultaneously a branch in the same host country, have different lending patterns than other foreign banks prior and during a crisis.

The remainder of the paper is organized as follows. Section 2 presents the institutional background on branch activity and the CESEE countries. Section 3 presents our data and explains the econometric methodology. Section 4 describes our empirical findings, and Section 5 concludes.

2. Institutional background

Our sample consist of 550 commercial and saving banks that were operating in 17 CESEE countries over the years 1995-2015. The 17 countries in our sample followed a similar pattern of development of their banking sectors starting with the end of the communist rule in the 1989 (Temesvary and Banai, 2017). In this countries, in the first years of transition the authorities set up a very lenient licensing procedure for establishing new domestic and foreign banks including branches. The principal motivation was to increase competition in the banking sector. Indeed, in a short time an impressive number of new domestic banks as well several foreign bank branches were established. The rapid expansion caused however soon an burden on the underdeveloped financial system as a significant number of the new domestic banks were in general undercapitalized and underperforming (Hryckiewicz and Kowalewski, 2010). Consequently, the authorities changed their policy and foreign banks were able only to enter by taking part in the privatization of state-owned banks or acquisition of the failing domestic private banks (Bonin and Wachtel, 2003). At the same time entry using branches was since than discouraged (Hryckiewicz and Kowalewski, 2010). As a result no new branches

were established in the CESEE countries till 2004.

The increasing foreign bank presence since the mid 1990s is one of the most striking developments in the banking sectors in the 17 CESEE economies. At the end of 1990s foreign-owned banks account for more than half of the total number of banks and hold more than two-thirds of total bank assets in most of the CESEE countries (Claessens and Van Horen, 2014). This development have been seen as positive as earlier empirical evidence suggested that foreign bank entry brings greater efficiency in the banking sector, better access to credit and lower credit costs in CEE countries (Bonin et al., 2005; Fries and Taci, 2005) as well in South Eastern Europe (SEE) countries (Fang et al., 2011).

Giannetti and Ongena (2009) presents that foreign bank presence benefits all firms, though the effects are more pronounced for large firms and firms less likely to be involved in connected lending. Additionally, the empirical research prior the global financial crisis of 2008 showed that diversity of ownership has contributed to greater stability of credit in the region as foreign banks showed significant credit growth during domestic crisis periods (De Haas and Van Lelyveld, 2004). In a later study De Haas and Van Lelyveld (2006b) confirms that during domestic crisis periods domestic banks contract their credit, yet they find that only greenfield foreign banks play a stabilising role by keeping their credit base stable. Moreover, they report that greenfield foreign banks' credit growth is determined by the health of the parent bank. Overall, the existing studies presented a positive effect of foreign banks on credit lending, and as a result there was a general assumption that foreign ownership encouraged efficiency and stability of in the CESEE countries banking sector.

Naaborg et al. (2004) report however that the fast increase in foreign bank presence was not accompanied by a rapid financial development in the region. They show that although bank assets increased during the 1990s, credit to the private sector remained relatively low. Interestingly, they find that foreign-owned banks lend more to the private sector than domestic banks do. In fact Detragiache et al. (2008) documents that while total lending, cost efficiency, and welfare may improve with foreign bank entry, but is not warranted. They developed a theoretical model showing that entry of foreign banks may results in cherry-picking, which means that foreign banks mainly concentrate their lending on transparent firms with collateral. As a result countries with more foreign bank penetration may still have a shallow

banking sector, in which foreign banks may have a safer loan portfolio than domestic banks. Actually, they find these predictions to be consistent with data from a sample of 60 lower income countries. Kowalewski and Rybinski (2011) shows however that the institutional and legal environment greatly improved since the 1990s in the CEE countries, which in turn means that foreign bank presence should be positively associated with access to credit (Beck et al., 2011).

In fact in 2004 the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia joined the EU, while Bulgaria and Romania in 2007, and Croatia in 2013. The remaining CESEE countries in our sample are Albania, Bosnia and Herzegovina, Macedonia, Montenegro, Republic of Moldova and Serbia. Those countries are EU member states candidates and are not required to implement the Second Banking Directive at this stage of accession process. The Second Banking Directive came into force on 1 January 1993 and allowed credit institutions from one member state to conduct banking activities across borders (right to provide services) or to establish a branch in another member state (right of establishment). Branches are authorised to offer a wide range of services as long as their parent is authorised to do it in their home market. The regulatory competence over branches is based largely on the principal state of operation of the credit institution - where its head office is located. Host member states have very limited supervisory functions and are not allowed to impose any restrictions or apply economic tests on branches of credit institutions from other member states. The idea behind this Directive was to create a common banking market by creating a single banking license, with primary regulatory authority overall in one home state[2].

By joining the EU the CESEE countries are part of the common banking market. It means that the local authorities can not restrict any more the establishment of branches of multinational banks with a banking licences in one of the EEA countries. In fact most of the foreign banks in CEESE countries are originating from western European countries in terms of number and assets. Yet, there is also substantial regional variation in the degree of penetration. The Greek banks operate mostly in South-Eastern Europe, the Austrian, French and Italian

---

[2]An good overview of the EU banking integration and problem related to it provides Dermine (2006)

banks in Central Europe, while the Scandinavian banks in the Baltic countries.

In all the CESEE countries the structure of the financial system is dominated by the banking sector, what implies that bank loans are for firms in those countries the main source of external funding. By the onset of the financial crisis in 2008, at least two-thirds of the total assets of these banking systems was in foreign ownership. In some cases this ratio reached above 90%. This ownership structure remained effectively unchanged throughout the crisis period, yet several studies indicate that foreign-owned banks may have reduced credit availability in CEE countries during the crisis of 2008. Cull and Peria (2013) find that foreign bank total loan growth decreased to a greater extent than that of domestic private banks in the CEE countries. Allen et al. (2017) confirmed that foreign-owned banks lending remained constant or increased during episodes of banking crises in CEE countries, while the lending of government-owned banks declined. In turn, however, they find that the foreign-owned banks reduced generally lending during the recent financial crisis, while government-owned banks increased lending during the crisis of 2008.

The level of banking lending is crucial for the economic growth of countries in our sample. The existing empirical literature documents a strong relation between bank ownership and the credit supply in the CESEE countries. In particular, the recent studies show that the influence of ownership structures on lending activity depends on the type of banking crisis that banks experience. Those studies, however, ignore the cross-country variation in the structure of the banking sector, especially the opening of the foreign bank branches. The number of branches, even within the EU members, differs significantly across time and countries. In this paper, we try to shed some light on those differences and whether they may influence the lending activity of the foreign and domestic banks in the CESSE countries.

3. Data and methodology

3.1. Sample

We retrieve unconsolidated bank-level data, where available, from BankScope. Using the data we constructed a panel of 6,225 bank-year observations, yet it is unbalanced as we do not have data for all years for each bank. The bank-level data is supplemented with macroe-

conomic data, which we retrieved mainly from WDI World Bank. Table A3 in the Appendix presents the definitions and sources of the variables used in our study.

We encode the ownership structure of the banks in the sample using ownership dummy variables for each bank in each year. We track ownership and changes therein using as our primary source the information available in Bankscope and the bank ownership database of Claessens and Van Horen (2014). We complement this information with information from several other sources, including individual banks' websites and annual reports. We were able to obtain ownership information for all the banks in our sample for the entire period in which they were active. Additionally, we retrieve the information on the type of ultimate owners of the domestic and foreign entities. Based on it we identify the origin of each banks' as foreign, private domestic and state-owned. In the regression we control for state-owned banks as there is a large strand of literature showing that this type of banks preform worse than both private domestic banks and foreign-owned banks. [3]. The dummy variable *FGN* dummy takes the value of one if the bank is foreign owned and zero for all other banks. We use the definition generally applied in the literature and consider a bank as foreign owned if at least 50% is owned by foreign entities (Claessens et al., 2001). The dummy variable *GOV* equals one if the public sector owns more than 30% of the bank, and consequently has a significant impact on its management, and zero otherwise. While, the third ownership - private domestic is captured by the constant term in the regressions. Additionally, we use two dummies to distinguish between two types of owners of foreign banks. The dummy variable *B-Sub* equals one if the owner of the subsidiary is a multinational bank, and zero otherwise. The dummy variable *NB-Sub* takes the value one if the foreign bank investor is a non-bank, which however includes financial investors as insurance company or private equity funds. We distinguish between the two groups as De Haas and Van Lelyveld (2010) found that strong parent banks are using their internal capital market provide subsidiaries with capital and liquidity and this financial support stabilized local lending including local crisis periods. They find, however, also that multinational bank subsidiaries curtailed credit growth more aggressively than domestic banks during the financial crisis of 2008. We assume

---

[3]An excellent literature survey on bank ownership presents Cull et al. (2018)

that foreign banks owned by multinational banks and non-bank entities differ in clients and founding and therefore may have different lending dynamic during domestic banking crisis and the financial crisis of 2008.

Using this division the sample includes 712 observations for the government-owned banks, and 2,840 observations for banks owned by private domestic investors, and 3,385 bank-year observations for foreign owned banks. Among the foreign-owned banks we have 2,810 observations for bank subsidiaries owned by multinational banks, and 567 observations for banks owned by non-bank entities. We have 2,879 bank year observation for banks who are owned by entities from EEA countries, which confirms that the majority of the banks in the CESSE are controlled by entities from western Europe. It means that most of the banks can easily choose if they want to operate in the region either using a subsidiary or branch. Moreover, the vast of the majority of non-EEA banks operates through a subsidiary in one of the EEA countries. As an illustration consider Citibank (US), which in Poland controls its subsidiary and branch via a US and Irish subsidiary, respectively. Henceforth, most of the foreign banks in our sample are not restricted by regulations whether they want to operate as a subsidiary or branch in those CEESE countries, which are already member of the EU. As it happens, Citibank decided to convert its subsidiaries to branches in the Czech Republic, Hungary, Romania and Slovakia in the years 2007-2008 Allen et al. (2013). The conversion of subsidiaries to branches as well vice versa is a relatively new phenomenon in the region, which results in the changes of branches versus subsidiaries in the host countries.

