THE ROLE OF THE FOREIGN BANKS IN THE 5 EU MEMBER STATES

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Abstract. The article tests if foreign banks have lowered their market share in the Baltic States, Romania and Bulgaria during the recent financial crisis after 2007, due to the perception of risk exposure in local markets. It has been proved that, the credit supply by foreign banks in the Baltic States, Romania and Bulgaria has remained relatively stable during the latest crisis by TSLS method. Foreign ownership generally utilizes derivative products more than domestic banks in the NMSs because they have more expertise in hedging and can diversify risks effectively with their larger parent banks in their home country. The reaction of foreign banks abroad depends on the capital adequacy of the parent bank and the business opportunities in the host economies.

Keywords: credit supply, cyclicality, stability, crisis, foreign ownership.

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1. Introduction

Most banks in the EU's New Member States (NMS) have been privatised with foreign strategic investors. In most New EU Member States (NMS), majority foreign ownership of banks was allowed after major banking and economic crises in the 90.ties. Banking systems had become unstable due to the lack of hard budget constrains and ordinary risk intermediation. Some recent empirical evidence found that foreign ownership of the banking sector improved restructuring in the NMS (regarding the benefits like improving efficiency in intermediation, introducing hard budget constraints, improving risk management, corporate governance etc.).

On the one hand, globalization provides banks with more opportunities for the diversification of their business strategies (thus reducing the exposure of banks to particular markets) and also with a larger risk diversification, which is arguably an advantage of globalization. On the other hand, the low cost of entry to foreign markets intensifies competition among banks (and other financial agents) and consequently increases their exposure to the risks of international financial shocks.

The relationship between the market share of foreign banks in host economies and the impact of ownership on loan supply has been analyzed during the period of the financial crisis. In our estimates for the Baltic States, Romania and Bulgaria (these economies have been chosen due to a high share of foreign banks and their relative quick entrance in these eastern markets), an evidence for the foreign banks pro-cyclical reaction to changes in the host country's macroeconomic environment has been tried to find. When economic growth in host countries decelerates, the foreign banks in the host country might attempt to stabilize credit supply and may also be encouraged to decelerate the credit supply growth due to increased bad loan performance.

The structure of the paper is as follows: The characteristics of the banking sector and macro environment in the Baltic States, Romania and Bulgaria are summarized in the second chapter. In the third chapter, an overview of empirical literature – regarding the stability of credit supply and the role of foreign banks in host economies – is presented. In the fourth chapter, theoretical background, data explanation, methodology of empirical analysis and results are explained. The implications of the empirical analysis are revisited in the conclusion.

2. The banking sector and the macro environment of the Baltic States, Romania and Bulgaria

The banking sectors in the analysed economies – having undergone similar structural changes over a relatively short period of time – share some common structural characteristics. Two of the defining characteristics in banking sectors are a (considerable) foreign presence with a relatively high concentration. These economies have been chosen due to a high share of foreign banks and their relative quick entrance in these eastern European markets (see Table 1). Foreign banks have significantly contributed to the transformation of the banking sector in these economies, owing partly to the increasing integration of EU banking sectors.

The economies used different strategies for privatization in the 90.ties. While some economies went for the quick sale of their banks to foreign investors, others combined public offerings with management buyouts and some placements with foreign strategic investors (see also: Festić *et al*. 2010).

While the Estonian and Lithuanian banking sector became truly consolidated, Latvia has remained the exception, with a number of smaller niche banks oriented towards the Russian market. Estonia privatized its last remaining large state-owned banks into foreign hands. The Lithuanian banking sector is considerably smaller and its effectiveness has been lower than in Estonia or Latvia due to state ownership, which lasted longer in Lithuania, and due to the fact that the banks are too risk-averse (Ådahl 2006). In Bulgaria and Romania, sustained economic recovery and foreign ownership of the banking sector have increased competition and boosted confidence. Banks have also enjoyed adequate profitability (profits were also supported by continued cost-containment) and banks have benefited from the enhancing of asset quality, which has allowed for reduced provisioning at the end of the 90.ties and after 2000 till the financial crisis in 2007.

Already in the aftermath of the Russian crisis at the end of the 90s, Estonia and Latvia experienced very rapid loan growth between 2000–2002, while Lithuania lagged somewhat behind. The acceleration in domestic lending – in particular to households – was fuelled by strongly increasing foreign liabilities, while the corporate sector gained better access to alternative financing sources in the Baltics. Many Baltic corporations are likely to find financing elsewhere: either from foreign investors or in European financial markets. Credit growth to the corporate sector lagged behind loans to households, which can be partly explained by the fact that an important share of investment by the non-financial corporate sector was financed by retained earnings, inter-company loans and foreign capital, including credits from banks in other countries and FDI in the period from 2002 to 2006. From 1999–2002 more than half of all loans were granted in foreign currencies and the majority in Euros (Ådahl 2006)[1].

