# Cross border banking and foreign branch regulation in Europe

by

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Abstract

Banks go abroad to follow their customers or to invest strategically and the choice of offering cross border banking services is affected by corporate taxation policy, the degree of home market penetration, economic and political risk, and regulatory restrictions. In light of the poor performance of foreign banks in developed countries, regulatory arbitrage remains one of the main motivations to internationalize even though, since the Great Financial Crisis, there has been some general tightening in regard to the regulatory conditions for non resident banks. Unexpectedly, evidence on the impact of specific regulatory choices on the entry of foreign banks is rare and there are no evidences on the role of foreign bank regulation in the European area.

Looking at EU28 banking sector, the analysis considers the ownership of operating banks and focuses the attention on not EEA owned banks in order to test if specific country capital adequacy requirements for branches matter on the choice to offer financial services in a foreign market. Results show that the lower capital adequacy requirements are the higher is the amount of loans and deposits offered by not EEA banks and, additionally, the higher is the probability of having a foreign bank operating in the country.

## 1. Introduction

Banks may be interested to serve a foreign country in order to satisfy the specific needs of some of their customers that are involved in international trade (Grosse and Goldberg, 1991) or could decide to invest abroad strategically. The strategy to offer cross border banking services is affected by corporate taxation policy, the degree of home market penetration, economic and political risk, and regulatory restrictions (Cerutti, Dell'Ariccia and Martinez Perìa, 2005). Empirical evidence demonstrates that not only the macro-economic features affect the choice of establishing a foreign branch in a country but also the previous experience to work in the local financial system and, more generally, to international banking services (Ball and Tschoegl, 1982). Foreign banks operating in developed economies normally do not perform better with respect to local financial intermediaries (Chang, Hasan and Hunter, 1998) and so the choice to invest abroad cannot be

explained only on the basis of the economies of scale or scope that could be exploited by foreign multinational banks. The main explanation of the FDI investment by banks is normally ascribed to tax or regulatory difference among countries that could create an incentive for transferring assets, profits, and losses to foreign subsidiaries in order to minimize taxes and cost of regulations (Berger et al., 2000).

Anyone can take up the business of a credit institution through a stand-alone company or a subsidiary by undergoing the same authorization procedure, while foreign banks can establish additionally through a branch. Such organizational structure is associated with the opportunity of regulatory arbitrage because home authorities are typically responsible for the supervision of foreign branches of their domestic banking groups (Fiechter et al. , 2011). Since the Great Financial Crisis, there has been some general tightening in regard to the regulation applier to branched of not resident banks: in particular, coherently with local banks, branches are subject to financial and governance requirements but the application of capital ratios is still affected by the equivalence between the regimes in the host and home country (OECD, 2017). In Europe, the convergence of the regulatory treatment of foreign branches stems from the emerging of the passport concept giving European Economic Area banks (hereinafter, EEA banks) the right to provide financial services throughout the European Union based on the implementation of an harmonized set of prudential requirements, while the equivalence concept continues to apply to third country bank branches at national level market (Margerit, Magnus and Mesnard, 2017).

The focus of the analysis on the banking sector is motivated by the exclusion of the implementation of the EU equivalence regime for the other financial intermediaries, therefore keeping not harmonized for third countries banks in accessing the national European markets (Deslandes, Dias and Mugnus, 2018). In light of the importance of capital requirements on foreign investments (Hasan, Kim and Wu, 2015), the analysis considers the ownership of banks operating in the EU28 area and focuses the attention on non-EEA owned banks in order to test if different applications of capital adequacy requirements in each country matter. Results show that the lower are capital adequacy requirements the higher is the amount of loans and deposits offered by non-EEA banks and, additionally, the higher is the probability of having a foreign bank operating in the country.