3.2. Descriptive statistics

In our study we are mostly interested whether foreign branch penetration effect lending of domestic and foreign-owned banks. Hence, our main dependent variable is the percentage of real growth in gross loans ($\Delta Loans$) of bank i in country j in year t. Additionally, we investigate the impact of foreign bank branches on the growth of consumer and corporate loans. We calculate the depended variables using domestic currency as Bonin and Louie (2017) shows that the countries in the region have distinct characteristics regarding exchange rate regimes and dynamics. They argue that ignoring this characteristics may result in omitting an important determinant of the lending. To mitigate the effect of outliers we winsorize of

growth rates at the 1st and 99th percentiles.

In the regression, we control for the bank's funding, profitability, solvency and size. We control for funding using the ratio loan to deposits (LtD) and the ratio of nonfinancial deposits to total assets ($Deposits$). De Haas and Van Lelyveld (2006a) argue that there is a difference between domestic and foreign-owned banks in CEE countries is the reliance on the money market. In their opinion, this difference is based on the fact that foreign banks are on average less dependent on local deposits, as they can get financing relatively easily on the money market or from the parent bank. Consequently, we may assume that there is a differences between domestic and foreign-owned banks, but also between foreign banks owned by banks and non-banks entities.

Branches may alter the domestic lending market as they can access directly the parent banks funding, which is more likely to be less costly then that of foreign bank subsidiaries. Fiechter et al. (2011) shows also that branches have a significant share in the domestic interbank market. During the crisis of 2008 branches, however, reduced it credit especially to banks and non-bank financial companies. Thus, the activity of branches may also strongly influence the domestic interbank market, whereas they lending activity seems to be much more volatile then that of domestic and foreign-owned banks.

The high profitability (ROA) and solid capital base ($Equity$) of a bank should also be positively related to its loan growth. Additionally, if depositors observe increased bank risk in the financial system, then high profitability and a solid capital base should lead to increased deposits. The entry of branches can however results in the decrease of deposits, especially during crisis periods, as they may be seen as safer as host country banks. This in turn can negatively affect the funding and profitability of host country banks.

Subsequently, we control for the size ($Size$) of the banks, which calculated as the ratio of a bank's assets to the GDP of the country where the banks is licensed. We expect smaller banks to report higher loan growth but lower deposit growth. Table 1 presents summary statistics for the main variables across domestic and foreign banks in CESEE countries.

Table 1

Branches differ significantly in the scope of service which they offer abroad. In contrast to commercial banks they are not obliged to publish their financial results in most of the

12

countries. If branches provide a financial statements it probably applied the accounting standard of the parent bank, which they are part, and henceforth also often not need to report all the information. As a results evaluation of the performance of branches and comparison it with commercial banks is very difficult. We employ for this reason variables that control for branch penetration instead of branch-level specific variables, yet we are aware of the short comings of our measures. The first control variable is *Branches/B* that is calculated as the ratio of the total number of foreign bank branches to the total number of commercial banks in the host country. The second control variable is *Branches/T*, which is calculated as the ratio of total number of foreign branches to the sum of total number of commercial banks and foreign bank branches in the host country. We hypothesize that an relative increase in the number of foreign bank branches to commercial banks may influence the activity of the latest, especially their loan activity. Foreign bank branches relay on parent bank capital and funding, which should give them a significant a competitive advantage over the commercial banks in the host country. This competitive advantage may also explain why some multinational banks decided to operate at the same time a branch and subsidiary in the host country. Danisewicz et al. (2017) ague that multinational banks may use simultaneously branches and subsidiaries in the host countries to exploit benefits specific to both organizational forms as well serve a wide range of types of clients and provide different products. We control for this strategy using a variable *Sub-Branch* that takes the value one if the owner of the subsidiary simultaneously operate a branch in the host country, and zero otherwise.

The data in Table 1 as well in the Appendix in Table A1-2 illustrate large variation in the number of branches, which differ across time and the CESEE countries. We aim to identify the industry-level and country-level factors that may explain this differences. Among the industry-level variables we control for average ratio of operating costs of the banks (*CIR*) and their activity restrictions (*Activity*). One of the arguments in favour of using branches over subsidiaries are there cost advantage which are consequence of lower regulatory and allocations costs (Fáykiss et al., 2013). Subsequently, multinational banks may prefer to operate as a branch in those host countries where banks have on average low overhead costs. Cerutti et al. (2007) shows that multinational banks are more likely to operate as branches in those host countries that have lower regulatory restrictions on bank activities and entry. We

measure the activity restrictions using the index constructed by Barth et al. (2013), which measures the degree to which the national regulatory authorities in the host countries allow banks to engage in fee-based actives as securities, insurance and real estate activities. The indicator ranges from 4 to 12 with higher values indicating greater activity restrictiveness for banks in the host countries.

In addition , we control for competition within the host banking sector using the variable *CR3*. On one hand, high concentration is associated with lower competition in the industry. On the other hand, Beck et al. (2006) present strong evidence that concentrated banking systems are more stable. Consistent with these findings, Schaeck et al. (2009) show that concentration decreases the crisis probability and increases time to crisis. We assume that branches are more likely to be established in highly concentrated banking sectors as this organization form is much more flexible and suitable for a niche strategy. The fact that concentrated sectors are more stable should in addition encourage the use of branches as organization form.

In fact, Cerutti et al. (2007) documents that host country risk matters in the choice of bank's organizational form. They find that branches are less common in countries with risky macroeconomic environments. We control for host country macroeconomics risk and political credibility using the sovereigns credit ratings (*Rating*). Additionally, we control for domestic systematic banking crisis ($B - Crisis$) and the financial crisis of 2008-2009 ($G - Crisis$). We identify the years of the banking crisis in a particular country using the Laeven and Valencia (2018) database. While, the variable $G - Crisis$ controls for the global crisis of 2008 as well the European debt crisis of 2009.

Ultimately, we us country *GDP* and *GDP growth* as variables indicating the attractiveness of the market, but as well country risk. Additionally, we control for the level of corporate taxes (*Tax*) in the host country as Cerutti et al. (2007) finds that branches are more likely to be established in countries that have higher taxes.

Table 1

3.3. Methodology

In the study we use different approaches to analyse the effect of branch activity on bank lending in the host country. At the beginning, however, we try to establish what determines the establishment of foreign bank branches in the CESEE countries. Correspondingly the dependent variable in the model illustrate an increase of branches in host countries' banking sectors. This regression can be presented as follows:

$$Branch_{j,t} = \alpha + \beta_{j,t}Sector + \beta_{j,t}Macro + \epsilon_{j,t} \tag{1}$$

where $Branch$ is one of the three variables that we use to measure the number of branches in the host country j at year t. The three dependent variables are the number of foreign bank branches ($Branch$), the number of branches to the number of commercial banks ($Branches/B$) and lastly the number of branches to the total number of branches and commercial banks ($Branches/T$). $Sector$ refers to variables that capture banking industry-specific factors, and $Macro$ are variables that characterize the location-specific variables. We estimate the model using OLS with year and country fixed effects. In some of the CESEE countries we do not report any branches, and subsequently we employ a Tobit model as a consistency check on the OLS estimators. This empirical methodology is applied as the dependent variable is truncated at zero. All regressions are estimated with robust standard errors.

Next, we examine the effect of the host countries accession into the EU, the EMU and subsequently the increased branch presence on bank loan dynamic using the following specification:

$$\Delta Loan_{i,j,t} = \alpha + \beta_1 Bank_{i,j,t} + \beta_2 FGN_{i,j,t} + \beta_3 GOV_{i,j,t} + \beta_4 Branch_{j,t} + \beta_5 E_{j,t} + \beta_6 C_{j,t} + \delta_{j,t} + \epsilon_{i,t} \tag{2}$$

where $\Delta Loan$ is the growth of total gross loans for bank i in a country j at time t. In the sensitivity analysis we employ also the growth of corporate and consumer loans to further examine the impact of branch penetration on domestic and foreign bank lending in the host country. $Bank$ refer to variables that capture bank-level characteristics. FGN and GOV refer to dummy variables that control for banks ownership. The two ownership variables

summarize the differential rate of growth of each of these types of banks vis-à-vis domestic private banks. *Branch* represent one of the two variables that we employ to control for the increasing significance of branches in the host banking sector. E are dummy variables that control for host countries accession into the EU or the EMU, respectively.C are dummy variables the control either for domestic banking crisis or the financial crisis of 2008, respectivly. While, δ are country-year fixed effects. We estimate the panel model with OLS with country-time fixed effects, which allow us to control for macro characteristics that might be changing across countries and over time.

4. Results

We present first the results showing the factors that explains the increase of foreign bank branches in the CESEE countries. Next, we discuss the results showing the effects of branches penetration on government and foreign bank lending growth in the host countries.

4.1. What lures foreign bank branches?

Table 2 reports the results of estimation of Eq.1. In the columns (1)-(3) we show the results of OLS estimation using in each column a different measure of branch increases as dependent variable. As robustness check, we repeat the regressions using Tobit model, and the results are presented in the columns (4)-(6). In column (1) and (4) the dependent variable is the number of foreign bank branches in a host country, while in column (2)-(5) and (3)-(6) we scale the number of branches by the total number of commercial banks or by the sum of the total number of commercial banks and branches in the host country, respectively. There are slight differences in the results whether we use a absolute or relative measure of the importance of branches in the host country as dependent variable. In the discussion of the results we will focus mainly on the relative measures, which in our opinion are better reflecting branches importance in host countries banking sector.