In the Baltics, signals of economic overheating with a medium-term risk of a hard landing were already evident in 2007. The deceleration of economic growth in the second half of 2008 was mostly due to a supply side shock and the unwinding of the boom in the EU economies in 2008. Looking at the structure of output growth, increasing domestic demand also played a prominent role, since net exports were negatively affected by sluggish economic activity in Europe. Structural dependence on external financing – which is in part a by-product of the effect of low levels of internal savings – have led to large current account deficits and financial instability in the Baltics.

In Romania, the cautious approach of banks to lending after the banking crisis in the late 90s and their preference for doing low-risk business led to a crowding-out of the private sector and to a low share of private sector loans to GDP. In Romania, domestic credits have primarily been financed by domestic deposits and external sources. The banks' ability to fund loan expansion was boosted by strong capital inflows through the banking system, amid high global liquidity and low interest rates (Naraidoo *et al.* 2008). In Bulgaria, banks are predominantly deposit financed and banking sector's assets have been increasingly dominated by claims on the domestic sector, while securities and re-purchasing agreements continue to play a subordinate role. In light of the credit boom Bulgarian National Banks introduced measures in order to decrease credit growth rate in the period from 2004–2006 (Ess *et al.* 2006).

Progress in the implementation of reforms has been an important driver for Bulgaria in achieving macroeconomic stability and productivity improvements. Despite the sustainable strengthening of export growth, the gap between the positive contributions of domestic demand and the negative contributions of net exports has called for strengthening the supply side and improving competitiveness in the period between 2000 and 2006. Romania's economy grew strongly on the back of strong household spending, accelerating investment growth and FDI. The credit-led domestic demand growth was

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[1] Despite the fact that lending grew rapidly in the period from 2002 to 2007, banks in the Baltics have maintained adequate *solvency* buffers. They also identified consolidation, the adaptation of organizational structures and regulatory incentives, as significant drivers of change.

accompanied by macroeconomic imbalances like overleveraged households and external imbalances. Buoyant growth in Romania rode on the back of robust consumption spending together with accelerating investments (as a result of reconstruction activities and a large number of programmes co-financed by the EU) in the period between 2000 and 2006.

Structural dependence on external financing in the analysed economies (see Table 1) – which is in part a by-product of the effect of the low levels of internal saving – have led to large current account deficits and financial instability in recent years (between 2000 and 2007). The huge current account deficits have been financed by a steady increase in the net-inflow of FDI, net portfolio investment and foreign currency loans. Credit growth had been largely foreign-funded and loans to the private sector grew at a rapid pace in the period from 2002–2007[2].

Despite good foreign direct investment coverage and the recovery of export growth, the sustainability of the external imbalance has been an issue of concern in 2008 and 2009 (Thangavelu *et al.* 2009). Broad-based contraction in economic activity, accompanied by a strong fall-off in exports as well as imports, could already be seen at the end of 2007, and continued through 2008. This trend remained in 2009 and 2010.

Given the dependency of the local economies on external funding (mainly in the form of international private debt and foreign direct investment) and the drying-up of capital inflows meant a constraint on growth after 2007. The international liquidity crisis has been reflected in a drying up of international interbank and debt markets and consequently in the higher cost of external funding. As part of the global effort to support the banking system through the crisis, most European governments have been offering support schemes for their local banks, to help increase capital ratios and to restore confidence in the interbank market in the period from 2007 to 2010.

The rising concerns about credit quality are behind such a credit crunch, rather than liquidity concerns. Uncertainty over income and employment prospects, coupled with the tightening of credit standards, has been responsible for a visible adjustment in household sector behaviour, resulting in a weakening dynamic of consumption expenditure and borrowing in the period from 2008 till 2011. Lending activity in the corporate sector has also remained subdued in the period from 2008 till 2010 and lending growth is expected to remain tied to deposit generation capacity in Romania and Bulgaria, except in the Baltics.

The deterioration in the economic outlook after 2007 resulted in a substantial increase in the share of distressed banking assets throughout the region, for both the retail and corporate sector. The ongoing economic, financial and banking crises are modifying the shape, structure and functioning of the global banking sector (higher capital ratios, deleveraging, de-risking, efficiency and cost cutting etc.).

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[2] The predominance of foreign exchange lending has been particularly relevant in Romania and in countries with a fixed or 'stable' exchange rate, like in the Baltics.