The paper provide empirical evidence that may be relevant in the perspective of the supervision of significant branches and the risks related to a regulatory arbitrage in some European countries

(European Banking Authority, 2018). Under the revision of the EU capital requirements for credit institutions and investment firms (European Parliament and Council of the European Union, 2016), the results contribute to the debate on the proposal to establish intermediate EU parent undertakings also in the case of financial activities carried out through branches exclusively (European Central Bank, 2017). Moreover, in light of the Brexit process that will cause the loss of the passporting rights for all UK banks, the paper offers insights on the potential determinants of choice to relocate foreign bank branches in UK and, on the opposite, UK banks' branches in Europe (Henry, Snowdon and Herbst, 2018).

## 2. Literature review

The existence of foreign bank entry restrictions reduces the degree of competition, increases the average cost for all banks in the country and increases the risk of a bank crisis in the country due to their lower efficiency. Empirical analysis found no differences on the advantages and risks related to the adoption of any type of foreign bank restriction with weak or strong supervision rules (Barth, Caprio and Levine, 2002).

The impact of regulation on foreign bank activity cannot be objectively measured due to the complexity of summarizing the regulation differences into a business implication for regulated entities. Literature suggested different proxies for analyzing this issue that considers both qualitative and quantitative approaches.

An approach for evaluating the existing regulation applied to foreign branches and subsidiaries is to assign a grade in qualitative scale about the constraints applied to foreign banks for operating in the country. This approach has leaded to mixed evidence and on the basis of the type of qualitative ranking used and so it is impossible to clearly state that regulation matters for the selection of the foreign country for a multinational bank (Goldgerg and Johnson, 1990).

More sophisticated approaches applied statistical procedures (principal component analysis) for extracting the main differences in regulation applied to domestic and foreign banks and use these items in order to create a composite index on bank protectionism. The index constructed considers around seventeen differences in the regulation applied to banks on the basis of their nationality but the empirical evidence shows its limited contribution in explaining the multinational banking market selection (Sagari, 1986).

The main focus for the analysis of the impact of regulation on the foreign bank access is normally related to the regulatory capital requirement that may be different for local and foreign banks and

sometimes it could be also different for foreign branches or subsidiaries. Empirical evidence on developed economies shows that this type of incentive may matter if the multinational bank is able to raise capital with a similar cost of capital with respect to the foreign country and so there is net profit margin related to lending activity in the new market (McCauley and Seth, 1992).

The adoption of capital adequacy requirements under Basel 2 risk modifies the attractiveness for foreign lenders to invest in some countries because the advantages related to exploiting new business opportunities have to be at least higher than the cost related of capital requirements (OECD, 2017). Literature shows that international banks prefer to invest in countries in which there are expectations of lowering the capital requirements related to lending activity (Hasan, Kim and Wu, 2015).

After the great financial crisis regulators reacted differently to the new market conditions and some supervisory authorities adopted a stricter regulation for avoiding the risk of a new crisis in the banking sector. As expected, stricter regulatory approaches imply higher barriers of entry for foreign banks and so the local banking market will be more focused on local players instead of the international player (Temesvary, 2014). Empirical evidence shows that multinational banks have an incentive to prefer countries in which the regulatory requirements are lower (Focarelli and Pozzolo, 2000) but the international activity choice could be performed only by healthy firms that are able to sustain the costs and the risks related to exploiting a new market (Temesvary, 2015).

Literature does not provide evidence on the impact of specific regulatory choices affecting only foreign entities on the entry choices for international banks. Case studies on neighborhood countries show that in a scenario with no difference in culture, currency, business practices and law enforcement the probability of foreign bank activity, especially near to the Country's border, is higher when there is a difference in the regulatory requirements (Fidrmuc and Hainz, 2012).

## 3. Empirical analysis

### 3.1 Sample

The sample considers all the banks in the European Union (EU 28) existing at the end of 2017 and having the full balance sheet available on the Orbis – Bureau Van Dijk database, collecting information about the nationality of the ultimate owner (Table 1).