The results in Table 2 support the findings of Cerutti et al. (2007), who showed that foreign banks are more likely to operate as branches in host countries that have lower regulatory restrictions on banks. In all specifications, the coefficient for the variable proxing for restriction on bank activity is positive and statistically significant at 1% level. It means that the

number of branches increases in those countries were there is greater activity restrictiveness for banks in the host countries. Thus, we confirm that regulations are an important factor explaining the choice of branch as organizational form. At the same time, we find that the coefficient controlling for EU membership is positive, but statistically insignificant. Subsequently, the results lustrate that the foreign bank entrance regulation are not the only one that may hinder the establishment of branches in a host country.

Interestingly, we find confirmation that the level of development of the banking sector seems to be determining the organization form too. We find that the coefficient for the ratio of average cost to income for the industry is negative and significant at least at 5% level. It means that branches are preferred as an organization choice in those countries that are characterized by relatively low overhead costs in the banking industry. At the same time, the coefficient for concentration is positive and statistically significant in most of the specifications. High concentration means lower competition, what may encourage multinational banks to use branch for executing a niche strategy abroad. Furthermore, high concentration means more stable banking sector, what may also encourage the use of branch as organization form.

Our results supports the findings of Cerutti et al. (2007) who reported that branches are less common in countries with risky macroeconomic environments. In fact, we find that the coefficient for countries rating is positive and significant in most of the specification. In other words, we find that in countries with high sovereign rating more branches are more likely to be presented. Moreover, we find that the coefficient for systematic banking crisis is negative, but significant only in column (2) and (5) at 5% level. What in addition confirms that host country risk matter for the choice of organization form. In practice, it means that multinational banks may prefer to limit their exposure in riskier host countries by operating as subsidiary. Our argument is support by the fact that we find that the coefficient controlling for eurozone membership is positive and statistical significant. A country that wants to join the EMU needs to fulfil five criteria, which impose control over inflation, public debt and the public deficit, exchange rate stability and the convergence of interest rates with the existing EMU countries. Moreover, in the EMU countries the European Central Bank is responsible for the monetary policy and guarantees price stability, thereby supporting economic growth. Thus, we may assume that EMU member countries are economically and politically stable.

Apart from it, we may assume that the integration of the branch with its parent bank is easier in the EMU countries due to the common currency and monetary policy. This is a new and important finding not explored in previous studies, which is in our opinion important from policy perspective.

Lastly, in line Cerutti et al. (2007) we find with that high corporate taxes are also an important factor determining branch as an organization form. The coefficient for corporate taxes is positive and significant in all the specifications at least at 5% level. We find also that the coefficient of the variable GDP is positive, yet significant only in the OLS regression. Hence, we find only weak evidence that branches are more likely to be used in larger economies.

Table 2

4.2. Do foreign bank branches change the lending activity in the host country?

Table 3 shows the results of estimation of Eq. 2. In the first column we present the baseline results. In the following two columns we add the two variables that control for the deregulation and changes in the banking sector following the host country accession into the EU and EMU, respectively. In the next two columns we add measures that control for the increase of branches relative to commercial banks in the host countries. Employing different variables that control for the changes in the structure of the banking sectors does not change the sign of coefficients of the bank-level variables. The results confirm that banks' profitability is positively correlated to credit growth. The coefficient for profitability is positive and statistical significant in all the specifications. The remaining bank-level variables are insignificant, but we find interesting differences in the behaviour of foreign and government-owned banks. In most of the specifications the coefficients for ownership are statistically significant. But the coefficient for foreign ownership is positive, while for government ownership is negative. The results are conform with Cull and Peria (2013) who reported that foreign banks fuelled growth prior to the financial crisis of 2008 in CEE. While, we find in addition that the government-owned banks were less active than foreign and domestic banks during the entire period.

In columns (2) to (3), we control for the accession of the selected CEESE countries into the EU and EMU, respectively. The coefficient of variable controlling for the host countries

accession into EU is positive and significant at 1% level. While, the coefficient for EMU accession is positive, yet insignificant. Consequently, the accession into the EU was positively related to the loan growth. It is not surprising taking into account the positive impact of the EU accession on economic growth, and the following inflow of structural funds into the host countries in the subsequent years. While, we do not find any evidence that adopting the euro had an impact on bank's lending levels in the host country. Interestingly, we find that the interaction term between EU and the ownership dummies are negative and statistical significant. In economic terms, our results imply that prior to joining the EU, foreign-owned banks expanded lending in host countries, while government-owned banks contracted lending. Joining the EU had, however, a negative effect on the foreign banks lending in the host countries. The coefficient for the interaction term between EU and foreign ownership is negative and significant at 5% level. In size it is much larger than the coefficient for the interaction term between EU and government ownership. It means that the deregulation of the banking industry, following the EU accession, had a more pronounced effect on foreign-owned banks. We may assume that the entrance of new banks, especially branches, increased competition that mainly effected foreign-owned banks. Indeed, the results in columns (4)-(6), were we control for branch penetration using the two different control variables, confirm our assumptions. Our results shows that an increase in the number of branches is positively associated with the level of lending in the CEESE countries. The coefficients for branches penetration is positive and statistical significant at 1% level in all specification. At the same time, we find that the increase of branches negatively effects the lending level of foreign-owned banks. The interaction terms between the two control variables for number of branches and foreign ownership is negative and statistical significant at least at 5% level. In contrast, the interaction terms between the two control variables for branch penetration and government ownership is as well negative, but insignificant.

The results are not surprising as foreign banks and branches compete for the same type of clients in the host countries, namely multinational companies. One of the main motives for banks to expand is the need to follow their clients (see Williams (2002) for a literature survey on the defensive expansion hypothesis). Subsequently, an important client for foreign-owned banks are multinational firms, who often seek loans and other financial services abroad. Hog-

garth et al. (2013) documents that foreign branches provide a significant amount of lending to private non-financial companies. Moreover, he shows that the assets of foreign branches identified as being held with no residents accounted for 72% at the end of 2011 in the UK, while the equivalent shares for UK-owned banks and foreign banks were 33% and 32%, respectively. The data illustrate that branches are serving to larger extend foreign clients than foreign banks. So an increase of branches is more likely mean a decline of clients for foreign banks, which in turn leads to lower level of loans. In contrast, government-owned banks are more likely to provide finance to companies that are directly or indirectly controlled by the government. Sapienza (2004) shows, however, that state-owned banks are also more inclined to favor large enterprises. Consequently, foreign bank branches and government-owned banks are also competing partially for the same clients - large state-controlled companies, which explains the negative coefficient of the interaction term.

Table 3

4.2.1. Modes of foreign bank ownerships

We test our assumptions whether increased branch penetration results in customers defection from foreign banks by controlling whether a subsidiary is owned by a multinational bank or a non-bank entity. We expect that from subsidiaries owned by multinational banks the outflow of corporate clients will be larger than from subsidiaries owned by non-banks, which are more likely to focus on retail clients. The results of the regressions presents Table 4. In the last column (7) we employ in addition a new control variable, which control for those subsidiaries that have simultaneously a branch in the host country.

Employing the two control variables for the ownership of foreign banks does not produces different results from those reported above. In all of the specifications the bank-level variables influence the dependent variable in the directions as identified in Table 3. Moreover, the coefficients are stable in magnitude and do not change their statistical significance. Therefore, to save space, we do not present the coefficients for the bank-level variables in the following tables. We do, however, discuss them should they differ from those presented in Table 3[4].

In line with our previous findings, we find that the coefficient for bank state-ownership is

---

[4]Full results are available from the authors upon request.

negatively related to lending and is statistically significant in all the specification. In contrast, the coefficients for the type of ownership of foreign banks are positive, yet they are insignificant in most of the specification. Similarly, the coefficients for host countries accession into the EU and the relative increase in the number of branches are positively related to loan growth. The coefficients are however statistically significant at 1% level. While, the coefficient for EMU accession remains positive, yet statistically insignificant.

We find that the coefficient for interaction terms between the variable controlling for access into EU and the different types of ownership are negative and all are statistically significant. The results confirms that the liberalization of the banking sector following the EU accession negatively affected the loan growth of state-owned banks as well all the foreign-owned banks. In our opinion, the decline of lending can be attributed by the increased competition including the entrance of new foreign banks as well branches. We find, however, that the coefficient for the interaction term between subsidiaries owned multinational banks is significantly larger than the coefficient for the interaction term between state-owned banks or subsidiaries owned by foreign nonbank entities. The results indicate that foreign banks owned by multinational banks were stonger effected by the increased competition than other types of banks. The results is strengthened by the fact that the coefficient for the interaction terms between the variable controlling for access into EMU and the different types of ownership is only negative for subsidiaries owned by multinational banks, yet it is statistically insignificant.

Similarly the coefficient for the interaction term for the increased activity of branches and subsidiaries ownership by multinational bank is negative and significant at 1% level. The results confirm that the credit growth of subsidiaries owned by multinational banks is negatively effected by the increased activity of foreign branches in the CEESE countries. Additionally, in column (7) the coefficient for those foreign banks subsidiaries, which have simultaneously a branch in the host country, is also negative and statistically significant at 1% level. Henceforth, the results indicate that when a multinational bank owns both a subsidiary and branch in one country, it will probably shift its lending activity from the first entity to the second. It is not surprising as branches have the advantage over subsidiaries in being able to use the capitalization of the parent bank, and the funding costs of branches are more likely to be lower than that of subsidiaries (Hoggarth et al., 2013). Moreover, parent banks are likely to

be interested in cherry picking the best customers for their branch, which would explain the decline of its subsidiary lending.

