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The Determinants of Foreign Banking Activity in South East Europe: Do FDI, Bilateral Trade and EU Policies Matter?

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The Determinants of Foreign Banking Activity in South East Europe: Do FDI, Bilateral Trade and EU Policies Matter?

Paper commissioned in GDN-SEE project[*]

Liviu Voinea[†] Flaviu Mihaescu[‡]

Abstract

This research paper attempts to find explanatory variables for foreign banks activity in SEE and CEE, mainly among three categories of factors: FDI, bilateral trade, and EU policies. We proxy bilateral banking activity by the consolidated foreign claims of reporting banks between source and recipient countries. Our sample includes 12 source countries (of which 10 are EU members) and 16 recipient countries (from SEE, CEE and former Soviet Union), and it covers the 1995-2004 period. We found that bilateral trade and the interest rate differential are significant and bear the expected sign, which means that foreign banks follow the customer and exploit profit opportunities. Foreign direct investment (FDI) was found to be weakly significant and only with a two-year lag, which means that banking activity is generated by non-financial FDI only after that FDI matures. Banking sector reform, a proxy for EU policies imposed to Eastern European countries, also appears significant. Lack of corruption is important, while distance does not matter. This paper also finds that an increase in foreign banks' activity in a recipient country is correlated with an increase in the Human Development Index.

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1. Introduction and context

Banking activity is increasing at a fast pace in the emerging economies, and in CEE and SEE countries in particular. Many foreign banks entered the emerging markets in this area, driving the FDI in the banking sector from 2.5 bn. USD during the interval 1991-1995 to 67.5 bn. USD during the interval 2001-October 2005. In the transition economies from CEE and SEE, the banking sector has become overwhelmingly dominated by foreign banks.

Table 1. Share of bank assets held by foreign banks, selected transition economies

	1990	2004*
Albania	0	89
Bulgaria	0	79
Croatia	-	88
Czech Republic	10	96
Estonia	-	97
Hungary	10	83
Poland	3	68
Romania	0	92**
Serbia and Montenegro	-	37

*latest available year
**including the privatization of BCR, finalized in December 2005
Source: Domanski (2005), based on CGFS (2004); BA-CA Report (2005)

More advanced reformers like Czech Republic, Hungary and Poland experienced the largest inflows in total, much of it in the earlier years, while Romania, Bulgaria or other SEE countries received banking FDI at a later stage. On average, the share of foreign banks in total assets is even higher in SEE countries (72%), than in the NMS (62%). An explanation could be the existence of larger domestic capital in NMS, when transition started. Banking (financial) FDI as a share in total FDI stock varies from 10% (Hungary) to around 25% (Poland, Slovak Republic).

Table 2. Main banking investors in SEE-7, by country of origin, 2004

Country	Total assets, bn. euro	Market share, %
Austria	24.9	30.2
Italy	16.5	20.0
Greece	5.9	7.2
France	3.3	4.0
Hungary	2.9	3.5
Netherlands	2.8	3.4
USA	2.1	2.6
Germany	0.7	0.8
Turkey	0.6	0.8
Slovenia	0.1	0.2

Source: BA-CA Report (2005)

When CEE countries are also considered, other important countries of origin are Sweden, UK and Belgium.

Most of the foreign banks (70%) investing in this region have a regional strategy (Domanski, 2005).

Table 3. International banking groups in SEE-7, 2004

Banking group	Market share, %
UniCredit	12.6
Raiffeisen	9.8
BA-CA (HVB Group)	8.0
Banca Intesa	6.9
Hypo Alpe-Adria Bank	4.7
Erste Bank	4.1
Societe Generale	3.9
OTP	3.5
National Bank of Greece	2.6
ING	2.0

Note: UniCredit and HVB merged in 2005
Source: BA-CA Report (2005)

For more banking sector development and perspectives in SEE and CEE countries, see ECB (2004), Stubos and Tsikripis (2004), BA-CA Report (2005).

Foreign banks' contribution to economic development is under-researched in SEE countries. Naaborg et al. (2001) found that foreign banks have different behaviour than local banks and that they are more cost-effective; yet, they do not contribute much to credits, and have a rather limited contribution to development; this could be summarized by a cherry-picking behavior. The main focus of this paper is not on the effects of foreign banks activity (whether or not the local banking systems or the local economy benefited from the entry of foreign banks). For such analysis, see e.g. Fries et. al, 2002; Engerer and Schrooten, 2004. Nevertheless, the topic of foreign banks' contribution to development (which is an effect) is linked to foreign banks' determinants in the SEE economies (which is the initial cause). This is why section 5 of this paper makes an assessment of foreign banks' impact on economic development, and in particular on quality of life and inequality measures. We neither deal with the profitability of foreign banks (for an interesting paper on this subject, see Havrylchyk and Jurzyk, 2005). Also, we do not account for the strategy (restructuring in the home country may determine investment in a host country) and specificity (retail banking may have different determinants than investment banking) of foreign banks themselves (for a case study on this topic in an emerging economy, see de Paula, 2002).

This research attempts to find explanatory variables for foreign banks activity in SEE and CEE, mainly among three categories of factors: FDI, bilateral trade, and direct and indirect EU policies/effects.

The main research question refers to the banking activity drivers in SEE economies. We ask whether FDI, bilateral trade and EU policies matter.