Table 1. Sample

| Country | N° banks | % banks owned locally | % banks owned by foreign EU banks | % banks owned by foreign not EU banks |
|---|---|---|---|---|
| AT | 540 | 95.19% | 3.52% | 1.30% |
| BE | 463 | 92.87% | 4.54% | 2.59% |
| BG | 20 | 40.00% | 40.00% | 20.00% |
| CY | 34 | 73.53% | 14.71% | 11.76% |
| CZ | 25 | 36.00% | 56.00% | 8.00% |
| DE | 1368 | 97.51% | 1.02% | 1.46% |
| DK | 69 | 97.10% | 1.45% | 1.45% |
| EE | 22 | 86.36% | 13.64% | 0.00% |
| ES | 177 | 85.88% | 7.91% | 6.21% |
| FI | 53 | 98.11% | 1.89% | 0.00% |
| FR | 294 | 89.80% | 2.38% | 7.82% |
| GB | 1223 | 81.19% | 5.72% | 13.08% |
| GR | 8 | 87.50% | 12.50% | 0.00% |
| HR | 31 | 54.84% | 35.48% | 9.68% |
| HU | 29 | 55.17% | 34.48% | 10.34% |
| IE | 433 | 78.98% | 10.16% | 10.85% |
| IT | 399 | 96.49% | 3.26% | 0.25% |
| LT | 5 | 40.00% | 40.00% | 20.00% |
| LU | 76 | 26.32% | 46.05% | 27.63% |
| LV | 38 | 65.79% | 10.53% | 23.68% |
| MT | 18 | 50.00% | 22.22% | 27.78% |
| NL | 112 | 83.04% | 7.14% | 9.82% |
| PL | 141 | 87.94% | 10.64% | 1.42% |
| PT | 112 | 89.29% | 5.36% | 5.36% |
| RO | 30 | 50.00% | 40.00% | 10.00% |
| SE | 93 | 96.77% | 2.15% | 1.08% |
| SI | 18 | 66.67% | 16.67% | 16.67% |
| SK | 10 | 0.00% | 100.00% | 0.00% |

*Notes: AT = Austria, BE = Belgium, BG = Bulgaria, CY = Cyprus, CZ = Czech Republic, DE = Germany, DK = Denmark, EE = Estonia, ES = Spain, FI = Finland, FR = France, GB = Great Britain, GR = Greece, HR = Croatia, HU = Hungary, IE = Ireland, IT = Italy, LT = Lithuania, LU = Luxembourg, LV = Latvia, MT = Malta, NL = Netherlands, PL = Poland, PT = Portugal, RO = Romania, SE = Sweden , SI = Slovenia , SK = Slovakia*
*Source: Orbis data processed by the authors*

Markets that are more characterized by foreign banks are the Eastern European countries (Slovakia, Lithuania, Hungary, Croatia, Czech Republic, and Bulgaria) and Luxembourg. The comparison of the role of EU and not EU foreign ownership shows that the markets that have more

not EU foreign banks with respect to EU ones are Germany, Denmark, France, Great Britain, Ireland, Latvia, Malta, Netherlands, and Portugal.

Table 2. Funding and lending policy for bank classified on the basis of the domicile of the ultimate owner

| | | | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|
| Overall | Deposits | Overall (bln €) | 27.83 | 28.79 | 37.31 | 33.61 | 31.29 | 30.06 | 34.84 |
| | | Banks'average (mln €) | 4.76 | 4.58 | 6.13 | 5.91 | 5.71 | 9.33 | 11.51 |
| | Loans | Overall (bln €) | 22.22 | 22.61 | 29.44 | 26.72 | 25.22 | 24.17 | 27.92 |
| | | Banks'average (mln €) | 3.80 | 3.60 | 4.84 | 4.70 | 4.60 | 7.50 | 9.22 |
| | Net Deposits | Overall (bln €) | 5.61 | 6.18 | 7.88 | 6.89 | 6.07 | 5.88 | 6.93 |
| | | Banks'average (mln €) | 0.96 | 0.98 | 1.29 | 1.21 | 1.11 | 1.83 | 2.29 |
| Local | Deposits | Overall (bln €) | 23.90 | 24.81 | 32.32 | 29.15 | 27.16 | 26.08 | 30.20 |
| | | Banks'average (mln €) | 4.66 | 4.52 | 6.10 | 5.91 | 5.71 | 9.29 | 11.40 |
| | Loans | Overall (bln €) | 19.83 | 20.15 | 26.20 | 23.75 | 22.45 | 21.53 | 24.85 |
| | | Banks'average (mln €) | 3.87 | 3.67 | 4.95 | 4.82 | 4.72 | 7.67 | 9.38 |
| | Net Deposits | Overall (bln €) | 4.07 | 4.66 | 6.12 | 5.40 | 4.71 | 4.54 | 5.35 |
| | | Banks'average (mln €) | 0.79 | 0.85 | 1.15 | 1.10 | 0.99 | 1.62 | 2.02 |
| Other EU | Deposits | Overall (bln €) | 1.41 | 1.59 | 2.60 | 2.62 | 3.36 | 2.97 | 2.74 |
| | | Banks'average (mln €) | 0.38 | 0.41 | 0.68 | 0.73 | 0.98 | 1.59 | 1.54 |
| | Loans | Overall (bln €) | 0.45 | 0.53 | 2.17 | 2.20 | 2.77 | 2.52 | 2.34 |
| | | Banks'average (mln €) | 0.12 | 0.14 | 0.57 | 0.62 | 0.81 | 1.35 | 1.31 |
| | Net Deposits | Overall (bln €) | 0.96 | 1.06 | 0.44 | 0.42 | 0.59 | 0.46 | 0.40 |
| | | Banks'average (mln €) | 0.26 | 0.27 | 0.11 | 0.12 | 0.17 | 0.24 | 0.22 |
| Outside EU | Deposits | Overall (bln €) | 1.33 | 1.36 | 1.63 | 1.49 | 1.39 | 1.41 | 1.59 |
| | | Banks'average (mln €) | 3.68 | 3.38 | 4.14 | 3.95 | 3.97 | 7.58 | 9.82 |
| | Loans | Overall (bln €) | 0.22 | 0.26 | 0.46 | 0.46 | 0.43 | 0.45 | 0.53 |
| | | Banks'average (mln €) | 0.61 | 0.63 | 1.17 | 1.22 | 1.23 | 2.42 | 3.27 |
| | Net Deposits | Overall (bln €) | 1.10 | 1.11 | 1.17 | 1.03 | 0.96 | 0.96 | 1.06 |
| | | Banks'average (mln €) | 3.07 | 2.75 | 2.97 | 2.73 | 2.74 | 5.16 | 6.55 |

*Source: Orbis data processed by the authors*

The analysis of the type of activity developed by banks on the basis of the domicile of the ultimate owner shows that foreign banks behave differently with respect to local financial intermediaries and there are also differences in the borrowing and lending policies adopted by EU and not EU banks (Table 2).

Local owned firms are, as expected, those that are more active in the funding and the lending market because all their business has to be developed inside the country borders. Among foreigners, banks owned by no-EU ultimate owners are those that on average collect more money as deposits and offer more loans to customers and so they contribute the most to the development of the local financial system.

The country by country analysis confirms that also in the EU the behavior of foreign banks is different on the basis of the country of domicile of the ultimate owner and there are countries that offer more (less) loans with respect to the deposits they collect abroad (e.g. Terrell, 1993). Moreover, some countries are top performers in multiple host markets, therefore empirical evidences support the need between national supervision authorities due to the potential establishment of significant branch (European Banking Authority, 2019).

Table 3. Number of banks, funding and lending policy by country of origin of the ultimate owner (average exposure 2011-2017)