Conform with our previous results we find a negative coefficient for the interaction term between the two variables for relative increase of branches and bank state-ownership, yet the coefficients are insignificant. Similarly, the coefficient for the interaction term between the variables for relative increase of branches and subsidiaries ownership by non banks is negative, but insignificant. Hence, the results confirm that state-owned banks and subsidiaries owned by non bank entities are to smaller extend effected by the activity of branches. In the last case, it is not surprising as those foreign banks are owned mainly by industrial companies and consequently concentrate their activities mainly on retail costumers. Hence, the different effect of branches between the two types of banks we attribute to their diverse loan portfolio structure.

Table 4

4.2.2. Consumer and corporate loans

We further test our assumption on the effects of branches on foreign banks as well state-owned banks by replacing in the regressions the growth of total gross loans with the growth of corporate and consumer loans, respectively. The number of banks that report information on the breakdown of loans is smaller than those included in the gross loans regressions reported so far. Nonetheless, the regressions by loan type capture the largest banks in the CEESE countries and, hence, are likely to be representative of the volume of loans of each type.

Table 5 shows regressions for the growth rate of consumer loans in CEESE. In line with previous results we find that government ownership is negative related to bank's consumer loan growth. In contrast to the previous results we find that the coefficient for variables controlling for EU as well EMU accession are negative, yet insignificant. While, only the interaction term between the host countries accession into EMU and subsidiaries ownership by non banks is negative and statistically significant.

Conversely, both coefficients for branch activity are positive and statistical significant at 1% level. Hence, it seems that the entrance of branches was positively related to consumer

loan growth. We find, however, that the interaction terms between the relative number of branches and bank's ownership are all statistically insignificance. On one hand, it means that the increase of branches did not have a strong effect on consumer loan growth in other banks regardless of they ownership. On the other hand, the coefficient for interaction term for subsidiaries owned by non banks is negative. The results confirms our assumptions that this type of foreign banks provide mainly credit to consumer, what would explain the negative sign of the coefficients.

Interestingly, we find also that the level of consumer loans declines in those foreign bank subsidiary where a branch is simultaneously in the host country. The coefficient for this type of subsidiaries is negative and statistical significant at 1% level. It means that parent banks cherry-pick also retail customers for its branch at the cost of its subsidiary. Our result supports the finding of Beck and Brown (2015) who reports that information asymmetries in the retail credit market lead foreign banks to cherry picking financially transparent clients in similar ways as for corporate credit.

Table 5

Table 6 presents regressions on the growth rate of corporate loans for banks in CEESE. In contrast to our previous results, we find that the bank-level variables are important in explaining corporate loan growth. We find that the ratio of loans to deposits is positively correlated with corporate credit growth and the coefficients of the ratio is statistically significant in almost all the specifications. While, the coefficient for asset is negative and significant in all the specification. The results imply that banks providing corporate loans are likely to be small and mostly relay on outside financing. It is not surprising as the majority of the foreign banks operating in the CEESE have a niche strategy aimed at multinational companies. As a results they have only a limited retail operation and therefore relatively low level of retail deposits.

As expected the coefficient for government ownership is negative, but statistical insignificant. In our opinion, the results indicate that government-owned banks are an important provider of corporate loans, especially to state-controlled companies. As the role and number of state-controlled companies declines in the CEESE countries, so also the position of the government-owned banks in the corporate loan market. In contrast, the coefficient for

subsidiaries owned by multinational banks is positive and statistically significant in half of the specifications. The results documents that this type of foreign banks is more likely to be much stronger engaged in corporate lending than subsidiaries owned by non-banks. The statistically weak results can be explained by the fact that some of the multinational banks acquired former state-owned banks with strong retail presence in the host countries Bonin and Louie (2017).

As before we find that the coefficient for EU and EMU accession to be positive, but only the first is statistically significant and only at 10% level. Similarly, we find that the relative increases of branches is positively related to corporate lending and the coefficients are statistically significant at least at 5% level. We find that the coefficients for the interaction terms between the variables controlling for EU, EMU accession or relative increase of branches and bank ownership are negative in almost all specifications. We find, however, that the effect of deregulation or increased branch activity affected much stronger foreign-owned banks. The coefficients for the interaction terms between EU accession or branch activity and foreign ownership bank are statistically significant at least at 5% level in all the specification. The coefficients are statistically significant for both types of foreign banks, namely owned by multinational banks as well non-banks. While, only the coefficient for the interaction term between government ownership and EU accession is statistically significant and only at 10% level. We argue that this results confirms that foreign banks and branches compete directly for the same clients, namely corporations. The increase competition only partially influence the corporate lending of government-owned banks as they serve a different clientele then foreign-owned banks. Additionally, we find once again an indication of cherry-picking by the parent bank as the coefficient for the foreign bank operating simultaneously a branch is negative and statistical significant at 1% level. The results documents that having simultaneously a branch in the same country will have a negative effect on the corporate level lending of the latest.

Table 6

4.2.3. Banking crisis

Lastly, we decided to investigate the impact of branch activity controlling for different bank ownership on credit growth during a systematic banking crisis and the global financial crisis of 2008. Hoggarth et al. (2013) show that there were significant differences in lending patterns between foreign banks and branches prior and after the financial crisis of 2008. They show that foreign branches credit growth increased by almost 50% compared to 30% for domestic-owned and foreign-owned banks two years prior to the crisis in the UK. During the crisis, however, branches contracted significantly more lending than domestic bank and foreign-owned banks. Moreover, Danisewicz et al. (2017) examined the lending of branches and subsidiaries in the UK, which belong to the same banking group. They show that branches respond to tighter capital requirements in their home countries by contracting their lending more than subsidiaries. Based on this results, we expected that foreign banks that operate simultaneously a branches in the same host country will decrease lending prior to the crisis of 2008, while expand in the crisis periods.

In column (1)-(2) we presents the determinants of bank lending during domestic systematic banking crises in CESEE countries. To control for the domestic systematic banking crises, we include a dummy $B-Crisis$ that takes the value 1 for the years of systematic banking crisis in a particular CESEE country and zero otherwise. The coefficients for government-owned banks and the foreign banks operating jointly with branches are negative in all the specification and statistically significant in all specifications. The results suggests that this banks provided less credit than other banks prior to the domestic banking crisis. Surprisingly, the coefficient for foreign banks are positive but statistically insignificant. Hence, we do not find strong evidence that the foreign banks expanded credit more than other banks prior to a domestic crisis.

In contrast to our expectation we find that the coefficient for domestic banking crisis is positive and statistically significant. Moreover, we find that the coefficients for domestic banking crisis and ownership are also insignificant. The results contradict the finding of Allen et al. (2017) and De Haas and Van Lelyveld (2006a) who show that during domestic crisis periods domestic banks contracted their credit, whereas foreign-owned banks stabilized lending in CEE countries. One explanation, for the contradictory results is that our sample is much

larger and more importantly some of the CEESE countries reported a systemtatic banking crisis during the crisis of 2008. De Haas and Van Lelyveld (2014) and Allen et al. (2017) show evidence that foreign banks reduced significantly lending in the CEE countries during the financial crisis of 2008. Hence, our results may be influenced by the financial crisis of 2008.

We repeat therefore our regressions but as robustness check using only the years 1995-2006. We present the results in column (3)-(4) and find that are in line with our previous findings. The only difference in now that we find strong evidence that all types foreign banks accelerated the credit growth prior the financial crisis of 2008. The results are in line with Allen et al. (2017) who documents that foreign banks fuelled growth prior to the crisis in CEE countries. Additionally, we find that the coefficient for domestic banking crisis in now insignificant. While, the coefficient for the interaction term between domestic banking crisis and foreign banks owned by non-banks is now positive and statistically significant, yet only at 10% level. Hence, the results indicated that this type of banks increased their lending during a domestic banking crisis. In this regression, we do not have the interaction term for foreign banks who operate simultaneously a branch as a result of limited number of such cases in this period.

In column (5)-(6) we present the results concerning the determinants of bank lending during the global financial crisis of 2008. As mentioned already in order to control for the crisis of 2008 as well the European debt crisis of 2009, we include a dummy variable, $G - Crisis$, which takes the value of 1 for the years 2008-2010 and zero otherwise. We find that the coefficient for $G - Crisis$ is positive, but statistically insignificant. In line with the results in column (1)-(2), we find that the coefficient for foreign ownership is positive, but insignificant. However, when we interact the ownership dummy with the global crisis dummy we find that the coefficient obtained for the interaction term is now negative and statistically significant at 5% level. Our results support De Haas and Van Lelyveld (2014) and Allen et al. (2017), who found that the foreign-owned banks decreased lending during the global financial crisis in CEE countries. Moreover, our results indicated that subsidiaries owned by multinational banks reduced much stronger lending than other types of banks as the coefficient for the interaction term is negative and statistically significant at 5% level. While, the interaction

term between global crisis and subsidiaries owned by non-banks is also negative, yet statistically insignificant. In contrast, we find that the subsidiaries operating simultaneously a branches may slightly increased their lending relative to other banks during the crisis. The coefficient for the interaction term is positive, yet however statistically insignificant. The results support the findings of Hoggarth et al. (2013) who documented that branches decrease their lending more than foreign-owned banks during the financial crisis.

Lastly, in opposition to Allen et al. (2017) we do not find any support for the increase of lending of government-owned banks during the crisis of 2008. The coefficient for the interaction terms between financial crisis and government ownership is positive, but statistically insignificant in all the specifications.

Table 7

4.2.4. Sensitive analysis

One of the explanation for the differences between our results and the empirical literature is that most of the existing studies uses bank-level data denominated usually in US dollars. The countries in our sample have, however, for most of the time flexible exchange rate. Consequently, they currency significantly depreciated versus the US dollar during domestic banking crisis and the crisis of 2008. As an example Poland's currency appreciated versus the US dollar by more than 15% in 2007, while in 2008 the currency depreciated by more than 20% in 2008. Also the CEESE countries that joined the eurozone or pegged its currency to the euro reported significant fluctuation in the exchange rates. As an example the euro appreciated versus the US dollar by over 40% in the years 2001-2003 and again over 20% in the years 2005-2007. In fact Bonin and Louie (2017) documents that whether loan growth is calculated in domestic currency or US dollars may determine the results. We decided to check whether the reported differences between the results reported above and the literature can be explained by the exchange rates. Henceforth, we repeat our last regressions yet using real loan growth in US dollars as the dependent variable.

