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FINANCIAL INTEGRATION AND GROWTH - IS EMERGING EUROPE DIFFERENT?

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ABSTRACT

Financial Integration and Growth - Is Emerging Europe Different?*

Using industry-level data, this paper shows that the European transition region benefited much more strongly from financial integration in terms of economic growth than other developing countries in the years preceding the current crisis. We analyze several factors that may explain this finding: financial development, institutional quality, trade integration, political integration, and financial integration itself. The explanation that stands out is political integration. Within the group of transition countries, the effect of financial integration is strongest for countries that are politically closest to the EU. This suggests that political and financial integration are complementary and that political integration can considerably increase the benefits of financial integration.

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1   Introduction

Political, trade and financial integration have been the three defining pillars of the "development model" of the European transition countries in the past two decades. Until recently, this model was considered a spectacular success. Since the mid-1990s, the transition region had experienced an externally financed growth spurt, which does not have many parallels in economic history. However, the disastrous impact of the financial crisis on the transition region has cast some doubt on this model. Several countries suffered double-digit percent decreases in GDP in 2009. Nevertheless, the benefits of political and trade integration - which are closely linked - have not seriously been questioned. A reversion of the political integration process is barely conceivable, and the benefits of trade integration are now widely accepted, both by politicians and by academics (see, e.g., Edwards, 1998).

The criticism focuses instead on financial integration. The financial crisis was transmitted mainly through financial channels. In addition, financial integration seems to have fuelled the credit boom preceding the financial crisis. This credit boom and the related stocks of private foreign debt are widely believed to have made the transition region so vulnerable to the financial crisis, and are in fact strongly correlated with extent to which output declined in the region during the crisis (see Berglöf, Korniyenko, Plekhanov, and Zettelmeyer, 2009). The academic literature is also far less conclusive regarding the benefits of financial integration than it is with respect to trade integration. In an influential paper, Prasad, Rajan, and Subramanian (2007) show in a sample of 65 developing, non-transition countries that current account surpluses had a *positive* impact on growth between 1970 and 2004, implying that countries relying on foreign financing grew more slowly than countries relying on domestic savings, which contradicts the neoclassical view. Gourinchas and Jeanne (2007) refer to the negative correlation of capital flows and economic growth in developing countries as the *allocation puzzle*.

Studies using more disaggregated data tend to draw a somewhat more positive picture of financial integration than country-level studies (see Kose, Prasad, Rogoff, and Wei, 2009, for an excellent overview of the literature). When using industry-level data, Prasad, Rajan, and Subramanian (2007) find evidence of *threshold effects*: financial integration appears to have positive growth effects once the financial system is sufficiently developed. Moreover, several studies (starting with Bekaert, Harvey, and Lundblad, 2005) have found

evidence of a beneficial effect of financial integration through equity market liberalization.[2] Overall, the picture is still mixed at best, with scant or no evidence to suggest that financial integration supports economic growth in developing countries.

However, as already noticed by Prasad, Rajan, and Subramanian (2007), the experience of the European transition region does not seem to conform to this rather skeptical view of the relationship between financial integration and growth. The combination of large current account deficits and high growth rates in the years preceding the crisis prima facie suggests that capital inflows may have been beneficial for economic growth in these countries. Guiso, Jappelli, Padula, and Pagano (2004) apply the Rajan and Zingales (1998) methodology to test for the effect of financial *development* on economic growth using industry-level data (61 countries over the period 1981-1995, excluding transition countries) and firm-level data (firms from 26 countries, among them 11 transition countries, between 1996 and 2001). Their results indicate that financial development has a "growth dividend" in Europe, and they speculate that this will also translate into positive growth effects of financial integration. This view is supported by a recent study by Abiad, Leigh, and Mody (2009) who show in a country-level panel regression framework that financial integration as measured by current account deficits had a positive growth effect between 1975 and 2004 in Europe, but not in the rest of the world.[3] Thresholds in institutional quality and financial integration itself can explain only part of the differences between Europe and the rest of the world. Abiad, Leigh, and Mody (2009) argue that the remaining difference may be explained by the reduction in frictions between intra-EU borders and compare European capital flows to interstate flows within the United States.

Our paper makes two main contributions to this literature. First, we show that financial integration has indeed caused higher growth in European transition economies in the years preceding the current crisis, using industry-level data, whereas the same is not true for other developing countries. In contrast to many other papers, our study relies on a sample of developing countries only and does not include industrialized countries (as in Prasad, Rajan, and Subramanian, 2007; Abiad, Leigh, and Mody, 2009). A homogeneous sample is preferable because we are interested in explaining the differences in the growth performance of different developing countries rather than those between developing and developed countries. Second, we carefully examine the potential reasons for why financial integration was so successful in this time period in the European transition countries. We

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[2]See also De Nicolò and Juvenal (2010).

[3]Note that the number of observations from transition economies in their sample is rather small.

first test empirically for threshold effects, which have figured prominently in the academic literature (e. g., Kose, Prasad, and Taylor, 2009). As threshold variables, we consider financial development, institutional quality, trade integration, and financial integration itself. The use of a homogenous sample is critical here: in analyses including both groups of countries, such effects may be driven by differences between the two country groups rather than by differences within the group of developing countries. Since threshold effects are not able to explain the observed differences between Emerging Europe and other countries, we finally analyze the role of political integration, which so far has hardly been considered in the literature. Political integration with advanced economics is one of the distinguishing features of European transition countries. We construct a broad index of political integration on the basis of information on regional integration agreements, taking into account four dimensions of political integration: institutions, policy coordination, attitudes, and political stability. We then test whether the effect of financial integration is affected by the degree of political integration.