| | Foreign Countries by n° banks | | | Foreign Countries by loans | | | Foreign Countries by deposit | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1st | Top 2 | Top 3 | Top 1 | Top 2 | Top 3 | Top 1 | Top 2 | Top 3 |
| AT | IT | ES | RU | IT | ES | RU | IT | ES | RU |
| BE | FR | NL | DE | FR | NL | JP | FR | NL | JP |
| BG | LI | GR | HU | IT | HU | GR | IT | HU | GR |
| CY | GB | LB | RU | IE | LU | GR | IE | LU | GR |
| CZ | AT | FR | BE | BE | AT | FR | AT | BE | FR |
| DE | AT | FR | US | IT | NL | ES | IT | NL | ES |
| DK | SE | NO | CN | FI | n.a. | n.a. | FI | n.a. | n.a. |
| EE | SE | DK | NO | SE | n.a. | n.a. | SE | n.a. | n.a. |
| ES | FR | US | GB | VE | DE | FR | VE | DE | PT |
| FI | SE | DK | CH | DK | n.a. | n.a. | DK | n.a. | n.a. |
| FR | US | CH | LB | BE | GB | US | BE | GB | JP |
| GB | ES | US | DK | ES | US | NL | US | ES | JP |
| GR | CH | CY | US | CY | n.a. | n.a. | CY | n.a. | n.a. |
| HR | AT | IT | HU | IT | AT | HU | IT | AT | HU |
| HU | AT | DE | FR | IT | AT | BE | IT | AT | BE |
| IE | US | GB | NL | GB | US | BE | US | GB | BE |
| IT | FR | US | DE | FR | BE | DE | FR | DE | BE |
| LT | SE | LV | LT | SE | NO | DK | SE | NO | RU |
| LU | DE | FR | CH | FR | DE | CN | DE | FR | CN |
| LV | NO | RU | SE | SE | NO | RU | SE | NO | RU |
| MT | AT | CY | GB | GB | QA | TR | GB | AT | QA |
| NL | SE | US | FR | JP | IE | RU | RU | TR | JP |
| PL | FR | DE | GB | DE | ES | NL | DE | ES | NL |
| PT | FR | ES | BM | BM | ES | FR | BM | ES | FR |
| RO | AT | CY | FR | AT | FR | IT | AT | FR | IT |
| SE | FR | GB | DK | FI | ES | CW | FI | CW | ES |
| SI | AT | IT | CH | IT | KY | FR | IT | KY | FR |
| SK | AT | CZ | IT | AT | IT | BE | AT | IT | BE |

*Notes: AT = Austria, BE = Belgium, BG = Bulgaria, CY = Cyprus, CZ = Czech Republic, DE = Germany, DK = Denmark, EE = Estonia, ES = Spain, FI = Finland, FR = France, GB = Great Britain, GR = Greece, HR = Croatia, HU = Hungary, IE = Ireland, IT = Italy, LT = Lithuania, LU = Luxembourg, LV = Latvia, MT = Malta, NL = Netherlands, PL = Poland, PT = Portugal, RO = Romania, SE = Sweden , SI = Slovenia , SK = Slovakia*
*Source: Orbis data processed by the authors*

Foreign banks are prevalently based in other European Countries (France, Austria, Denmark, Great Britain, Switzerland, etc…) but there are also big multinational banks from large world economies (United States or China). Loans are offered prevalently by foreign banks from European countries

(France, Italy, Belgium, Spain, Austria, etc..) and the role of non-EU banking groups (United States, Japan, Bermuda, China, Antilles, etc..) is limited to few European countries. Deposits collection from foreign banks is prevalently from European countries (Italy, France, Austria, Belgium, Spain, etc…) but a lot of not EU economies are actively collecting money from a European countries (Japan, Russia, Unites States, Bermuda, China, etc..). As it concerns the Brexit process (Henry, Snowdown and Herbst, 2018), it can be underlined that banks from Great Britain are already established in many EU countries, even though the importance of the host country is represented by the loan market.

### 3.2 Methodology

In light of the importance of the selected organizational structure on the not harmonized application of prudential supervision instruments among EU countries (European Central Bank, 2017), the analysis of the role of regulation on foreign entry choice could be studied by considering the differences in the capital requirement for branches of foreign banks on the basis of their country of origin (Table 4).

The supervisory approach used in the EU framework adopts for all the countries in the European Economic Area (EEA) the home country supervision approach and there are no additional capital requirements when a bank from the EEA decides to open a branch in another country member of the EEA. A lot countries (17 of 28) apply an entry requirement for not EEA foreign banks but only 4 Countries (Denmark, Finland, Greece, and Netherland) apply full capital adequacy requirement to all foreign banks and 2 countries (Germany and Italy) exempt additional regulatory capital for few foreign countries.