Table 8 shows the results and indeed we find some important differences to the prior presented results. The coefficient for the domestic banking crisis remains positive, yet it is now insignificant in all the specifications. Conversely, the coefficient for subsidiaries owned by

27

non-banks is positive and now significant in all the specifications. Hence, the results indicated that this type of banks provided more leading than other banks prior to the domestic banking crisis. We find, however, that the coefficient for interaction term between domestic crisis and subsidiaries owned by non-banks remain positive, but is now insignificant.

In line with the empirical literature we find now that the coefficient $G - Crisis$ is now negatively related to bank lending and statistically significant at 1% level. Consequently, now the results indicate a decline in lending in the CEESE countries as a result of the crisis of 2008. As before, we find that the coefficient for government ownership is negative and significantly associated with loan growth ratios. However, when we interact the ownership dummy with the global crisis dummy we find that the coefficient obtained for the interaction term is now positive and statistically significant at 10% level. Hence, the results now support Allen et al. (2017), who found that the government-owned banks increased lending during the global financial crisis in CEE countries. In contrast, we do not find now any support for the decrease of lending of foreign banks during the crisis of 2008. The coefficients for the interaction terms between the global crisis and foreign banks are negative, yet statistically insignificant in all the specifications.

Interestingly, the coefficient for foreign banks operating simultaneously a branch remains negative and statistically significant in all the specification. While, the coefficients for the interaction term between this type of banks and global crisis is still positive, but now statistically significant at least at 5% level. Consequently, we find strong support that branches activity is negatively related to subsidiaries lending growth. At the same time, branches are more sensitive to the situation in the home market and henceforth reduce more lending than foreign banks during a crisis situation in the home market.

Overall, the results documents that denomination of the bank-level variables, whether they are in domestic currency or U.S. dollars, may determine the results of the study. While, we do not find significant direct ownership differences in the pre crisis periods using total loan growth denominated either in U.S. dollars or in local currency, we find notable differences for the crisis periods. It is not surprisingly as in the crisis periods the exchange rates of local currency, especially in developing countries, can strongly fluctuate. Hence, the growth rates dominated in other currencies can be strongly biased as shown above.

28

Table 8

5. Conclusions

This study extends the literature by asking if opening banking sectors to foreign bank branches will effect banks' lending levels in the host countries. To carry out the analysis, we utilize financial and ownership data on commercial banks from 17 CEESE countries over the period 1995-2015. We begin our investigation by analysing the determinants of increasing number of branches in some of the CEESE countries. A visual inspection of the data shows that the entry regulation, which are low for banks with a license in one of the EEA member countries, are not the only reason why in some of the countries there are few or no foreign branches. Our results confirms it and just as Cerutti et al. (2007) we find that the level of corporate taxes as well as the host bank activity regulations strongly determine the choice of banks organization structure in the CEESE countries. Surprisingly, we do not find that easing the restrictions on foreign bank branches entry, which we proxy by the accession into the EU, determines the relative number of branches in the host countries. But, we find a strong and positive relationship between the number of branches and the adoption of euro by the host country. It is not suprising as the majority of foreign banks in the CEESE have a European origin and therefore a common currency may significantly ease the integration of the branch with the parent bank. Moreover, the introduction of the euro signals economic and political stability in the host country, what is an important factor influencing the choice of branches as organization form.

Next, we study the impact of increased branch activity on lending of state-owned and foreign-owned banks. We show that increased branch activity in negatively related to the credit growth of foreign-owned banks. While, government-owned banks provide less loans than foreign-owned banks over the study period, yet they are not that strongly affected as foreign banks by the increased activity of branches. We attribute it to the fact that foreign branches and foreign-owned banks are competing for the same type of clients, namely large multinational companies. Branches may have a competitive advantage over foreign banks as they relay on the capital of the parent banks. It means branches can provide large loans than subsidiaries, and often at lower costs. Indeed, our results shows that the negative effect of

branch activity on foreign banks lending is stronger for corporate loans than for consumer loans. Additionally, we find that subsidiaries owned by multinational banks are stronger effected by branch activity than subsidiaries owned by non-banks entities. We argue that this confirms our assumptions as generally this two types of foreign banks provide services for different clients. Subsidiaries owned by multinational banks generally focus on lending to multinational companies. While, subsidiaries owned by non-banks are often established to improve sales of the industrial founder. Henceforth, those banks are more likely to be retail oriented. While, the government-owned banks focus on serving the needs of state-controlled enterprises, which however can be of interest to both - foreign banks as well branches.

Lastly, we analyse the lending of those foreign banks that operate simultaneously a branch in the host country. In line with our previous results, we find that a simultaneously operated branch has a negative impact on subsidiaries lending. In our opinion, it shows that branches who are parts of the parent banks are cherry-picking corporate as well retail clients from their subsidiaries. We find, however, that this effect was reversed during the financial crisis of 2008. Hoggarth et al. (2013) argue that the decline of lending of foreign branches in the UK was result of parent banks reduction of exposure to the UK market and redirection of funds to other parts of the banking group. In our opinion, branches scaled back their lending activities in the host countries as a result of difficulties in the home market during the crisis of 2008. The results partially supports the findings of Allen et al. (2017), who shows that subsidiaries of foreign banks decrease lending in CEE during a period of a home crisis. Moreover, Allen et al. (2017) shows that foreign-owned banks decreased lending during the crisis of 2008, while the lending of government-owned banks relatively increased. In contrast, we find only weak evidence that state-owned banks increased lending during the crisis of 2008. Indeed, we show that the results are strongly dependent weather the bank-level variables are dominated in local currency or US dollars. We argue therefore that it is important to control for exchange rates in the bank studies, that fluctuate significantly in the crisis periods, and can bias strogly the outcome.

We document that foreign bank subsidiaries, which operate simultaneously a branch in the host country, increase lending relatively to other foreign banks as well state-owned banks during the crisis of 2008. The results are conform with Ongena et al. (2013) who finds that

foreign banks in CEE lower their lending standard to corporate clients and take on more risk following the implementation of home country regulation that reduces banks' profitability in their primary domestic market. Moreover, Danisewicz et al. (2017) documents that parent banks hold higher degree of control over operation of branches than subsidiaries. They argue that parent banks delegate more decision making authority to their foreign subsidiaries than to branches, which make them relatively autonomous in their credit decisions. The parents banks are unlikely to reverse the delegation granted to subsidiaries as it may negatively affect firms' performance. Hence in our opinion subsidiaries try to maintain the relationship with their clients during crisis periods, and consequently do not reduce as much lending as branches.

Concluding, the results of this study documents that in the analysis of the operation of foreign-owned banks we need to control for the increasing role of foreign branches in the host countries. In many developed countries foreign branches are overpassing in numbers the foreign bank subsidiaries, whereas often parent banks operate simultaneously a branch and subsidiary in a host country. We believe that our results are important from a policy perspective because we indirectly demonstrate that foreign branches increase competition in the banking sector. At the same time, branches may act as an important channel of international shock transmission form crisis countries to host countries. Thus, this costs should be weighed against benefits from increase competition.

References

Allen, F., Gu, X. and Kowalewski, O. (2013), Corporate governance and intra-group transactions in european bank holding companies during the crisis, *in* 'Global Banking, Financial Markets and Crises', Emerald Group Publishing Limited, pp. 365–431.

Allen, F., Jackowicz, K., Kowalewski, O. and Kozłowski, Ł. (2017), 'Bank lending, crises, and changing ownership structure in central and eastern european countries', *Journal of Corporate Finance* **42**, 494–515.

Barth, J. R., Caprio Jr, G. and Levine, R. (2013), 'Bank regulation and supervision in 180 countries from 1999 to 2011', *Journal of Financial Economic Policy* **5**(2), 111–219.

Beck, T. and Brown, M. (2015), 'Foreign bank ownership and household credit', *Journal of Financial Intermediation* **24**(4), 466–486.

Beck, T., Demirgüç-Kunt, A. and Levine, R. (2006), 'Bank concentration, competition, and crises: First results', *Journal of Banking & Finance* **30**(5), 1581–1603.

Beck, T., Demirgüç-Kunt, A. and Pería, M. S. M. (2011), 'Bank financing for smes: Evidence across countries and bank ownership types', *Journal of Financial Services Research* **39**(1-2), 35–54.

Bonin, J. P., Hasan, I. and Wachtel, P. (2005), 'Privatization matters: Bank efficiency in transition countries', *Journal of Banking & Finance* **29**(8-9), 2155–2178.

Bonin, J. P. and Louie, D. (2017), 'Did foreign banks stay committed to emerging europe during recent financial crises?', *Journal of Comparative Economics* **45**(4), 793–808.

Bonin, J. and Wachtel, P. (2003), 'Financial sector development in transition economies: Lessons from the first decade', *Financial Markets, Institutions & Instruments* **12**(1), 1–66.

Cerutti, E., Dell'Ariccia, G. and Pería, M. S. M. (2007), 'How banks go abroad: Branches or subsidiaries?', *Journal of Banking & Finance* **31**(6), 1669–1692.

Claessens, S., Demirgüç-Kunt, A. and Huizinga, H. (2001), 'How does foreign entry affect domestic banking markets?', *Journal of Banking & Finance* **25**(5), 891–911.

Claessens, S. and Van Horen, N. (2014), 'Foreign banks: Trends and impact', *Journal of Money, Credit and Banking* **46**(s1), 295–326.