Table 1. Macro and banking sector indicators for the NMS-5[3]

	Macro and banking sector indicators							
	Share of banking system assets under foreign ownership (2008)	Gross external debt to GDP in % (2010f)	GDP growth (2009/2010f/2011f)	Denominated loans in FX in % of total loans (2008)	Loans to deposits ratio (2008/2009/2010f)	NPL as % of gross loans (2008/09/10f)	Rating Moody's / S&P 2010	EBRD index of banking sector reform*
Estonia	97.0	122.2	−15.3/1.2/3.2	85.2	199/195/189	1.9/6.5/8.0	A1 stable A stable	3.7
Latvia	61.0	162.3	−16.3/−1.3/3.9	88.4	247/250/230	3.6/16.2/19.8	Baa3 stable BBstable	3.7
Lithuania	88.0	93.2	−17.0/−0.9/3.3	64.0	196/187/185	4.6/16.1/18.4	Baa1 stable BBB stable	3.0
Bulgaria	84.0	105.9	−6.3/−1.0/1.8	56.7	123/121/122	3.2/5.7/10.0	Baa3 positive BBB stable	3.7
Romania	88.0	64.7	−7.5/−2.5/1.7	56.0	126/119/116	6.3/16.0/17.5	Baa3 stable BB+ stable	3.0

Notes:

Portfolio quality and loan classification categories: Estonia – standard, watch, doubtful, uncertain, loss; Latvia and Lithuania – standard, watch, substandard, doubtful, loss. Substandard loans are 91 to 180 days past due (and require provisioning between 15 and 40), doubtful loans are 181 to 365 days past due (and require provisioning between 40 and 99) and losses are not repaid (requiring 100% provisioning). In Estonia, loans overdue for 150 plus days have to be written off. In Latvia, the substandard classification covers loans 31–90 days overdue and provisioning levels are 10/30/60/100 percent, respectively. In Romania and Bulgaria: the NPL as substandard, watch, doubtful loans – defined as loans that are more than 90 days past due

f: forecast, FX: foreign exchange

*The ERBD indicators of banking sector reform are measured on a scale of 1 to 4+ (for 1997 and 2005): score 2: established internal currency convertibility, significant liberalised interest rates and credit allocation; score 3: achieved substantial progress in establishing prudential regulation and supervision framework; score 4: level of reform approximates the BIS institutional standards.

Source: BACA (2010), EIPF (2010)

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[3] After the EU accession, fixed capital formation as the major driving force of GDP growth in Baltics, a higher capacity to absorb EU investment grants and strong external demand have caused relatively high GDP growth rates. Significant amounts of FDI have been related to the banking sector and non-tradable sector (like real estate business) that are closely tied to the availability of bank finance, which differentiates the Baltics from the central Europe, where most of capital inflows have taken the form of FDI into the tradable sector. After the EU accession, Romania and Bulgaria faced the recovery of EU economies and the positive externalities of accession to the EU have contributed to economic growth. Romania and Bulgaria have become one of the main beneficiaries of FDI in tradable sector in the Central and Eastern European Region due to their EU accession, the relatively low wages of the highly educated labour force, the rapidly growing domestic market and the strategic geographical positioning of their countries.

In the aftermath of the global crisis, the economic environment is now slowly showing signs of recovery. The driver of the current recovery is corporate business, as the engine of future growth. Within the context of high unemployment and low consumption, the retail sector can only slowly develop its potential. The countries boast attractiveness and a low risk profile in 2010, while the strongest impact of the crisis affected the Baltic States, prompting a need to rebalance their growth model. Thus, the whole CEE region remains a bastion for foreign banks to exploit future growth opportunities (Shrieves *et al.* 2010).

3. The overview of empirical literature about the role of foreign banks

This chapter provides an overview of findings from papers with regard to questions about how foreign banks affect the operations of banks in host economies, as well as the influence of foreign banks on the stability of loan supply in host countries.

Barth *et al.* (2004) pointed out that banks with oversized direct state control do not necessarily provide greater stability for loan volume. The privatization of banks through domestic ownership structures positively affects the increased efficiency of banking operations while the effects of potential foreign ownership reflect only over a longer period of time (Williams, Nguyen 2005). Megginson (2005) stated that the state as owner exhibits a tendency for lending to preferential industrial branches and finances projects that provide more social rather than financial gains; and also stated that foreign co-ownership reduces the political involvement of banks and increases efficiency. Consequently, the stability of credit supply is enabled by good credit portfolio and lower share of non-performing loans (NPL). Mixed ownership with a foreign partner enables the increase in economic efficiency and the greater stability of the banking sector, better risk management, stable supply of loans etc.