The remaining of this paper is structured as follows. First, we undertake a thorough literature review on financial FDI determinants, with a focus on transition economies. Then, data and sample are described. We report the econometric analysis using cross-sectional and time-series dimensions. A section is devoted to the implications of our findings for economic development. The final section summarizes the main findings.

2. Literature review

The topics related to FDI in the banking sector in SEE economies have not received the same attention as FDI in manufacturing. Internationalization in the banking sector, and the multinational services company, represent in fact a rising debate in the Western research area. In 2002, Bol et al. were able to mention only four studies on the determinants of foreign bank entry in European transition economies, three of which were actually qualitative research. By contrast, the review we have undertaken below refers to a number of seven econometric studies, of which five were published since 2004. This indicates that our paper fits into an international trend of increasing interest for the topic of the determinants of financial FDI in transition economies.

Two major lines of thought can be adapted to explain the internationalization of financial services: one is the theory of the multinational firm (Hymer, 1960; Grubbel, 1977; Rugman, 1981; Gray and Gray, 1981; DeYoung and Nolle, 1996; Guisinger et al., 2003), the other one is the eclectic paradigm approach (Dunning, 1977, 1993, 1997, 2004; Cantwell and Narula, 2003). In the first line of thought, multinational banks enter foreign markets based on bank size, bank profitability and degree of internationalization (Buch and Lipponer, 2004).

This research proposal is nevertheless structured on a conceptual framework stemming from the eclectic paradigm approach, as the latter places more emphasis on location and integration factors, rather than only on firms' determinants for expansion. We are addressing the issue of FDI in the banking sector and financial integration from the perspective of some transition economies, hence, it fits more with an Ownership-Location-Internalization approach.

Gravity models variables are usually found significant for explaining foreign banks' entry and activity. In particular trade, GDP, size and distance are in this category, but the studies reviewed in table 4 show that there is no consensus on the subject, at least as far as transition economies are regarded. Wezel (2004) also quotes conflicting results from various studies on the role of gravity factors on banking FDI. On the other hand, Demekas et al. (2005) confirmed the predominance of gravity factors in explaining FDI flows to CEE and SEE.

Table 4. Determinants of foreign banking entry/activity, review of recent literature

Authors	Countries	Explanatory variables	Significant
Magri et. all (2004)	Italy - recipient	Trade FDI Profit opportunities Country risk	Yes (+) No Yes (+) No
Wezel (2004)	Germany - origin	Manufacturing FDI Financial market development Country risk GDP Trade	Yes (+) Yes (+) Yes (-) No No
Buch (2000)	Germany - origin	FDI Trade GDP	Yes (+) Yes (+) Yes (+)
Garcia-Herrero, Martinez-Peria (2005)	Italy, Spain and US – countries of origin	Trade Market size (GDP) Lack of banking freedom Entry costs Inflation Country risk	Depends Yes (+) Yes (-) Yes (-) No No
Papaioannou (2005)	19 countries of origin, incl. 13 EU members, and 51 recipient countries, including 3 from SEE (Romania, Bulgaria, Croatia) and 7 from CEE	Size Distance Institutions Political risk EU law harmonization Corruption	Yes (+) Yes (-) Yes (+) Yes (-) Yes (+) Yes (-)
Aviat, Coeurdacier (2004)	19 countries of origin, including 13 EU countries, and 62 recipient countries, including 2 from SEE (Bulgaria, Croatia) and 7 from CEE	Trade Distance	Yes (+) Depends
Bol et al. (2002)	1 SEE country (Croatia) and 7 CEE countries	Reform EU accession	Yes (+) No

Source: the authors

A few groups of factors are widely acknowledged in the international literature to influence foreign banks' entry (banking FDI).

The first group of factors is the so-called "follow the customer", which includes FDI (total, if the dependent variable is market share or foreign claims; or manufacturing FDI, if the dependent variable is banking FDI flows or stocks) and bilateral trade. Banks follow their clients, to exploit client information and to serve them in foreign markets. This approach is also known as „defensive expansion" (Grubbel, 1977 and Williams, 2002). Among the supporting studies for FDI, there are: Grubel (1977), Goldberg and Johnson (1990), Miller and Parkhe (1998). A survey among foreign banks operating in Bulgaria - Bitzenis (2004)- also found that ``follow the customer'' is the main motivation for foreign banks entering Bulgaria. Among the supporting studies for trade, there are: Grosse and Goldberg (1991), Yamori (1998), Buch (2000). On the other hand, as reported in Table 4, Magri (2004) found no significance for FDI and Wezel (2004) found no significance for trade. An interesting result was reported by Christie (2003), who found neither complementarity nor substitutability between FDI and trade in SEE.

Moreover, the picking order model (Buch and Piazolo, 2000) holds that the structure of capital flows in an open economy is influenced by information costs, and it predicts the following order of foreign capital inflows: FDI – bank lending – portfolio investments. FDI should prevail in the initial stages of development, because it removes information disadvantage; as the economy advances and complies with international norms and regulations, in a more predictable institutional set up, information costs diminish and more speculative flows are encouraged.