Cull, R. and Peria, M. S. M. (2013), 'Bank ownership and lending patterns during the 2008–2009 financial crisis: Evidence from latin america and eastern europe', *Journal of Banking & Finance* **37**(12), 4861–4878.

Cull, R., Peria, M. S. M. and Verrier, J. (2018), Bank ownership and economic development, *in* T. Beck and R. Levine, eds, 'Handbook of Finance and Development', Edward Elgar Publishing, pp. 419–447.

Danisewicz, P., Reinhardt, D. and Sowerbutts, R. (2017), 'On a tight leash: Does bank organizational structure matter for macroprudential spillovers?', *Journal of International Economics* **109**, 174–194.

De Haas, R. and Van Lelyveld, I. (2004), 'Foreign bank penetration and private sector credit in central and eastern europe', *Journal of Emerging Market Finance* **3**(2), 125–151.

De Haas, R. and Van Lelyveld, I. (2006*a*), 'Foreign banks and credit stability in central and eastern europe. a panel data analysis', *Journal of banking & Finance* **30**(7), 1927–1952.

De Haas, R. and Van Lelyveld, I. (2006*b*), 'Foreign banks and credit stability in central and eastern europe. a panel data analysis', *Journal of Banking & Finance* **30**(7), 1927–1952.

De Haas, R. and Van Lelyveld, I. (2010), 'Internal capital markets and lending by multinational bank subsidiaries', *Journal of financial Intermediation* **19**(1), 1–25.

De Haas, R. and Van Lelyveld, I. (2014), 'Multinational banks and the global financial crisis: Weathering the perfect storm?', *Journal of Money, Credit and Banking* **46**(s1), 333–364.

Dermine, J. (2006), 'European banking integration: Don't put the cart before the horse', *Financial Markets, Institutions & Instruments* **15**(2), 57–106.

Detragiache, E., Tressel, T. and Gupta, P. (2008), 'Foreign banks in poor countries: theory and evidence', *The Journal of Finance* **63**(5), 2123–2160.

Fang, Y., Hasan, I. and Marton, K. (2011), 'Bank efficiency in south-eastern europe', *Economics of Transition* **19**(3), 495–520.

Fáykiss, P., Grosz, G. and Szigel, G. (2013), Transforming subsidiaries into branches: Should we be worrying about it?, Technical report, Hungarian National Bank (MNB).

Fiechter, J., Ötker-Robe, I., Ilyina, A., Hsu, M., Santos, A. O. and Surti, J. (2011), Subsidiaries or branches; does one size fit all?, Technical report, International Monetary Fund.

Fries, S. and Taci, A. (2005), 'Cost efficiency of banks in transition: Evidence from 289 banks in 15 post-communist countries', *Journal of Banking & Finance* **29**(1), 55–81.

Giannetti, M. and Ongena, S. (2009), 'Financial integration and firm performance: Evidence from foreign bank entry in emerging markets', *Review of Finance* **13**(2), 181–223.

Hoggarth, G., Hooley, J., Korniyenko, Y. et al. (2013), Financial stability paper no 22: Which way do foreign branches sway? evidence from the recent uk domestic credit cycle, Technical report, Bank of England.

Hryckiewicz, A. and Kowalewski, O. (2010), 'Economic determinates, financial crisis and entry modes of foreign banks into emerging markets', *Emerging Markets Review* **11**(3), 205–228.

Kowalewski, O. and Rybinski, K. (2011), 'The hidden transformation: the changing role of the state after the collapse of communism in central and eastern europe', *Oxford Review of Economic Policy* **27**(4), 634–657.

Laeven, L. and Valencia, F. (2018), Systemic banking crises revisited, Technical report, International Monetary Fund.

Naaborg, I., Scholtens, B., De Haan, J., Bol, H. and De Haas, R. (2004), 'How important are foreign banks in the financial development of european transition countries?', *Journal of Emerging Market Finance* **3**(2), 99–123.

Ongena, S., Popov, A. and Udell, G. F. (2013), '"when the cat's away the mice will play": does regulation at home affect bank risk-taking abroad?', *Journal of Financial Economics* **108**(3), 727–750.

Sapienza, P. (2004), 'The effects of government ownership on bank lending', *Journal of financial economics* **72**(2), 357–384.

Schaeck, K., Cihak, M. and Wolfe, S. (2009), 'Are competitive banking systems more stable?', *Journal of Money, Credit and banking* **41**(4), 711–734.

Temesvary, J. and Banai, A. (2017), 'The drivers of foreign bank lending in central and eastern europe: The roles of parent, subsidiary and host market traits', *Journal of International Money and Finance* **79**, 157–173.

Williams, B. (2002), 'The defensive expansion approach to multinational banking: Evidence to date', *Financial Markets, Institutions & Instruments* **11**(2), 127–203.

Table 1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
dLoans	0.325	0.854	-0.889	12.461	5528
dConsumer Loans	0.247	0.908	-0.989	12.057	1428
dCorp. Loans	0.215	0.481	-0.679	3.743	1781
LtD	1.071	1.031	0	9.902	5971
Deposit	0.687	0.289	0	1	6115
Loan Losses	0.075	0.099	0	1	4947
CIR	0.717	0.59	0	9.468	6103
NIM	0.049	0.044	-0.316	0.725	6179
ROA	0.005	0.051	-0.996	0.656	6201
Equity	0.142	0.138	-2.496	1	6225
Assets	7.726	2.422	0	17.541	6225
GOV	0.114	0.318	0	1	6225
FGN	0.544	0.498	0	1	6225
B-Sub.	0.451	0.498	0	1	6225
NB-Sub.	0.091	0.288	0	1	6225
Sub.-Branch	0.012	0.107	0	1	6225
No. Branches	4.203	5.82	0	23	6220
Branches/T	0.107	0.14	0	0.647	6220
Branches/B	0.158	0.254	0	1.833	6220
Activity	6.938	1.642	3	11	6225
Credit	0.384	0.183	0.035	1.025	6155
NIM	0.047	0.022	0.005	0.158	5967
CR3	0.586	0.148	0.337	1	5950
CIR	0.616	0.125	0.205	1.663	5985
Z-Score	0.072	0.035	-0.005	0.321	5979
Tax	0.266	1.149	0.09	19.5	6220
EU	0.343	0.475	0	1	6225
EMU	0.049	0.215	0	1	6225
GDP Growth	0.034	0.047	-0.148	0.89	6122
GDP	24.39	1.3	20.707	27.024	6223
CPI	0.114	0.597	-0.014	10.584	6225
Rating	8.788	2.556	3	16	4625
B-Crisis	0.107	0.31	0	1	6225
G-Crisis	0.104	0.305	0	1	6225

Table 2: Openning Branches

This table reports the results of the OLS and Tobit regressions on the decision to open a branch in CESE countries. All variables are as defined in Table A3 in the Appendix. All regressions include a constant, and country-year fixed effects.

	OLS			Tobit		
	(1)	(2)	(3)	(4)	(5)	(6)
CIR	-1.708	-0.453***	-0.150**	-2.991	-0.603***	-0.205***
	(2.421)	(0.166)	(0.074)	(2.709)	(0.179)	(0.078)
CR3	-9.748**	0.430**	0.120	-3.327	0.996***	0.358***
	(4.140)	(0.202)	(0.096)	(4.018)	(0.213)	(0.094)
Activity	0.888***	0.040***	0.019***	0.753***	0.030***	0.015***
	(0.177)	(0.009)	(0.004)	(0.174)	(0.010)	(0.004)
Tax	0.160**	0.014***	0.006***	0.165**	0.015***	0.006***
	(0.072)	(0.005)	(0.002)	(0.064)	(0.004)	(0.002)
GDP Growth	0.913	-1.026	-0.218	-1.157	-1.189	-0.264
	(8.914)	(0.876)	(0.293)	(8.349)	(0.797)	(0.258)
GDP	-1.450	0.518***	0.221***	-9.151***	0.042	0.009
	(2.346)	(0.149)	(0.065)	(2.672)	(0.168)	(0.067)
Rating	0.183	0.016	0.015***	0.302	0.030**	0.021***
	(0.187)	(0.011)	(0.005)	(0.189)	(0.013)	(0.006)
EU	1.722*	0.059	0.045			
	(0.978)	(0.064)	(0.030)			
EMU	0.233	0.202***	0.102***	-0.930	0.136*	0.065**
	(0.925)	(0.072)	(0.027)	(0.901)	(0.069)	(0.026)
B-Crisis	-0.383	-0.117**	-0.027	-0.267	-0.102**	-0.024
	(0.651)	(0.045)	(0.020)	(0.715)	(0.050)	(0.022)
Observation	227	227	227	227	227	227
R^2	0.815	0.769	0.817			
Adjusted R^2	0.774	0.717	0.776			
Pseudo R^2				0.352	1.191	4.849

Note: Robust standard errors clustered at the bank level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 3: The growth of total loans and branch activity

The dependent variable is the annual percentage change in total gross loans calculated using domestic currencies. All regressions include a constant, and country-year fixed effects. Variables definitions are in Table A3 in Appendix.