Table 4. Capital requirements for branches of foreign banks in the European Countries

| Country | Capital requirements for EEA branch | Capital entry requirements for not EEA branch | Not EEA countries with exemption on capital adequacy requirements |
|---|---|---|---|
| AT | No | No | All |
| BE | No | No | All |
| BG | No | No | All |
| CY | No | Yes | All |
| CZ | No | Yes | All |
| DE | No | Yes | Australia, Japan, USA |
| DK | No | Yes | None |
| EE | No | No | All |
| ES | No | No | All |
| FI | No | No | None |
| FR | No | Yes | All |
| GB | No | Yes | All |
| GR | No | Yes | None |
| HR | No | Yes | All |
| HU | No | Yes | All |
| IE | No | No | All |
| IT | No | Yes | Canada, Japan, Switzerland, United States |
| LT | No | Yes | All |
| LU | No | Yes | All |
| LV | No | No | All |
| MT | No | No | All |
| NL | No | Yes | None |
| PL | No | Yes | All |
| PT | No | Yes | All |
| RO | No | No | All |
| SE | No | Yes | All |
| SI | No | Yes | All |
| SK | No | No | All |

*Notes: AT = Austria, BE = Belgium, BG = Bulgaria, CY = Cyprus, CZ = Czech Republic, DE = Germany, DK = Denmark, EE = Estonia, ES = Spain, FI = Finland, FR = France, GB = Great Britain, GR = Greece, HR = Croatia, HU = Hungary, IE = Ireland, IT = Italy, LT = Lithuania, LU = Luxembourg, LV = Latvia, MT = Malta, NL = Netherlands, PL = Poland, PT = Portugal, RO = Romania, SE = Sweden , SI = Slovenia , SK = Slovakia Source: Central Bank data processed by the authors*

The analysis of the impact of the regulation on the application of capital adequacy requirements to foreign branches on the lending market in each country considers:

$$\%FD_{it} = \frac{\sum_{j=1}^{n} Deposits_{jt}^{Not\ EEA}}{\sum_{j=1}^{n} Deposits_{jt}^{Not\ EEA} + \sum_{k=1}^{m} Deposits_{kt}^{EEA}} \quad (1)$$

$$\%FL_{it} = \frac{\sum_{j=1}^{n} Loans_{jt}^{Not\ EEA}}{\sum_{j=1}^{n} Loans_{jt}^{Not\ EEA} + \sum_{k=1}^{m} Loans_{kt}^{EEA}} \quad (2)$$

$$HHI_{it} = \sum_{j=1}^{n+m} \left( \frac{TA_{jt}}{\sum_{j=1}^{n+m} TA_{jt}} \right)^2 \quad (3)$$

where for each EU28 country in the sample the measures considered are focused on the deposits from not EEA banks ($\%FD_{it}$), the loans from not EEA banks ($\%FL_{it}$), and the market concentration ($HHI_{it}$).

The percentage of foreign deposits is computed as the ratio of the sum of deposits of the non-EEA branches in the country and the sum of the overall deposits in the country (formula 1). The percentage of foreign loans is computed as the ratio of the sum of loans of the non-EEA branches in the country and the sum of the overall loans in the country (formula 2). The market concentration is measured as the sum of the square of the ratio between the total assets of the bank and the overall assets of all the banks domiciliated in the same country (formula 3).

The analysis of non-EEA deposits and loans and the Herfhindal index is performed separately for banks that apply capital requirements and those who do not and for the countries that offer capital requirement exemption for non-EEA branches and those who do not. The comparison of the value of the measure for the two subsamples allows testing if the capital entry requirement or the exemption has an effect on the foreign banks decision entry in the loan or the deposits market or, more generally, on the market competition.