Galindo, Micco and Powell (2003) noted that foreign banks can stabilize loan supply when domestic deposits are in crisis. Similarly, Martínez Peria, Powell and Vladkova-Hollar (2005) confirmed that the demand responsiveness of foreign banks to the specificities of the host-country environment decreases, by increasing aggregate exposure to the host country. According to some studies, foreign banks act stabilizing to the environment of the host country if there are no shocks in their home country and if they do not draw their liquidity from the host country's environment. Cabballero and Krishnamurthy (2003), Galindo *et al.* (2010) stated that in the case of shocks, foreign banks can promptly leave the host country, thus reducing their operations in the local market more than domestic banks, which have a smaller possibility of portfolio diversification. Weller (2000) confirmed that the arrival of foreign banks is connected with a lower loan supply of domestic banks while their lending portfolio quality improves. De Haas and Lelyveld (2006) stated that the reaction of domestic and foreign banks to the crisis and economic cycle in Central and Eastern European countries differed, with the reaction of foreign banks depending on the health of the parent bank. They confirmed that domestic banks in Central and Eastern European countries reduced the volume of their loans more than foreign banks (with the exception of foreign bank affiliates). It can be argued that a stable loan supply in times of crisis, when the loan supply of foreign banks acted

counter-cyclically or at least less pro-cyclically than the loan supply of domestic banks. Arena *et al.* (2006) analyzed the differences in the attitude of domestic and foreign banks in a time of crisis and in relatively calmer periods. Considering the differences in the ownership structure of banks, weak evidence about the reduced vulnerability of foreign bank loans to economic terms has been proven. However, these differences have only been confirmed with banks that have a lower liquidity of assets and worse capital adequacy. Kamil and Rai (2009) argued that the liquidity restrictions (in the US monetary market) reduce cross-border lending and the number of foreign bank affiliates in host economies.

Cull and Martínez-Peria (2007) claimed that countries with a major share of foreign banks were confronted with a bigger crisis in comparison with countries that had a smaller presence of foreign banks. Even Stiglitz (2002) claimed that financial stability in the time of globalization and the arrival of foreign banks is questionable. Studies that confirm better financial and loan supply stability in host countries – at the time of the arrival of foreign banks in CEE countries – are incomplete.

4. Empirical analysis: theoretical background, data specification, methodology, empirical results

4.1. Theoretical background

The influence of domestic and foreign banks on the stability of loan volume to the private sector can be measured by the share of bad loans to total assets, the ratio between bank investments and total assets, crisis and the ownership structure of banks, and the ratio between the loss of the fair value of derivative financial instruments and cash flow under the heading of insurance against the loss in relation to the volume of lending (see Table 2).

Loans and investments represent two competing sources of income; and a bank manager must decide how to allocate this capital. The sign of the derivatives variable with respect to loans is positively related to the market share of the foreign bank. It indicates that a loss on a bank hedge will cause a retrenchment, whereas an increase prompts the bank to increase its market share. The investment variable is also consistent with this reasoning. The negative sign suggests that an increase in a bank's investments reduces its market share of credit as an institution shifts funds away from loans into other sources of revenues and reserves (Galindo *et al.* 2003). Low bank capitalization can often lead to the adoption of imprudent lending strategies with direct implications for banks' loan portfolios, which tend to be heavily skewed towards high risk projects and non-performing loans (NPL) could increase; consequently the market share of an individual bank should decrease (Babihuga 2007). The loan-assets ratio is positively correlated with banking problems, increasing the NPL ratio and (in)solvency is a result of a bank's long-term mismanagement (Männasoo, Mayes 2009). As well, heterogeneity across economies might prove a different relationship between asset qualities, market share and the business cycle (see Table 2).

Table 2. Overview of the literature on explanatory variables of the stability of loan supply

Explanatory variable(s)	Reference	Explanation of theoretical background
Ownership and cycles	Morgan and Strahan (2003), Goldberg (2005)	If economic growth in the host country slows down, lending will be redirected in favour of other regions, where the economic dynamics are more favourable. Domestic banks in the CEE are short of these possibilities and are therefore less vulnerable to local cyclical fluctuations. The correlation between lending operations in the host country and the cycles of the local economy is positive. On the other hand, there is a possibility for the foreign bank to excessively increase its cross-border operations when the possibilities for economic growth in the home country are weak.
Crisis	Cull and Martínez-Peria (2007), Herrero and Martínez-Peria (2007)	Also, foreign banks can stabilize the supply of loans during the crisis. On the other hand, countries with a higher share of foreign banks faced a harder financial crisis than countries with a lower share of foreign banks. The reaction of foreign banks abroad depends on the capital adequacy of the parent bank and the business opportunities in the host economies.
Income level to cycle	Clarke *et al.* (2003), Haddad and Hakim (2009)	Foreign banks most frequently enter countries with a large share of direct foreign investment, since they usually follow their clients ignoring the development rate of the host country. Entering countries with strategic raw materials – as a significant component of GDP structure – is a long-term orientation of foreign banks in these host economic environments. It can also be assumed that in these countries there is no substantial outflow of capital during times of crisis. Economies with lower income level per capita and lower income level relative to cycle generally enable better growth and development prospects; and these markets are therefore attractive for foreign strategic investors and banks accompanying them ensuring a stable loan supply.
Rule of law	Kaufmann, Kraay and Mastruzzi (2009), Bennacceur and Omran (2008)	The higher market share of foreign banks is usually associated with a higher degree of compliance with Basel core principles, a rule of law and institutional creditor protection.
Derivatives	Clarke *et al.* (2003)	The less developed the banking environment of the host country, the larger the opportunity of foreign banks to make bigger gains by introducing the derivatives and other innovative financial instruments in the banking environment of less developed host economies. Additional gains from innovative financial instruments enable additional credit supply.