The second group of factors refers to market attractiveness, including GDP, size, distance, financial market development, profit opportunities. Most studies found GDP, size and distance (the latter with negative sign) as significant explanatory variables. However, Wezel (2004) or Sagari (1992) found GDP not significant. Aviat and Courdacier (2004) found distance significant, but not when trade is also considered. Financial market development may be found significant, in a few studies, but this was not the case of capital-scarce transition economies. Banking FDI goes where business opportunities in the financial sector are higher. Among the studies supporting this conclusion, one could mention Brealey and Kaplanis (1996) and Buch (1998). In a study on foreign banks in Italy,

Magri et al. (2004) found that profit opportunities (approximated by the interest rate spread between home and host country) play an important role in the entry decision.

A third set of factors refer to risk (political risk, banking crises risk, currency risk). These factors appear with negative sign.

Institutional factors (institutions, liberalization/openness, reform, corruption,) may be placed both in the “market” group and in the ``risk'' group, because they influence market attractiveness, while their malfunctioning increases risk in the host economy. Low quality institutions are associated with poor economic performance, while corruption and political risk increase transaction costs. Papaioannou (2005) and Bol et al. (2002) emphasize the role of reform and institutional factors in explaining financial FDI. Alfaro et al. (2003) also argue, based on cross-country regressions using a large sample of countries for the period 1971-1998, that institutional quality is the most important variable in explaining the so-called ``Lucas paradox'' (i.e. why capital does not flow from rich to poor countries).

3. EU and OECD Policies

Institutional factors are often linked to the EU convergence process, as far as European countries are concerned. Gligorov, Holzner and Landesmann (2004) estimate that EU integration prospects will act as a catalyst for financial FDI in SEE. On the one hand, Bol et al. (2002) found no evidence that an overall EU impact exists; financial FDI do not increase after EU accession is announced, and macroeconomic fundamentals are more important than institutional variables. On the other hand, many authors (Papaioannou, Aviat and Couerdacier, among others), consider that even trade flows themselves are an indicator of EU integration, on condition the source countries are EU members.

The institutional factors are less important in the decision to expand banking activities from a developed country to another developed country. This is normal, since the institutions are more developed in more advanced economies. However, the other determinants of banking FDI are generally the same. Hultman and McGee (1989) found that the determinants of foreign banking activities in US were foreign investment in US, foreign trade with US and US market size. Goldberg and Saunders (1980) found that bilateral trade was the main determinant of US banks expansion into UK. Fisher and Molyneux (1996) found that bilateral trade and bilateral FDI were the main determinants of European, Japanese and US banking FDI in London. Ursacki and Vertinsky (1992), in a study of banking FDI into Japan and Korea, found only market size, market potential and market regulation as the main determinants, while bilateral trade and bilateral FDI were not significant. However, these Asian markets were more regulated at that time, which reduced the incentives for FDI and explained the appearance of market regulation as a determinant factor.

Regarding FDI treatment in South-East Europe, particularly the institutional barriers to FDI, OECD (2003)[1] published a comprehensive review of national policies. Banking FDI was also treated, but only Croatia and Serbia were found, at that time, to maintain equity-related barriers, while Romania and Albania had in place restrictions regarding banks' management. Policy recommendations were made towards elimination of remaining barriers.

As far as current account liberalization is concerned, OECD, in line with other international institutions, has been a supporter of full liberalization. However, more recently, IMF (2005) warned about local characteristics and recommended a more prudent approach.

4. Econometric Methods and Data

The dependent variable is foreign claims of reporting banks from country *i* to country *j*. This is not an uncommon dependent variable in recent studies; among other studies which used it, we mention

[1] Liviu Voinea contributed to that report, covering Romania's developments.

Aviat and Couerdacier (2004), Papaioannou (2005), Garcia-Herrera and Martinez-Peria (2005). Foreign claims are a good proxy for foreign banks' entry and activity, but they do not include banking FDI as such, so we can use total FDI as explanatory variable.

Our sample includes the following countries:

- Source countries: Austria, Finland, France, Germany, Greece, Italy, the Netherlands, Portugal, Sweden, Switzerland, the United Kingdom, and the United States
- Recipient countries: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Serbia and Montenegro, Slovakia, Slovenia, Turkey, Ukraine.

There are in total 12 countries of origin, of which 10 are EU members, and 16 recipient countries, of which 4 SEE (Bulgaria, Croatia, Romania, Serbia and Montenegro), 8 CEE (the 3 Baltic states, Czech Republic, Hungary, Poland, Slovakia, Slovenia), 2 former soviet republics (Russia, Ukraine), plus Cyprus and Turkey. This large sample is representative both for source countries, and for transition economies.

The dependent variable is:

- Banking activity}: consolidated foreign claims of reporting banks between source and recipient countries. Source: BIS.

The explanatory variables are:

- Trade: exports plus imports between source and recipient countries. Source: OECD STAN database
- FDI: direct investment position from source to recipient countries (stocks, outward flows). Source: Eurostat
- Real interest rate differential: between source and recipient countries. Source: IMF IFS (for both nominal interest rates and CPI).
- Banking Reform Index: for all recipient countries. Source: EBRD
- Corruption Index: for all recipient countries. Source: Transparency International
- Distance and weighted distance between source and recipient countries. Source: CHELEM database.
- GDP: in PPP terms, for all recipient countries. Source: IMF IFS.