	(1)	(2)	(3)	(4)	(5)
LtD	0.041	0.042	0.041	0.042	0.042
	(0.027)	(0.028)	(0.027)	(0.028)	(0.028)
Deposit	-0.068	-0.063	-0.067	-0.059	-0.058
	(0.092)	(0.098)	(0.092)	(0.094)	(0.096)
ROA	0.572*	0.585**	0.577*	0.585*	0.602**
	(0.279)	(0.273)	(0.280)	(0.276)	(0.275)
Equity	-0.058	-0.067	-0.059	-0.070	-0.078
	(0.238)	(0.228)	(0.238)	(0.233)	(0.229)
Assets	-0.006	-0.006	-0.005	-0.006	-0.006
	(0.012)	(0.011)	(0.012)	(0.012)	(0.012)
GOV	-0.095**	-0.072*	-0.098**	-0.083**	-0.071*
	(0.036)	(0.040)	(0.037)	(0.036)	(0.034)
FGN	0.027	0.100**	0.031	0.068	0.094*
	(0.042)	(0.045)	(0.044)	(0.046)	(0.045)
EU		0.167**			
		(0.057)			
EMU			0.035		
			(0.071)		
Branch/B				0.864***	
				(0.218)	
Branches/T					3.511***
					(0.716)
GOV × EU		-0.082			
		(0.049)			
FGN × EU		-0.202***			
		(0.063)			
GOV × EMU			0.015		
			(0.069)		
FGN × EMU			-0.070		
			(0.081)		
GOV × Branch/B				-0.073	
				(0.094)	
FGN × Branch/B				-0.241**	
				(0.108)	
GOV × Branch/T					-0.259
					(0.182)
FGN × Branch/T					-0.595**
					(0.214)
Observation	5282	5282	5282	5281	5281
R2	0.214	0.219	0.214	0.216	0.218
AdjustedR2	0.161	0.166	0.161	0.163	0.165

Note: Robust standard errors clustered at the bank level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 4: The growth of total loans - robustness check

The dependent variable is the annual percentage change in total gross loans calculated using domestic currencies. All of the regressions include bank-level control variables as specified in Table 3, a constant, and country-year fixed effects. Variable definitions are in Table A3 in Appendix.

	(1)	(2)	(3)	(4)	(5)	(6)
GOV	-0.099**	-0.075*	-0.101**	-0.087**	-0.074**	-0.099**
	(0.035)	(0.040)	(0.036)	(0.036)	(0.034)	(0.035)
B-Sub.	0.014	0.090*	0.018	0.061	0.089*	0.017
	(0.042)	(0.047)	(0.044)	(0.046)	(0.046)	(0.042)
NB-Sub.	0.086	0.133**	0.084	0.082	0.097	0.085
	(0.053)	(0.056)	(0.056)	(0.061)	(0.065)	(0.053)
Sub.-Branch						-0.131**
						(0.048)
EU		0.181***				
		(0.056)				
EMU			0.051			
			(0.052)			
Branches/B				0.939***		
				(0.226)		
Branches/T					3.799***	
					(0.702)	
GOV×EU		-0.084				
		(0.049)				
B-Sub.×EU		-0.213***				
		(0.063)				
NB-Sub.×EU		-0.147*				
		(0.071)				
GOV×EMU			0.003			
			(0.057)			
B-Sub.×EMU			-0.085			
			(0.062)			
NB-Sub.×EMU			0.124			
			(0.324)			
GOV×Branches/B				-0.060		
				(0.097)		
B-Sub.×Branches/B				-0.269**		
				(0.114)		
NB-Sub.×Branches/B				-0.025		
				(0.153)		
GOV×Branches/T					-0.248	
					(0.182)	
B-Sub.×Branches/T					-0.660***	
					(0.215)	
NB-Sub.×Branches/T					-0.199	
					(0.319)	
Observation	5282	5282	5282	5281	5281	5282
R^2	0.215	0.220	0.216	0.218	0.220	0.216
Adjusted R^2	0.162	0.167	0.161	0.164	0.166	0.162

Note: Robust standard errors clustered at the bank level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 5: Determinants of the growth of consumer loans

The dependent variable is the annual percentage change in consumer loans calculated using domestic currencies. All of the regressions include bank-level control variables as specified in Table 3, a constant, and country-year fixed effects. Variable definitions are in Table A3 in Appendix.

	(1)	(2)	(3)	(4)	(5)	(6)
GOV	-0.234***	-0.372*	-0.258***	-0.262*	-0.252*	-0.238***
	(0.074)	(0.200)	(0.082)	(0.126)	(0.135)	(0.076)
B-Sub.	-0.070	-0.142	-0.087	-0.096	-0.090	-0.066
	(0.072)	(0.143)	(0.077)	(0.097)	(0.102)	(0.072)
NB-Sub.	0.119	0.056	0.120	0.142	0.152	0.115
	(0.104)	(0.165)	(0.105)	(0.106)	(0.095)	(0.106)
Sub.-Branch						-0.229**
						(0.088)
EU		-0.070				
		(0.194)				
EMU			-0.126			
			(0.133)			
Branches/B				0.674**		
				(0.248)		
Branches/T					3.451***	
					(0.785)	
GOV×EU		0.215				
		(0.194)				
B-Sub.×EU		0.128				
		(0.147)				
NB-Sub.×EU		0.111				
		(0.312)				
GOV×EMU			0.201*			
			(0.113)			
B-Sub.×EMU			0.178			
			(0.135)			
NB-Sub.×EMU			-0.359*			
			(0.199)			
GOV×Branches/B				0.130		
				(0.257)		
B-Sub.×Branches/B				0.114		
				(0.163)		
NB-Sub.×Branches/B				-0.072		
				(0.334)		
GOV×Branches/T					0.125	
					(0.458)	
B-Sub.×Branches/T					0.132	
					(0.312)	
NB-Sub.×Branches/T					-0.167	
					(0.560)	
Observation	1412	1412	1412	1412	1412	1412
R^2	0.294	0.295	0.295	0.294	0.294	0.294
Adjusted R^2	0.177	0.176	0.176	0.175	0.175	0.177

Note: Robust standard errors clustered at the bank level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

The dependent variable is the annual percentage change in consumer loans calculated using domestic currencies. All of the regressions include bank-level control variables as specified in Table 3, a constant, and country-year fixed effects. Variable definitions are in Table A3 in Appendix.

	(1)	(2)	(3)	(4)	(5)	(6)
GOV	-0.034	0.002	-0.023	-0.037	-0.024	-0.035
	(0.065)	(0.064)	(0.073)	(0.044)	(0.036)	(0.066)
B-Sub.	-0.000	0.073*	0.015	0.060*	0.088**	0.004
	(0.030)	(0.038)	(0.031)	(0.034)	(0.038)	(0.030)
NB-Sub.	-0.009	0.064	0.013	0.075	0.108*	-0.008
	(0.039)	(0.040)	(0.038)	(0.046)	(0.052)	(0.039)
Sub.-Branch						-0.120***
						(0.019)
EU		0.111*				
		(0.057)				
EMU			0.148			
			(0.098)			
Branch						
Branches/B				0.812*		
				(0.393)		
Branches/T					2.907**	
					(1.255)	
GOV× EU		-0.074*				
		(0.042)				
B-Sub.× EU		-0.139*				
		(0.078)				
NB-Sub.× EU		-0.131				
		(0.092)				
GOV × EMU			-0.142			
			(0.098)			
B-Sub. × EMU			-0.206*			
			(0.097)			
NB-Sub. × EMU			-0.367***			
			(0.109)			
GOV × Branch/B				0.100		
				(0.254)		
B-Sub. × Branch/B				-0.323**		
				(0.152)		
B-Sub. × Branch/B				-0.426*		
				(0.204)		
GOV × Branch/T					-0.045	
					(0.419)	
B-Sub. ×Branches/T					-0.721**	
					(0.284)	
B-Sub. ×Branches/T					-0.884**	
					(0.331)	
Observation	1730	1730	1730	1730	1730	1730
R^2	0.289	0.293	0.292	0.297	0.300	0.290
Adjusted R^2	0.191	0.194	0.193	0.199	0.202	0.192

Note: Robust standard errors clustered at the bank level are in parentheses. *, **, and *** denote significance

Table 7: Crisis and loan growth

The dependent variable is the annual percentage change in gross loans calculated using domestic currencies. In column (1)-(2) the sample include all the CEESE countries, in columns (3)-(4) only EU member countries, and (5)-(6) non EU member countries. All of the regressions include bank-level control variables as specified in Table 3, a constant, and country-year fixed effects. Variable definitions are in Table A3 in Appendix.

	(1)	(2)	(3)	(4)	(5)	(6)
GOV	-0.095***	-0.099***	-0.106**	-0.106**	-0.110***	-0.114***
	(0.031)	(0.031)	(0.042)	(0.043)	(0.037)	(0.037)
FGN	0.032		0.118**		0.040	
	(0.042)		(0.055)		(0.046)	
B-Sub.		0.022		0.122**		0.030
		(0.042)		(0.054)		(0.046)
NB-Sub.		0.087		0.115		0.101
		(0.050)		(0.078)		(0.059)
Sub.-Branch		-0.128**		-0.134**		-0.155***
		(0.048)		(0.059)		(0.046)
B-Crisis	0.342***	0.342***	0.046	0.078		
	(0.108)	(0.112)	(0.176)	(0.180)		
GOV × bcrisis	-0.008	-0.009	0.052	0.057		
	(0.124)	(0.124)	(0.180)	(0.180)		
FGN × bcrisis	-0.049		0.002			
	(0.133)		(0.213)			
B-Sub. × bcrisis		-0.055		-0.039		
		(0.138)		(0.219)		
NB-Sub. × bcrisis		-0.017		0.462**		
		(0.161)		(0.217)		
SB × bcrisis		-0.030				
		(0.080)				
G-Crisis					0.036	0.037
					(0.039)	(0.040)
GOV × crisis					0.186	0.186
					(0.116)	(0.116)
FGN × crisis					-0.104**	
					(0.046)	
B-Sub. × crisis						-0.108**
						(0.046)
NB-Sub. × crisis						-0.129
						(0.085)
SB × crisis						0.145
						(0.087)
Observation	5282	5282	3136	3136	5282	5282
R^2	0.214	0.216	0.206	0.208	0.216	0.218
Adjusted R^2	0.161	0.162	0.151	0.152	0.162	0.164

Note: Robust standard errors clustered at the bank level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table 8: Crisis and loan growth - sensitivity analysis

The dependent variable is the annual percentage change in gross loans calculated using US dollars. In column (1)-(2) the sample include all the CEESE countries, in columns (3)-(4) only EU member countries, and (5)-(6) non EU member countries. In column (1)-(2) the sample include all the CEESE countries, in columns (3)-(4) only EU member countries, and (5)-(6) non EU member countries.