Investment to assets ratio	Amess and Demetriades (2010), Hermes and Lensink (2003)	At the time of entry into less developed banking environments, foreign banks increased their reserves as they evaluated credit risks more realistically than domestic banks. The arrival of foreign banks results in the formation of a higher level of reserves for domestic banks, as they want to retain their market share and extend loans under terms that involve higher risks for banks. Higher (secondary) reserves could be also seen in higher investment (money market securities) to assets ratio of banks and less disposable credit supply.
Non-performing loans	Clarke *et al.* (2002), Berger, Klapper and Udell (2001), Tschoegl (2003), Corden (2009), Uiboupin (2006)	The foreign banks have a stronger tendency to lend to larger rather than smaller or mid-sized companies and they have problems providing credit to smaller companies in the host country. The foreign banks in Central and Eastern European countries took over better clients and left the remaining ones to domestic banks. And even more, some authors argue that lending volume contracted after selling domestic banks to foreign buyers because of portfolio cleaning. Lending volume reached a level prior to the sale only after several years. These statements are confirming the negative relation between higher share of foreign ownership of banks in host economies and lower non-performing loans (NPL). The takeover of a domestic »bank in trouble« by a foreign bank can add to the efficiency of banking operations in the future as lending policy is directed neither to extending loans to bad companies nor to achieving political goals.

4.2. Data specification

The relationship between the market share of the foreign banks in host economies and banking sector variables as a source of determinants influencing the share of (individual) bank credits relative to the total loans in the country was analyzed, in order to assess the banking sector's vulnerability to a financial crisis regarding the ownership structure, using the panel regression method[4].

The choice of explanatory variables in the model reflects the evidence provided by the large amount of empirical literature mentioned above (see Table 2).

The market share of foreign banks in the Baltic States, Romania and Bulgaria is expressed as bank credits (in billions (*bn*) of domestic currency and deflated by the consumer price index) relative to the total loans of the banking sector in the country (in *bn* of domestic currency and deflated by the consumer price index) and utilized for the dependent variables in our analysis. The five largest foreign banks in individual economies have been included in our observations.

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[4] The sources of our panel data are the quarterly financial statements of banks, internal data provided by EIPF (2010) and BACA (2010); and central banks databases, Bankscope.

Originally, the following time series for explanatory variables were considered: the non-performing loans (NPL) variable (in *bn* of domestic currency and deflated by the consumer price index) is expressed as the share of total assets (in *bn* of domestic currency and deflated by the consumer price index). The banks' investment (i.e. in *bn* of domestic currency deflated by the consumer price index) is expressed as a share of the total banking assets (in *bn* of domestic currency deflated by the consumer price index). A time dummy that identifies the timing of the financial crisis and foreign ownership structure were included as additional explanatory variables. The ratio between cash flow hedges (in *bn* of domestic currency, real terms) and the banks' total loans (in *bn* of domestic currency, real terms) is used to measure any losses on derivative positions. The index of the rule of law is used as a rough measure of creditor protection and as an institutional explanatory variable. The interaction effect between income level (expressed as average income per employee) and the business cycle (divided into categories low, middle and high) was included as an indicator of pro-cyclicality between the purchasing power and economic cycle.

In order to control for a potential endogeneity problem (as explained later in the methodology section), several instrumental variables were employed: a market concentration measure (proxied by the assets of five foreign banks relative to total banking sector assets, expressed in *bn* of domestic currency, in real terms), capital adequacy (as the share of regulatory capital to risk-weighted assets of the parent bank, as a rough measure of the quality of regulation and supervision); the net interest margin (as the ratio between the accounting value of net interest revenues relative to interest bearing – total earning – assets, expressed in *bn* of domestic currency, in real terms) and the government effectiveness index as an institutional variable (see also: Kaufmann *et al.* 2009; Rosenberg, Tirpak 2008).

All the nominal variables expressed in national currencies are corrected by an individual country's appropriate deflator(s) (using the second quarter of 2010 as the base) and converted into EUR by using the exchange rate of the second quarter of 2010.

The internal databases of the BACA (2010), EIPF (2010), quarterly financial statements of banks, central banks' databases and Bankscope were used. The quarterly time series were used for the period from the first quarter of 1999 to the second quarter of 2010, in order to explain the banks' market share dynamics in the Baltics, Romania and Bulgaria.