We consider that banking reform and corruption index are proxies for EU policies in these Eastern European economies, because getting closer to EU means to accommodate with certain EU rules regarding financial liberalization and openness, and judicial system and competition. The interest rate differential could have been also a measure of EU integration, but it does not apply for our sample of recipient countries, which includes only one country (Slovakia) that applied for accession into the more restrictive Euro area.

5. Empirical Findings

Our panel is built around three dimensions (source and recipient country followed over time). It covers the 1995-2004 period; however, it is unbalanced due to missing or inexistent data. For example, FDI contains most missing data, with only 1286 data points out of 1920. Data for Serbia and Montenegro are only available starting from 2000.

We take all the source-recipient pairs *(i,j)* to be one unit of observation, denoted by *k*, and we follow it over time, *t*. Running a fixed-effects regression would mean a big loss of degrees of freedom (i.e. 16*12=192), so we focus on random effects estimators throughout the remaining of the paper. The equation we estimate thus is:

$$Y_{k,t} = \alpha + \beta X_{k,t} + \gamma Z_{j,t} + \phi W_{i,j} + \delta D_j + u_k + v_{k,t} \qquad (1)$$

where $k = 1,...,192$ is the number of country pairs, t is time and $j = 1,...,16$ is the number of recipient countries. There are independent variables that depend both on time and source and recipient country ($X_{k,t}$ -- bilateral trade, FDI, the interest rate spread), variables that depend on the recipient country and time ($Z_{j,t}$ -- GDP, the EBRD banking reform index, the corruption perception index), variables that depend on source and recipient country but do not vary over time ($W_{i,j}$ --geographical distance) and dummies for each recipient country (D_j).

We use dummies to capture any recipient country fixed effect. By treating each country pair as one unit of observation in our panel, we might neglect possible recipient fixed-effects, hence dummy variables are an attempt to correct for this. In this way we attempt to capture country-specific fixed effects without losing too many degrees of freedom: recipient country dummies imply a loss of 16 degrees of freedom, as opposed to 192 degrees in the case of country-pair fixed effects.

As far as the error structure is concerned, we assume errors are heteroskedastic across country pairs and possibly auto correlated. This is, the random effect u_k is assumed to be i.i.d. distributed, with zero mean and variance depending on country pair $k: \sigma^2_{u,k}$. We assume (and test this assumption later on) the disturbance $v_{k,t}$ to have an AR(1) component:

$$v_{k,t} = \rho_k v_{k,t-1} + \varepsilon_{k,t} \qquad (2)$$

Both the degree of persistence (ρ_k) and the variance of the i.i.d., zero-mean error term ($\sigma^2_{\varepsilon,k}$) are allowed to vary across country pairs.

We first start with a basic setup, regressing our measure of bilateral banking activity ("Banking", in logs) on bilateral trade (in logs), FDI, and the lags thereof, the Corruption and the EBRD banking reform indexes, the real interest rate differential, GDP and distance. One of the strengths of our approach is using a time dimension: it may take time until direct investment bear profit, and a pure cross-sectional approach cannot uncover this possible "time-to-build" lag. Moreover, there are other possible factors influencing bilateral banking activity. For example, the degree of openness or liberalization of the banking system: if foreign banks own a significant share of the banking sector in a particular country, then that banking system will more likely interact more with its foreign counterparts[2]. Moreover, local institutions can matter for how strength of the ties between two banking systems. Weak institutions in the recipient country can hinder foreign banks' investment. As a proxy for banking system liberalization we use the index provided in EBRD's Transition

[2] Note, however, that our measure of bilateral banking activity is net of intra-bank, cross-border flows.

Reports[3]. There are many variables that measure institutional quality, but we focus on Transparency International's Corruption Perception Index because it also has a time dimension. Other indices either offer only a snapshot of the institutional quality, or do not cover the period under study. We also account for physical distance between the source and recipient countries, as well as for the size of the recipient country (proxied by GDP), because these variables have been found to be significant in gravity models of bilateral trade.

However, our purpose at this stage is to test the assumptions of heteroskedasticity and auto-correlation. To test for heteroskedasticity in our panel we use a Likelihood Ratio test. We run our regression under both homoskedasticity (variance common across country pairs, $\sigma_{u,k} = \sigma_u$ and heteroskedasticity (variance different across pairs, $\sigma_{u,k} \neq \sigma_u$. (see Table 5).

Table 5. Testing for heteroskedasticity.

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   no autocorrelation

Estimated covariances      =       133          Number of obs      =       668
Estimated autocorrelations =         0          Number of groups   =       133
Estimated coefficients     =        12          Obs per group: min =         1
                                                               avg =  5.022556
                                                               max =         8
                                                Wald chi2(11)      =   8492.01
Log likelihood             = -859.1133          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
       lbank |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      ltrade |   .3700433   .1541601     2.40   0.016     .0678951    .6721915
     ltrade1 |   .4950622   .2079163     2.38   0.017     .0875538    .9025706
     ltrade2 |   .3194914   .1514079     2.11   0.035     .0227374    .6162454
         fdi |   .0000351   .0000635     0.55   0.580    -.0000893    .0001595
        fdi1 |  -.0000192   .0000722    -0.27   0.791    -.0001607    .0001224
        fdi2 |   .0000647   .0000692     0.94   0.349    -.0000708    .0002003
     corrupt |    .158609   .0308853     5.14   0.000     .0980749    .2191431
        ebrd |   .3408643   .0592074     5.76   0.000     .2248199    .4569087
         GDP |   4.38e-07   3.09e-07     1.42   0.156    -1.67e-07    1.04e-06
       distw |   .0000336   .0000126     2.66   0.008     8.86e-06    .0000583
     rirdiff |   .6783255    .195436     3.47   0.001     1.061373     .295278
       _cons |  -2.948524   .1698369   -17.36   0.000    -3.281399    -2.61565
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[3] This, nevertheless, does not apply to Cyprus and Turkey.