	(1)	(2)	(3)	(4)	(5)	(6)
GOV	-0.106**	-0.111**	-0.101*	-0.105*	-0.124**	-0.131***
	(0.040)	(0.041)	(0.049)	(0.051)	(0.043)	(0.043)
FGN	0.048		0.143**		0.045	
	(0.045)		(0.063)		(0.052)	
B-Sub.		0.034		0.139*		0.029
		(0.047)		(0.068)		(0.056)
NB-Sub.		0.119**		0.173*		0.129**
		(0.049)		(0.091)		(0.061)
Sub.-Branch		-0.156**		-0.176***		-0.191***
		(0.064)		(0.047)		(0.062)
B-Crisis	0.049	0.070	0.030	0.054		
	(0.126)	(0.137)	(0.190)	(0.188)		
GOV × bcrisis	-0.029	-0.042	0.037	0.033		
	(0.173)	(0.176)	(0.245)	(0.247)		
FGN × bcrisis	-0.122		-0.073			
	(0.165)		(0.245)			
B-Sub. × bcrisis		-0.161		-0.105		
		(0.180)		(0.243)		
NB-Sub. × bcrisis		0.095		0.631		
		(0.262)		(0.513)		
SB × bcrisis		0.010				
		(0.116)				
G-Crisis					-0.160***	-0.152**
					(0.053)	(0.057)
GOV × crisis					0.221*	0.220*
					(0.122)	(0.122)
FGN × crisis					-0.058	
					(0.063)	
B-Sub. × crisis						-0.072
						(0.068)
NB-Sub. × crisis						-0.033
						(0.148)
SB × crisis						0.229**
						(0.087)
Observation	5343	5343	3165	3165	5343	5343
R^2	0.363	0.365	0.417	0.418	0.364	0.365
Adjusted R^2	0.320	0.321	0.376	0.377	0.320	0.322

Note: Robust standard errors clustered at the bank level are in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

Table A1: Table shows the number of branches in a given CESEE country

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Czech Republic	10	9	9	10	10	10	10	8	8	9	12
Estonia	0	0	0	0	0	1	1	1	1	3	4
Hungary	0	0	0	0	0	0	0	0	0	0	3
Latvia	0	0	0	0	0	1	1	1	1	1	1
Lithuania	0	0	1	1	1	1	1	1	1	1	1
Poland	1	1	1	1	1	1	1	1	1	3	7
Slovakia	9	5	4	2	2	2	2	2	3	3	5
Slovenia	0	0	0	0	0	0	1	1	1	2	3
Bulgaria	4	4	4	5	7	7	7	6	6	6	6
Romania	7	9	9	9	7	8	8	8	8	7	6
Croatia	0	0	0	0	0	0	0	0	0	0	0
Albania	2	2	2	2	1	1	1	1	1	1	1
Macedonia	1	1	1	0	1	1	0	0	0	0	0
Montenegro	0	0	0	0	0	0	0	0	0	0	0
Serbia	0	0	0	0	0	0	0	0	0	0	0
Rep. of Moldova	0	0	0	0	0	0	0	0	0	0	0
Bosnia-Herzegovina	0	0	0	0	0	0	0	0	0	0	0

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Czech Republic	13	14	16	18	19	21	20	21	22	23	22
Estonia	7	9	11	10	11	10	8	7	7	7	7
Hungary	4	6	10	11	10	11	10	9	10	10	10
Latvia	3	4	6	6	8	9	9	9	10	10	10
Lithuania	0	7	7	7	9	6	5	8	8	7	7
Poland	12	14	18	18	21	19	20	22	22	22	21
Slovakia	7	10	9	11	14	17	14	15	15	15	15
Slovenia	2	3	3	3	3	3	3	3	4	4	3
Bulgaria	4	5	6	6	6	7	7	6	6	6	5
Romania	6	12	10	10	9	8	8	9	9	7	8
Croatia	0	0	0	0	0	0	0	0	0	0	1
Albania	1	1	1	1	1	1	1	0	0	0	0
Macedonia	0	0	0	0	0	0	0	0	0	0	0
Montenegro	0	0	0	0	0	0	0	0	0	0	0
Serbia	0	0	0	0	0	0	0	0	0	0	0
Rep. of Moldova	0	0	0	0	0	0	0	0	0	0	0
Bosnia-Herzegovina	0	0	0	0	0	0	0	0	0	0	0

Table A2: Table shows the number of commercial banks in a given CESEE country

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Czech Republic	45	44	41	35	32	30	28	29	27	26	24
Estonia	9	6	6	6	7	7	7	7	7	9	9
Hungary	43	42	45	44	43	42	41	38	38	38	37
Latvia	41	34	32	28	24	22	23	23	23	23	23
Lithuania	15	12	12	12	13	13	13	14	13	12	12
Poland	81	81	81	83	77	73	69	59	58	57	61
Slovakia	22	24	25	24	23	21	19	18	18	18	18
Slovenia	39	36	34	30	31	28	24	22	18	18	18
Bulgaria	47	35	34	34	34	35	35	34	35	35	34
Romania	24	31	33	36	34	33	33	31	30	32	33
Croatia	34	38	41	40	33	25	24	26	22	20	22
Albania	6	8	9	10	13	13	13	13	15	16	16
Macedonia	21	22	22	24	21	21	21	20	21	21	20
Montenegro								10	10	10	10
Serbia	112	103	106	104	75	81	54	50	47	43	40
Rep. of Moldova	25	22	22	23	20	20	19	16	16	16	16
Bosnia-Herzegovina		41	52	53	61	56	49	40	37	33	24

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Czech Republic	24	23	21	21	22	23	23	23	23	23	23
Estonia	7	6	6	7	7	7	7	7	7	7	8
Hungary	40	40	41	40	40	38	35	35	35	35	37
Latvia	24	25	27	27	20	21	21	19	19	19	19
Lithuania	11	9	10	10	9	8	7	7	7	6	6
Poland	63	64	70	67	49	47	45	41	38	38	36
Slovakia	17	16	17	15	15	14	14	13	13	13	12
Slovenia	17	18	18	19	19	19	17	17	17	15	14
Bulgaria	32	29	30	30	30	31	31	30	28	28	27
Romania	31	31	32	31	30	31	30	29	29	27	27
Croatia	22	24	21	22	22	22	20	20	21	20	16
Albania	17	17	16	16	16	16	16	16	16	16	16
Macedonia	19	18	18	18	18	17	16	16	15	15	15
Montenegro	10	11	11	11	11	11	11	11	12	14	15
Serbia	37	35	34	34	33	33	32	30	29	30	31
Rep. of Moldova	15	16	16	15	15	14	14	14	14	11	11
Bosnia-Herzegovina	20	20	20	20	19	18	18	16	17	16	13

Table A3: Variable descriptions

Variable name	Description	Source
Bank-level data		
ΔLoans	Real growth rate of bank loans to non-financial entities	
ΔCorporate loans	Real growth rate of bank corporate loans to non-financial entities	
ΔConsumer loans	Real growth rate of bank consumer loans to non-financial entities	Bankscope
LtD	Ratio of loans to deposits	
Deposit	Ratio of non-financial deposits to total assets	
ROA	Return of net profit to average total assets	
Equity	Ratio of equity capital to total assets	
Assets	Bank's assets to host-country's GDP	Bankscope, WDI
GOV	A dummy variable that takes the value 1 if the government owns more than 30% of the shares and zero otherwise	Classens and Van Horen(2014, Bankscope, websites
FGN	A dummy variable that takes the value 1 if a foreign entity owns more than 50% of the shares and zero otherwise	
B-Sub	A dummy variable that takes the value 1 if owner of a foreign entity is a multinational banks and zero otherwise	
NB-Sub	A dummy variable that takes the value 1 if owner of a foreign entity is a non-bank entity and zero otherwise	Bankscope, websites
Sub.-Branch	A dummy variable that takes the value 1 if owner simultaneously to the subsidiary operates a branch and zero otherwise	
Country-level data		
No Branches	Number of foreign bank branches	
Branch/B	Ratio of number of foreign bank branches to total number of commercial banks	National Supervisory Authorities
Braches/T	Ratio of number of foreign bank branches to the sum of number of commercial banks and foreign bank branches	
CIR	Total costs as a share of total income of all commercial banks.	Cihák et al. (2012
CR3	Assets of three largest banks as a share of assets of all commercial banks.	
Activity	The extent to which banks may engage in (a) underwriting, brokering and dealing in securities, and all aspects of the mutual fund industry, (b) insurance underwriting and selling, and (c) real estate investment, development, and management. Unrestricted = 1: full range of activities can be conducted directly in the bank; Permitted = 2: full range of activates can be conducted, but some or all must be conducted in subsidiaries; Restricted = 3: less than full range of activities can be conducted in the bank or subsidiaries; and Prohibited = 4: the activity cannot be conducted in either the bank or subsidiaries. Higher values indicate greater restrictiveness	Barth et al. (2013)
EU	A dummy variable that equals 1 if a country is member of the European Union and zero otherwise.	
EMU	A dummy variable that equals 1 if a country is member of the European Monetary Union and zero otherwise.	
Tax	Corporate tax rate	World Development Indicators
GDP Growth	Real GDP growth	
GDP	Logarithm of gross national product (current US$)	

Rating	The long-term rating of a country's foreign currency (worst S&P rating valid in a given year). Higher values indicate better credibility.	S&P
B-Crisis	Dummy variable that equals 1 during a systematic banking crisis and zero otherwise.	Laeven and Valencia (2018)
GF-Crisis	A dummy variable that equals 1 for the years 2008-2009 and 0 otherwise.	