4.3. Methodology

According to the relatively short time series and similarities between the analyzed economies, a panel regression was decided to use in order to obtain more information on the analyzed parameters. This method allows one to control for omitted variables that are persistent over time and, by including the lags of regressors, potentially alleviate measurement errors and endogeneity bias. The advantage of the applied method is that it lowers co-linearity between explanatory variables as well as dismisses heterogeneous effects.

A contribution to the existing empirical evidence on the impact of the banks' ownership on credit supply stability was made by analyzing the model with fixed effects (which

controls the impact of neglected and changing variables among observed countries that are constant within a time period) and the model with random effects, both as instrumental variable regressions.

Lütkepohl and Xu (2009) have demonstrated that logarithmic approximation is only accurate in certain, special cases. Since the dynamics of some variables (the NPL, investment to asset ratio and derivatives) are sometimes considerable, this approximation would produce a significant downward bias in the estimation. Therefore, the original time series are transformed into differences and expressed as percentage changes. By using the differences of the variables expressed as percentage changes, the problem of spurious regression is avoided[5]. Variables are seasonally adjusted by the X-12 ARIMA seasonal adjustment method on the basis of quarter-on-quarter data. The lag length selection in the specified model is based on information criteria (Schwarz, Akaike and Hannan-Quinn). A parsimonious model with four lags proposed by the Schwarz criterion was used. The time dummy variable with the value of 1 during the financial crisis from the middle of 2007 was included.

The following variables may suffer from endogeneity: the non-performing loans to assets ratio, derivative cash flow relative to loans and investments relative to assets. In this case, a bias in the estimation could arise from the correlation between the vector of explanatory variables and the error term. To control for this problem, the simultaneous causality bias by choosing suitable instrumental variables and employing two stage least squares (TSLS) estimation was eliminated (See also: Roodman 2007; Murray 2006).

The following set of instrumental variables, which should be correlated with the offending regressors, according to economic theory was employed (See: the text below): capital adequacy, market concentration, net interest margins and the government effectiveness index. In the following paragraphs, the economic reasoning behind the correlations between the proposed instrumental variables and the variables suffering from endogeneity are discussed.

The higher the banking sector concentration, the higher the ownership of foreign banks, the more foreign direct investment in the financial sector comes from abroad, the more possibilities the banks have for offering more credit, increasing their market share and creating lower capital adequacy (Podpiera 2006). Increased concentration has a negative impact on financial soundness (Uhde, Heimeshoff 2009). The higher the banking sector concentration, the more possibilities the banks have for offering more loans and creating lower capital adequacy (Babihuga 2007). Excessive credit lending is usually associated with a decreasing capital ratio, according to Dell'Ariccia and Marquez (2006).

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[5] Namely, the original variables are integrated in different orders. Some of the variables are already stationary in the level form, whereas the majority is integrated in order 1. The cointegration analysis for all of the variables could not be performed due to different levels of integration, but we find five cointegrating equations among the set of I(1) variables. A long-term relationship for all of the variables could not be established, perhaps due to the transformational changes that occurred in the Baltics, Romania and Bulgaria or with specific events on the credit market and banking sector during the transition period.

Q-statistics were employed to check for autocorrelation in the residuals. We accept the hypothesis of no autocorrelation, with high probabilities and low Q-statistics.

According to Podpiera (2006), Kaufmann, Kraay and Mastruzzi (2009) a higher degree of compliance with Basel core principles is associated with a narrower interest rate margin. And even more, a market concentration is positively and significantly associated with interest rate margins. On the other hand, less capitalized and high-risk banks offer relatively higher deposit rates to attract deposits, leading to a narrow interest spread (Berger *et al.* 2004). According to Uhde and Heimeshoff (2009), the passing through of increased short-term interest rates to deposit rates contribute to an increase in banks' funding costs and leads to higher loan interest rates – consequently resulting in more non-performing loans.

Further, the positive and significant effect of the cycle-on-asset quality and the market share of individual bank – in economies with a relatively lower level of financial development – would be expected. The positive effect dampened in low-income economies, implying that the negative relationship between the business cycle and capital adequacy ratio is smaller in economies with a higher quality of supervision and rule of law (Uhde, Heimeshoff 2009). The compliance with the Basel Core Principles index is highly correlated with an index of government effectiveness and an index of measuring the rule of law (Kaufmann *et al.* 2009). The higher share of derivatives and investment in the asset structure are expected in more developed banking sector and economic environment.