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Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        homoskedastic
Correlation:   no autocorrelation

Estimated covariances      =         1          Number of obs      =       668
Estimated autocorrelations =         0          Number of groups   =       133
Estimated coefficients     =        12          Obs per group: min =         1
                                                               avg =  5.022556
                                                               max =         8
                                                Wald chi2(11)      =   1221.47
Log likelihood             = -1119.947          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
       lbank |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      ltrade |   .6035169   .2951705     2.04   0.041     .0249933    1.182041
     ltrade1 |   .2668221   .3892279     0.69   0.493    -.4960505    1.029695
     ltrade2 |   .3163378   .2749612     1.15   0.250    -.2225762    .8552519
         fdi |   .0000849   .0001394     0.61   0.543    -.0001884    .0003582
        fdi1 |   .0000593   .0001587     0.37   0.709    -.0002518    .0003703
        fdi2 |   .0001912   .0001534     1.25   0.213    -.0001096    .0004919
     corrupt |   .1634731    .069718     2.34   0.019     .0268283    .3001179
        ebrd |   .3495659   .1226015     2.85   0.004     .1092714    .5898605
         GDP |   5.79e-07   5.65e-07     1.03   0.305    -5.28e-07    1.69e-06
       distw |   .0000193   .0000223     0.86   0.388    -.0000245     .000063
     rirdiff |   1.376999   .4233715     3.25   0.001     2.206792    .5472062
       _cons |  -3.118847   .4107697    -7.59   0.000    -3.923941   -2.313753
------------------------------------------------------------------------------
```

The difference between the restricted and unrestricted likelihood ratios is quite large (1119.95-859.11) and tested against a Chi-squared distribution with 133 degrees of freedom (i.e. the number of pairs) gives a p-value below 0.1%. Thus there is a significant amount of heteroskedasticity across country pairs, which, for example, makes the lags of trade become insignificant in the restricted regression. Therefore, we allow the standard deviation of residuals to differ for each pair of countries.

Moreover, our variables are strongly correlated over time. Studying the correlation between (the log of) banking activity and (the log of) trade and FDI, both with and without a lag we find that the coefficients do not change much, as evident from Table 6.

Table 6. Correlation coefficients

correlate log(bank) log(trade) fdi (obs=1110)

	log(bank)	log(trade)	fdi
log(bank)	1.0000		
log(trade)	0.7676	1.0000	
fdi	0.3003	0.3457	1.0000

correlate log(bank) log(trade(-1)) fdi(-1) (obs=1074)

	log(bank)	log(trade(-1))	fdi(-1)
log(bank)	1.0000		
log(trade(-1))	0.7723	1.0000	
fdi(-1)	0.3105	0.3468	1.0000

This implies that our explanatory variables are strongly correlated over time, so we test for the possibility that errors are also auto correlated. The test used, provided by Stata, (command: xtserial) posits different correlation coefficient across pairs as the alternative hypothesis to no correlation ($\rho_k = 0$ v. $\rho_k \neq 0$ in equation [2]). The resulting F-statistic has an associated p-value below 0.1%, so the hypothesis of AR (1) errors cannot be rejected. The results after adjusting for both heteroskedasticity and autocorrelation in the residual structure are given in Table 7 (Panel A). However, we can further improve the model's fit by allowing the autocorrelation coefficient to vary across country-pairs. Although we don't formally test this hypothesis, it improves the model's significance and has a higher likelihood (-224.34 as opposed to -329.36, as evident from Panel B in Table 7).

Table 7. A: Common autocorrelation coefficients across country pairs

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Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   common AR(1) coefficient for all panels  (0.8543)

Estimated covariances      =       112          Number of obs      =       647
Estimated autocorrelations =         1          Number of groups   =       112
Estimated coefficients     =        12          Obs per group: min =         2
                                                               avg =  5.776786
                                                               max =         8
                                                Wald chi2(11)      =   1258.32
```

```
Log likelihood             = -329.3619          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
       lbank |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      ltrade |   .2902761   .0807208     3.60   0.000     .1320662     .448486
     ltrade1 |   .5691691   .0828577     6.87   0.000     .4067711    .7315672
     ltrade2 |   .2406174   .0735052     3.27   0.001     .0965499    .3846849
         fdi |  -.0000174   .0000271    -0.64   0.521    -.0000706    .0000358
        fdi1 |  -.0000117   .0000295    -0.40   0.691    -.0000694     .000046
        fdi2 |   .0000322   .0000305     1.06   0.291    -.0000276     .000092
     corrupt |   .0392151   .0358322     1.09   0.274    -.0310147    .1094449
        ebrd |    .101539   .0674741     1.50   0.132    -.0307077    .2337857
         GDP |   1.12e-06   3.98e-07     2.81   0.005     3.38e-07    1.90e-06
       distw |   .0000134   .0000245     0.55   0.585    -.0000346    .0000613
     rirdiff |  -.0572137   .1290536    -0.44   0.658    -.3101541    .1957267
       _cons |  -1.939578   .3088987    -6.28   0.000    -2.545008   -1.334148
------------------------------------------------------------------------------
```