A more detailed analysis of the role of regulatory restrictions on the foreign bank entry decision is performed by studying only groups that have a foreign branch in one of the EEA countries and evaluate the impact of bank and country features on the choice to entry abroad (e.g. Focarelli and Pozzolo, 2001). In formulas:

$$\Pr\left(Y_{i,t}^{j}=1\right)=f(X_{it},Z_{jt}) \quad (4a)$$

$$\Pr\left(Y_{i,t}^{j}=1\right)=f(X_{it},Z_{jt},CE_{t}^{j},CR_{t}^{j}) \quad (4b)$$

where the dependent variable $\left(Y_{i,t}^{j}\right)$ equals one when the bank i has a foreign subsidiary or branch at the year t in the country j , $X_{it}$ is a set of bank specific variables, $Z_{jt}$ is a set of country-specific variables, $CE_{i}^{j}$ is a dummy equal to one when the country j applies a capital entry requirement, and $CR_{i}^{j}$ is a dummy variable assuming value one if the country j applies EU capital adequacy requirements to the firm on the basis of its country of domicile.

The banks' specific independent variables are the natural logarithm of total assets $(TA_{it})$, the return of asset $(ROA_{it})$, the non-interest income $(NII_{it})$ for the bank i at time t. The country's specific independent variables are the exports, the bank credit and the stock market capitalization divided by the GDP (respectively $\frac{EXP^{j}}{GDP_{t}}, \frac{CRED^{j}}{GDP_{t}}, \frac{Mkt^{j}}{GDP_{t}}$), the inflation $\pi_{t}^{j}$, the country average ROA, NII and Total assets owned by banks (respectively $TA_{t}^{j}, ROA_{t}^{j}, NII_{t}^{j}$). The analysis is performed by considering a probit panel model with fixed effects.

### 3.3 Results

The analysis of the credit market features of countries that apply non-EEA restriction shows some interesting differences for the loans and deposits market exposure and the overall market competition (Table 5).

Table 5. Capital requirements for foreign banks and credit market features in the European Countries

| | | Capital entry requirements to non-EEA branch | | Exemption on capital adequacy requirements for non-EEA branches | |
|---|---|---|---|---|---|
| | | Applied | Not Applied | Applied | Not Applied |
| $\%FD_{it}$ | 2011 | 4.87% | 9.42% | 6.62% | 0.26% |
| | 2012 | 4.97% | 9.99% | 6.90% | 0.29% |
| | 2013 | 6.14% | 4.13% | 5.29% | 0.46% |
| | 2014 | 6.96% | 3.95% | 5.72% | 0.40% |
| | 2015 | 6.99% | 4.10% | 5.80% | 0.38% |
| | 2016 | 7.06% | 4.38% | 5.94% | 0.46% |
| | 2017 | 7.59% | 5.21% | 6.59% | 0.46% |
| $\%FL_{it}$ | 2011 | 4.24% | 9.37% | 6.23% | 0.17% |
| | 2012 | 4.27% | 9.68% | 6.33% | 0.46% |
| | 2013 | 4.84% | 4.10% | 4.47% | 0.54% |
| | 2014 | 5.89% | 3.74% | 4.97% | 0.51% |
| | 2015 | 5.68% | 3.67% | 4.82% | 0.50% |
| | 2016 | 5.49% | 4.28% | 4.93% | 0.59% |
| | 2017 | 6.06% | 5.34% | 5.69% | 0.60% |
| $HH_{it}$ | 2011 | 26.45% | 37.28% | 26.13% | 32.00% |
| | 2012 | 25.45% | 37.38% | 25.66% | 31.39% |
| | 2013 | 19.41% | 20.17% | 16.25% | 24.20% |
| | 2014 | 18.25% | 19.21% | 15.24% | 23.73% |
| | 2015 | 18.60% | 19.04% | 15.49% | 22.95% |
| | 2016 | 18.05% | 18.50% | 15.03% | 22.42% |
| | 2017 | 17.59% | 17.45% | 14.38% | 22.05% |

*Source: Orbis data processed by the authors*

The analysis of the capital entry requirements does not show clear negative effects on foreign market interventions and on average from 2013 to nowadays countries that apply such constraint are those that have not EEA banks more active for both the deposits and the loans market. Countries that apply entry capital requirements have on average a less concentrated lending market showing that this type of constraint has a limited effect on the economic convenience for a foreign bank entry strategy.