Instrumental variable methods rely on two assumptions (Staiger, Stock 1997): (i) the excluded instruments are distributed independently of the error process (i.e. instruments are valid), (ii) the instruments are sufficiently correlated with the included endogenous regressors (i.e. the instruments are not weak). The Hansen-Sargan test of overidentifying restrictions addresses the first assumption, whereas the weak identification tests address the second assumption. The Stock and Yogo (2005) test for weak instruments is based on the largest acceptable bias of the TSLS estimation relative to the OLS estimation. The statistic was originally proposed by Cragg and Donald (1993) to test for underidentification. When disturbances are heteroskedastic or autocorrelated, these test statistics are no longer valid (Stock, Yogo 2005). Research by Kleibergen and Paap (2006) led to the development of a robust version of the weak instrument test statistic that solves the previously mentioned problems and, additionally, does not require *i.i.d.* errors (Kleibergen, Schaffer 2007).

In our case, the Hansen-Sargan statistic of over-identifying restrictions does not reject the null hypothesis that the instrumental variables are uncorrelated with the error term. The rejection of the null hypothesis of the Kleibergen-Paap test, on the other hand, suggests that the chosen instruments are not weak (see Table 3).

The estimation results for the fixed and random effects model estimated by TSLS are presented in Table 3[6]. Given the high p-values of the Hausman test (Hausman 1978), both fixed effects and random effects produce consistent estimators, but fixed effects are less efficient.

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[6] All the calculations were performed by Eviews 6.0 and Stata 10.

4.4. Results

As the income level increases relative to the business cycle over time and as the rule of law index increases, the bank gains more market share, according to our empirical analysis. The sign of the derivatives variable indicates that an increase on a bank hedge prompts the bank to increase its market share. A positive cash flow under the heading of derivative financial instruments adds to the growth of loan volume (see Table 3).

Loans and investments represent two competing sources of income. An increase in a bank's investments reduces its market share of credit (with the coefficient of –0.04), as banks shift funds away from loans into other sources of revenues. Additional gains from innovative financial instruments enable additional credit supply (with the coefficient of 1.3). Non-performing loans (to assets) indicate that banks retrench their lending operations when its non-performing loans increase (with the coefficient of –0.7). It can be stated that the vulnerability of foreign banks to economic terms in host economies has probably been confirmed with foreign banks that have a lower liquidity of assets and worse capital adequacy of the parent bank. Irrespective of ownership, banks will reduce their lending activity by means of a necessary balance sheet and capital adequacy amendments in this case[7]. The correlation between lending operations in the host country and the cycles of the local economy is positive (with the coefficient of 0.11). And additionally, the higher market share of foreign banks is usually associated with a higher degree of compliance with Basel core principles, an institutional creditor protection and a rule of law (with the coefficient of 0.37).

The ownership structure does not affect the market share of the loans in host economies. In fact, the positive sign suggests that foreign banks have not actually decreased their market share of loans in the period of crisis (with the coefficient of 0.02). Foreign banks did not reduce their credit supply during adverse economic times in the host countries regarding the ownership structure in the Baltic States, Bulgaria and Romania. Indeed, they viewed such economic problems as opportunities to expand, by acquisition or by growth of existing subsidiaries. Even more can be said, that there is evidence that foreign banks (probably with sufficient international portfolio diversification) played a stabilizing role during the crisis in these host economies[8].

It can be concluded that foreign banks can stabilize loan supply in host economies when domestic deposits are in crisis and they act stabilizing in the environment of the host countries, especially if there are no shocks in their home country and if they do not draw their liquidity from the host country's environment (crisis – *per se* – contributed to lowering of market share of the foreign banks only with the coefficient of –0.09). The foreign banks in Central and Eastern European host countries usually took over better clients and left the remaining ones to domestic banks.

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[7] Dages, Goldberg, and Kinney (2000) proved that foreign banks exhibited stronger and less volatile loans growth than domestic banks, but differences in asset quality, rather than ownership, appeared to be decisive in explaining the behaviour of bank credit.

[8] Domestic banks reduced the volume of their loans more than foreign banks (De Haas, Lelyveld 2006).