Table 7. B: Different autocorrelation coefficients across country pairs

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   panel-specific AR(1)

Estimated covariances      =       112          Number of obs      =       647
Estimated autocorrelations =       112          Number of groups   =       112
Estimated coefficients     =        12          Obs per group: min =         2
                                                               avg =  5.776786
                                                               max =         8
                                                Wald chi2(11)      =   8706.90
Log likelihood             = -224.3467          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
       lbank |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      ltrade |   .3542911   .0456089     7.77   0.000     .2648993    .4436829
     ltrade1 |   .5564705   .0397686    13.99   0.000     .4785254    .6344155
     ltrade2 |   .2675301    .038718     6.91   0.000     .1916442    .3434159
         fdi |  -.0000231   .0000256    -0.90   0.368    -.0000733    .0000272
        fdi1 |  -4.59e-06   .0000272    -0.17   0.866     -.000058    .0000488
        fdi2 |   .0000696   .0000282     2.47   0.014     .0000143     .000125
     corrupt |    .146919   .0235631     6.24   0.000     .1007362    .1931018
        ebrd |   .2284642   .0451068     5.06   0.000     .1400564     .316872
         GDP |   6.10e-07   2.77e-07     2.20   0.027     6.77e-08    1.15e-06
       distw |   .0000359   .0000137     2.62   0.109     9.07e-06    .0000627
     rirdiff |   .2989419   .1116962     2.68   0.097     .5178623    .0800215
       _cons |  -2.606706   .1665694   -15.65   0.000    -2.933176   -2.280236
------------------------------------------------------------------------------
```

The results in Panel B of Table 7, after accounting for heteroskedasticity and different auto-correlation coefficients among country pairs, show that foreign direct investments need a "time-to-build", while trade does not. Bilateral trade increases banking activity between the two countries in the same period, while it takes up to two years for FDI to bear profits and spur banking activity (i.e. by repatriating these profits).

Institutional factors matter as well. More openness in the banking sector generates more bilateral banking activity via two channels: a higher share of the banking system in the recipient country is owned by foreign banks and there are fewer restrictions on capital flows. Moreover, the perceived lack of corruption in the recipient country also attracts foreign banks (the negative sign on this coefficient stems for the way the Corruption index is constructed: the countries at the top of the rankings are those with less corruption).

The recipient's GDP is significant at 5%, while the real interest rate differential is weakly significant, with a p-value slightly lower than 10%. We can conjecture that banks go into the developing markets under study for at least two reasons: to profit from economies of scale (the larger the recipient market, the better) and from the positive real interest rate spread.

Besides these factors, there may be many others that can make a recipient country generally attractive for foreign banks. To capture these factors we extend our setup by including a recipient country dummy variable (see Table 8).

Table 8. A: Results with recipient country dummies and real interest rate.

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   panel-specific AR(1)

Estimated covariances      =       112          Number of obs      =       647
Estimated autocorrelations =       112          Number of groups   =       112
Estimated coefficients     =        25          Obs per group: min =         2
                                                               avg =  5.776786
                                                               max =         8
                                                Wald chi2(23)      =   6550.92
Log likelihood             = -191.0593          Prob > chi2        =    0.0000
```

lbank	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ltrade	.3973162	.0627271	6.33	0.000	.2743733	.5202591
ltrade1	.5465901	.0471147	11.60	0.000	.454247	.6389331
ltrade2	.1506361	.0517305	2.91	0.004	.0492462	.252026
fdi	-.0000278	.0000246	-1.13	0.258	-.0000761	.0000204
fdi1	3.97e-06	.000026	0.15	0.878	-.0000469	.0000549
fdi2	.0000628	.0000274	2.29	0.022	9.02e-06	.0001166
corrupt	.1049221	.0340004	3.09	0.002	.0382825	.1715616
ebrd	.1340595	.0750512	1.79	0.074	-.0130382	.2811571
GDP	1.19e-06	4.37e-07	2.73	0.006	3.37e-07	2.05e-06
distw	.0000243	.0000161	1.51	0.132	-7.33e-06	.0000559
rirdiff	-.065519	.1193807	-0.55	0.583	-.2995009	.1684629
_cons	-2.013642	.2864785	-7.03	0.000	-2.57513	-1.452155

Table 8. B: Results with recipient country dummies and nominal interest rate.