Countries adopting an exemption policy for not EEA banks are able to attract more foreign banks and the average size of the exposure on the deposits and loans market is around ten times higher

than countries that apply full capital requirement to non-European banks. The market concentration of the countries that adopt an exemption policy for not EEA are significantly less concentrated than other markets showing that, differently with respect to other markets (e.g. Strahan, 2003), the choice to open to a foreign market does not cause a decrease of the business for local banks due to M&A policy adopted by multinational banks for entering in the market. Moreover, such evidences stress the impact that the introduction of EU parent undertakings when financial services are offered only through branches by non-EU banks (European Central Bnak, 2017).

The analysis of the groups with foreign branches in a EU country allow to identify some interesting features of market selected by international banking groups (Table 6).

Table 6. Foreign bank entry choices on the basis country features, bank performance and regulation

| | (4a) | (4b) |
|---|---|---|
| $\frac{EXP^j}{\overline{GDP_t}}$ | -0.52** | -0.65** |
| $\frac{CRED^j}{\overline{GDP}_t}$ | 0.67** | 0.60** |
| $\frac{Mkt^j}{\overline{GDP_t}}$ | 0.03 | 0.17 |
| $\pi_t^j$ | 36.36** | 29.03** |
| $ROA_t^j$ | -0.01 | -0.01 |
| $NII_t^j$ | -0.01 | -0.01 |
| $TA_t^j$ | 0.15** | 0.15** |
| $ROA_{it}$ | -8.47* | -15.31** |
| $NII_{it}$ | 4.35** | 5.99** |
| $TA_{it}$ | 0.22** | 0.22** |
| $CE_t^j$ | | 0.80** |
| $CR_t^j$ | | -0.65** |
| Constant | -4.07** | -5.03** |
| N° banking groups | 104 | 104 |
| N° obs | 2912 | 2912 |
| $\chi^2$ | 8.91<br>(0.00) | 13.32<br>(0.00) |

*Source: Orbis data processed by the authors*

Markets preferred by foreign banks for an international investment are those that are less open to international trade, characterized by bigger credit market size, high inflation and above the average size of the competitors in the market. International banks more interested to go abroad are the bigger ones that have currently a low return on assets and an high not interest income.

Normally the existence of a capital entry has a positive impact on the probability of having international players in the banking sector because, independently with respect to the business strategy, only banks that respect the minimum requirement are able to enter in the market and the competition is more regulated and less risky.

As expected the choice to impose additional capital requirements for not EEA banks reduce the probability of having a foreign branch in the country because the operating cost related to the capital requirement is higher and they cannot exploit the regulatory arbitrage that is frequently available in other Countries.

## 4. Conclusion

Foreign banks invest in a lot of European countries by creating new branches owned by foreign ultimate owners but the presence of foreign banks is different country by country. One of the explanation that could justify the choice to open a foreign bank in a European country because the regulatory requirements for banks based in countries that are not part of the European Economic Area. The main difference in the regulation applied attains to capital requirements for foreign branches and a lot of European countries do not require additional capital requirement for banks based abroad the EEA in order to support the foreign intervention in the local credit market. The analysis of the current European market show that the reduction of the capital requirements increases the interest of foreign banks to offer loans and collect deposits in a Country and support the competition inside the market. Results are robust with respect to the analysis of the bank features and the country characteristics.

Further development of the analysis will consider the opportunity that foreign banks accessing to EU markets may be less (more) confident with respect to the EU regulation and so they may probably be more (less) frequently sanctioned by the supervisory authority. Literature has already shown for other developed markets (USA) that the country of origin and the previous experience

in operating in a regulated credit market has an effect on the probability to be sanctioned by the local Supervisory authority (Wu and Salomon, 2017). Empirical evidence related to EU and the different behavior of EU and other foreign banks may be interesting in order to evaluate better if banks that are coming from a similar supervisory framework have easier access to a EU market or if it is still necessary to invest in creating an uniform regulatory framework for all the countries that are adopting the Banking Union framework.

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