Table 3. Panel regression results for the Baltic States, Romania and Bulgaria

Variable	TSLS fixed effects	TSLS random effects
Dependent Variable: d(Market share of loans), Cross-sections included: 5 (the first quarter of 1999 – the second quarter of 2010)		
C	0.1857 (2.5452) (0.0126)**	0.1850 (1.7176) (0.0891)*
d(Non-performing loans)$_{(-2, -1)}$	−0.6860 (−12.2706) (0.0000)***	−0.6682 (−10.6418) (0.0000)***
d(Derivatives)$_{(-1, -4)}$	1.3161 (7.5104) (0.0000)***	1.2760 (7.1648) (0.0000)***
d(Investment to assets)$_{(-1, -3)}$	−0.0459 (−2.3655) (0.0201)**	−0.0392 (−2.0547) (0.0427)**
d(Income level to cycle)$_{(-4, -3)}$	0.1006 (2.9143) (0.0045)***	0.1139 (2.8639) (0.0051)***
d(Ownership)$_{(-2, -2)}$	0.0215 (2.0501) (0.0432)**	0.0227 (2.2511) (0.0267)**
Crisis	−0.0918 (−3.5845) (0.0005)***	−0.0920 (−3.3585) (0.0011)***
d(Rule of law)$_{(0, 0)}$	0.3678 (2.9880) (0.0036)**	0.3679 (2.9673) (0.0038)**
Weighted Statistics		
R-squared (Adjust.)	0.3581	0.3516
S.E. of regression	7.5804	7.5382
F-statistic	4.2502	5.4872
Prob(F-statistic)	0.0000	0.0000
Random and Fixed Effects Tests (Prob.)		
Hausman Random Effects Test	–	(0.8743)
Redundant Fixed Effects Test	(0.0276)	–
Kleibergen-Paap Test	(0.00370)	(0.00000)
Hansen-Sargan Test	(0.5978)	(0.6738)

Variables:

Market share of loans: expressed as credits of foreign bank(s) to total banking sector credits; Non-performing loans: expressed as loans more than 90 days past due to bank assets; Derivatives: cash flow hedges as returns or losses on derivative positions relative to bank loans; Investment

to bank assets: expressed as ratio; Income level to cycle: the interaction effect between income level (as average income per employee) and business cycle (expressed as low, middle and high); Ownership: the actual percent of foreign ownership in an individual bank; Crisis: the time dummy as the timing of the financial crisis; Rule of law: expressed as index.

Instrumental variables: Market concentration (measured by the assets of five foreign banks relative to total banking sector assets), Capital adequacy (measured as capital to risk weighted assets of the parent bank), Net interest margin (measured as a bank's net interest revenues as a share of interest bearing – total earning – assets of the analysed banks), Government effectiveness index

Notes:

d(x) denotes the difference of the variable as a percentage change (measured in percentage points). The time lag of the variable is given in subscripts. In the first part of the table, the t-statistics are given in brackets below the coefficients and the p-values are in brackets below the t-statistics. Significance levels are denoted as: ***significant at 1%; **significant at 5%; *significant at 10%

It can be said that in less-developed environments, the tendency for bank takeovers was greater, since in this way foreign banks increased their profits (on account of economies of scale), their market share and took over clients from domestic banks. The purchase of a domestic bank could signify a long-term orientation of the bank and stability of credit supply, while an affiliate could be more short-term oriented. The link between the parent bank and the domestic bank (that was taken over) is weaker than the link between the parent bank and its affiliate in the host country. The results have proven that majority of domestic banks – that have been taken over by foreign banks – remained in-dependant foreign banks in the analysed host economies – that enabled the stability of credit supply during the crisis.

5. Conclusion

Economic growth is more likely to have a positive effect on loan portfolio quality, and this is primarily due to the cyclical pattern of revenues. The financial crisis did not lead to a retrenchment of credits by foreign banks in the Baltics, Romania and Bulgaria.

The ownership structure does not affect the market share of the loans in host economies. Foreign banks may run a more stable lending policy because of their integration into the global environment. Because of better knowledge of risk estimation, they enable the greater stability of the banking sector; and with sufficient international diversification, they have played a stabilizing role during the crisis in the Baltic States, Bulgaria and Romania.

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UŽSIENIO BANKŲ VAIDMENS 5 EUROPOS SĄJUNGOS VALSTYBĖSE TYRIMAS

M. Festić

Santrauka

Straipsnyje analizuojamas užsienio bankų vaidmuo penkiose Europos Sąjungai priklausančiose valstybėse – Baltijos šalyse, Rumunijoje ir Bulgarijoje. Autorius tyrimui pasirinko užsienio bankų užimamos rinkos dalies vertinimą ir ekonomikos krizės poveikio nustatymą šių bankų veiklos rodikliams bei rinkos daliai. Gauti rezultatai parodė, kad kreditų pasiūla, teikiama užsienio bankų Baltijos šalyse, Rumunijoje ir Bulgarijoje, išliko palyginti stabili. Tai galima susieti su tuo, kad užsienio bankai taiko ir naudoja išvestinius produktus, motyvuodami tuo, jog turi daugiau patirties ir gali diversifikuoti riziką, efektyviai naudodami juos remiančių savos šalies („motininių") bankų finansinius išteklius. Tyrimas taip pat parodė, kad užsienio bankų reakcija į rinkos pasikeitimus vienoje ar kitoje valstybėje tiesiogiai priklauso nuo „motininio" banko kapitalo pakankamumo ir ekonominių verslo sąlygų toje šalyje.

Reikšminiai žodžiai: kreditas, pasiūla, cikliškumas, stabilumas, krizė, užsienio nuosavybė, bankas.

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