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   panel-specific AR(1)

Estimated covariances      =       112          Number of obs      =       650
Estimated autocorrelations =       112          Number of groups   =       112
Estimated coefficients     =        25          Obs per group: min =         2
                                                               avg =  5.803571
                                                               max =         8
                                                Wald chi2(23)      =  13876.01
Log likelihood             = -170.0734          Prob > chi2        =    0.0000
```

lbank	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ltrade	.4283307	.0597917	7.16	0.000	.3111411	.5455203
ltrade1	.5147624	.0352867	14.59	0.000	.4456018	.583923
ltrade2	.1507488	.0476031	3.17	0.002	.0574484	.2440492
fdi	-.0000267	.0000221	-1.21	0.228	-.0000701	.0000167
fdi1	-7.73e-07	.0000242	-0.03	0.974	-.0000482	.0000466
fdi2	.0000468	.000026	1.80	0.072	-4.14e-06	.0000977
corrupt	.0864082	.0314465	2.75	0.006	.0247742	.1480421
ebrd	.1794569	.0705455	2.54	0.011	.0411903	.3177235
GDP	1.64e-06	3.18e-07	5.15	0.000	1.01e-06	2.26e-06
distw	.0000111	.0000142	0.78	0.433	-.0000167	.000039
irdiff	.0131994	.0017166	7.69	0.000	.0098348	.016564
_cons	-2.227352	.2574881	-8.65	0.000	-2.73202	-1.722685

Table 8. C: Results with SEE dummies and real interest rate

```
Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic
Correlation:   panel-specific AR(1)

Estimated covariances      =       112          Number of obs      =       647
Estimated autocorrelations =       112          Number of groups   =       112
Estimated coefficients     =        13          Obs per group: min =         2
                                                               avg =  5.776786
                                                               max =         8
                                                Wald chi2(12)      =   8620.73
Log likelihood             = -214.2969          Prob > chi2        =    0.0000

------------------------------------------------------------------------------
       lbank |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      ltrade |   .4299533   .0522058     8.24   0.000     .3276318    .5322748
     ltrade1 |   .5332211   .0510011    10.46   0.000     .4332608    .6331814
     ltrade2 |   .2258612    .046307     4.88   0.000     .1351011    .3166213
         fdi |  -.0000175   .0000258    -0.68   0.499     -.000068    .0000331
        fdi1 |  -3.07e-06   .0000277    -0.11   0.912    -.0000573    .0000512
        fdi2 |   .0000749   .0000283     2.65   0.008     .0000194    .0001303
     corrupt |   .0561599   .0139159     4.04   0.000     .0288853    .0834346
        ebrd |   .2176391   .0414307     5.25   0.000     .1364365    .2988417
         GDP |   1.49e-06   2.83e-07     5.27   0.000     9.35e-07    2.04e-06
       distw |   .0000222   .0000111     1.99   0.047     3.36e-07     .000044
     rirdiff |   .2195365   .1071346     2.05   0.040     .0095566    .4295164
      SEEdum |   .5679909   .0487211    11.66   0.000     .4724993    .6634825
       _cons |  -3.263678   .1378602   -23.67   0.000    -3.533879   -2.993477
------------------------------------------------------------------------------
```

Our findings about FDI being significant with two lags only and trade both contemporaneously and with lags carry through in this setup as well. However, real interest rate has become insignificant, so this variable is not robust in our setup. On the other hand, we do find that the nominal interest rate differential is strongly significant and has the expected sign. Moreover (not reported here) we find the nominal interest rate differential to be significant in the setup without dummies as well. What can account for the significance and robustness of the nominal interest rate differential? A possible explanation is that banks pursue some short-term investment strategies, taking advantage of the nominal spread and hedging the exchange rate risk. Alternatively, high nominal returns imply high growth rates (albeit in nominal terms) for the foreign investor.

All country dummies have a positive and significant coefficient, with two exceptions: Latvia and Slovenia. A plausible reason for the lack of significance is that Latvia and Slovenia both have a small population, which is less conducive to large scale banking activity. Moreover, since our focus is mainly on SEE economies, we also run a setup with one single dummy for these countries (Panel C). While the previous results also carry through here (trade, lag FDI significant, etc.) we notice that real interest rate has a lower p-value (now being significant at 5 percent) compared with Table 7B (i.e. without dummy variables), which further confirms our hypothesis that banks also follow profit opportunities. Nominal interest rates compare to nominal interest rates in the home country, plus the exchange rate evolution – when profit margins are concerned on short term. This might explain why nominal rates have a higher statistical relevance than real rates as determinants of foreign banking activity.

Moreover, conditional on trade, FDI, corruption, banking sector liberalization, real interest rate differential and distance, we find that SEE countries had attracted more banking activity than the rest, reflected in the positive and significant coefficient of the dummy variable. Probably foreign banks see more potential for growth in SEE (where the degree of financial intermediation was more limited), compared to the NMS countries, once they condition for the factors above. As far as the model fit is concerned, the model with one dummy for SEE is between the one with no dummy variable (Table 7B) and the one with dummy variables for all recipients (Table 8A).

6. Foreign banks' impact on inequality and economic development

The topic of foreign banks' determinants might be too abstract, in particular if one would like to draw policy recommendations for recipient countries. We may have established the determinant variables for attracting banking FDI, but is it worthy? Do recipient countries benefit from an increase in foreign banks' activity?

There is a vast body of literature debating the implications of financial liberalization on economic development and poverty. For an interesting review of the main theories on this subject, see Gunter, Cohen and Lofgren (2005). Yet, there is no general consensus regarding the impact of foreign banks in the recipient country. In the introduction to this paper, we mentioned a study from

Naaborg et al. (2001) stating the rather limited contribution of foreign banks to economic development. Uiboupin (2005) finds that foreign banks contribute to lower interest rates and to enhanced competition on the local market. Engerer and Schrooten (2004) report foreign banks' contribution to improved financial performance even of local banks, signaled by a reduction of non-performing loans. On the other hand, Cornia (2005) considers that the entry of foreign banks did not raise competition, as those banks targeted only a few low-risk customers.

These being said, in this section we attempt to assess the impact of foreign banks' activity on the level of economic development of the recipient countries. We proxy development by two more refined measures which blend economic and sociological factors. One is the Gini coefficient, a measure of inequality in income distribution. The other one is the Human Development Index, a measure of the quality of life[4]. The data for Gini and HDI covers 91 developing countries from Africa, Asia, Europe and Central and South America[5]. The reasons for this sample selection are twofold: first, our initial sample consisted of 16 recipient countries, which is too small for making statistical inferences, given that the data for Gini and HDI are only available in cross-section (the survey is done at most every five years), and secondly, we do not include developed countries because they tend to have both high HDI and high banking activity, which would misleadingly improve the fit of our model.

The summary statistics for Gini and HDI are presented in Table 9. On average, the most unequal countries (i.e. a higher Gini)are located in Central and South America and Africa, while Europe is more "equal". European countries also rank first, on average, in terms of human development, followed by Central and South American ones. African countries are among the poorest developed countries in our sample.

Table 9. Summary statistics for Gini and HDI

	Africa	Asia	Europe	C and S Am.
HDI: mean	.495	.688	.817	.759
HDI: st. dev.	.125	.089	.053	.086

[4] Both variables are available on the UNDP website: http://hdr.undp.org/statistics/data/. The latest year available is 2001.
[5] The list of countries is available upon request.

Gini: mean (%)	43.8	41.8	31.5	45.8
Gini: st. dev	10.05	8.34	7.73	9.22
No. of obs.	32	22	18	19

In order to assess the relationship between banking activity and economic development, we regress the two variables of interest on our previous measure of banking activity divided by GDP and three dummy variables (for Africa, Asia and Europe). Since we only have cross-sectional data, we use the foreign claims of the rest of the world on each country in the sample[6]. The results are given in Table 10.

Table 10. The impact of banking activity on development

```
Number of obs =      91
F(  4,    86) =   10.19
Prob > F      =  0.0000
R-squared     =  0.2630
Adj R-squared =  0.2288
Root MSE      =   9.000

------------------------------------------------------------
        gini |      Coef.   Std. Err.      t    P>|t|
-------------+----------------------------------------------
     Banking |    -.00252     .00172    -1.46   0.146
        Dafr |   -2.66471    2.64295    -1.01   0.316
       Dasia |   -4.49773    2.83895    -1.58   0.117
        Deur |  -12.36849    3.23888    -3.82   0.000
       _cons |    46.9428    2.20345    21.30   0.000
------------------------------------------------------------


Number of obs =      91
F(  4,    86) =   42.71
Prob > F      =  0.0000
R-squared     =  0.6612
Adj R-squared =  0.6409
Root MSE      =  .09676

------------------------------------------------------------
         hdi |     Coef.   Std. Err.      t    P>|t|
-------------+----------------------------------------------
     Banking | 3.64e-05   1.85e-05     1.97   0.052
        Dafr |  -.25336     .02841    -8.92   0.000
       Dasia |  -.06335     .03052    -2.08   0.041
        Deur |   .03029     .03482     0.87   0.386
       _cons |   .74282     .02369    31.36   0.000
------------------------------------------------------------
```

[6] The data is for 2001 and is available from BIS.

There is a strong, significant correlation in the developing countries between the Human Development Index and the foreign banks' activity. An increase in foreign banks' activity in a recipient country is correlated with an increase in the country's HDI. However, the correlation coefficient between banking activity and inequality is not significant, which means that a priori we do not see any relationship between banking activity and inequality.

7. Summary of the findings

Trade and the interest rate differential are always significant and bear the expected sign. This means that foreign banks follow the customer and exploit profit opportunities. This finding is robust to inclusion of one or two lags or restricting the time dimension to 1999-2004 (for better data quality and availability).

FDI is weakly significant only with a longer lag (2 years). A possible explanation is the existence of a time-to-build lag, as it takes more than one year for the FDI to become productive and operate at full-scale. After foreign investment becomes productive, more banking activity between the two countries is generated via, for example, intra-company loans or repatriated profits. Bilateral trade, on the other hand, needs no “time to build”, so in almost every setup we have tried we found it significant with at most one lag.

Among variables reflecting institutional quality, we found the banking sector reform to be the most significant, positively influencing foreign banks' activity. We can consider this as a proxy for the degree and speed to which the EU policies have been adopted in recipient countries. That foreign banking activity comes with liberalization is no surprise and should represent an encouragement for laggards (in this area and elsewhere) to liberalize the banking sector.

Distance is not significant (probably because most recipient countries in our sample have a direct border with EU). Insignificant fixed country effects are found only for a few countries having in common small population, which is less conducive for large scale banking activity.

To summarize, we found the following determinants for foreign banking activity in Eastern Europe: bilateral trade, the lag of FDI (at least 2 years earlier), interest rate differential, and banking sector reform (a proxy for EU policies imposed to these countries).

This paper also finds that an increase in foreign banks' activity in a recipient country is correlated with an increase in the Human Development Index.

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