Our analysis suggests that political integration can explain why financial integration had such strong growth effects in European transition economies, but not in other developing countries. When including political integration in the regression, there is no longer a discernible difference between Emerging Europe and other developing countries. Moreover, within the group of transition countries, the effect of financial integration is strongest for the countries that are most strongly politically integrated with the EU. This suggests that political and financial integration are complementary and that political integration can considerably increase the benefits of financial integration. The reason may be that political integration affects investors' expectations about future institutions and policies, which may influence the way foreign investors employ their capital in the region in a growth-enhancing way. Hence, financial integration may be beneficial for economic growth even if the current institutional framework is still relatively weak. There are also some indications that the presence of foreign banks contributed positively to the growth effect of financial integration. Indeed, the emergence of parent banking may itself be seen as a consequence of political integration. Hence, Emerging Europe may be different from other developing countries because financial integration was accompanied by corresponding advances in political integration.

The paper proceeds as follows. Section 2 elaborates on the stylized fact that Emerging Europe is different. Section 3 puts the recent growth episode of transition economies into perspective by searching comparable episodes in economic history and discusses the

theoretical channels through which financial integration may affect economic growth. Section 4 presents industry-level evidence showing that Emerging Europe was indeed different from other developing countries in the considered time period. Sections 5 and 6 analyze different candidates that may explain these differences. Section 5 presents threshold specifications regarding financial development, institutional quality, trade integration, and financial integration itself. Section 6 then focusses on the role of political integration. Section 7 concludes.

2 The Stylized Fact

According to standard economic theory, capital flows to developing countries contribute to economic growth. Neoclassical theory predicts that capital flows from rich countries with high capital-labor ratios to poor countries with low capital-labor ratios (and hence a higher marginal products of capital), raising these ratios in the latter countries and thereby contributing to convergence and economic growth. By and large, empirical evidence has not confirmed these predictions (see, e. g., Lucas, 1990; Gourinchas and Jeanne, 2007, and the papers cited in the introduction). However, basic stylized facts regarding capital flows to developing countries since the mid 1990s suggest that there may be differences in the relationship between capital flows and growth across developing country regions, which are well worth exploring.

Figure 1 displays the current account balance in percent of GDP for the three main emerging market regions between 1994 and 2008. All three regions exhibited growth spells during this period: in the case of European transition countries, since about 1995; in the case of emerging Asia, since 1999, following the end of the Asian crisis; and in the case of Latin America, since 2003. However, the degree to which the three regions relied on external savings in financing these growth spells is startlingly different. In Asia, the current account adjustment that was prompted by the crisis (from moderate deficits to a large surplus) failed to revert after the crisis was over; instead, the region saw a period of rapid growth accompanied by large current account surpluses, i. e. capital exports. Latin America saw a rather similar pattern: a narrowing of the current account deficit in the crisis period is followed not by a return to deficits during the recovery, but instead by a further narrowing and a move toward surpluses. Only Emerging Europe shows a completely different pattern: already entering the transition period with substantial

4

Figure 1

Current account balances in emerging market regions,
1994 - 2008

Source: IMF, WEO Database 2009.
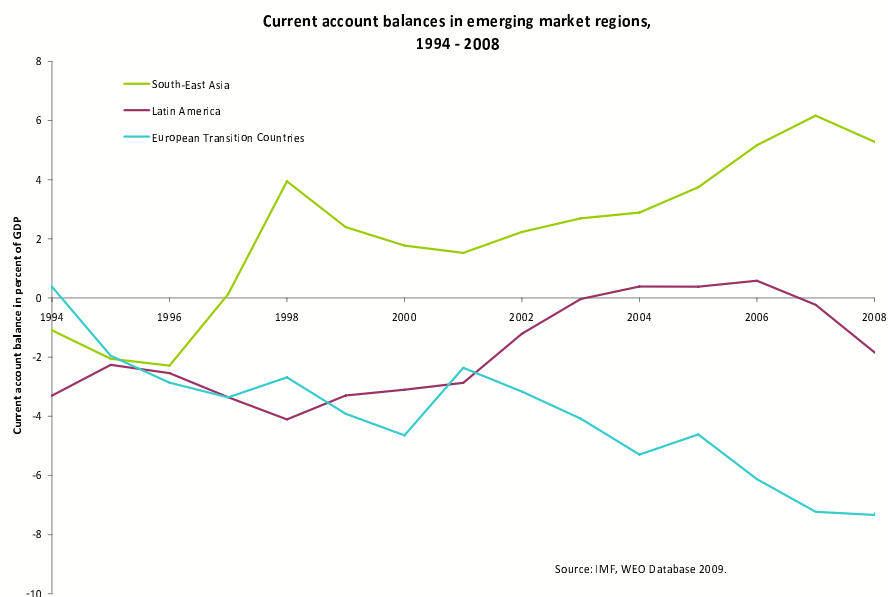
current account deficits, Emerging Europe experienced a surge in net private capital flows from the year 2000 onwards, which resulted in persistent and, on average, growing current account deficits. During the (2006-2008) peak of the boom, these reached double-digit percent of GDP ratios in several countries (such as the three Baltic countries, and some countries in south-eastern Europe).[4]

Hence, while the idea that capital inflows are at best neutral and possibly harmful for growth resonates well with the experience of Latin America and particularly Emerging Asia during their most recent growth spells, this does not seem to be true for the European transition countries. Consistent with this impression, Figure 2 reveals that the surge of current account deficits in the transition countries was not driven by a reduction in savings, but rather by a surge in investment to GDP over the last decade.[5] This gives rise to the presumption that foreign capital may have had a positive effect on the growth performance in European transition countries. The observed combination of rising investment, high growth performance and a widening current account deficit was not shared by other regions in this time period (except for a brief widening of current account deficit in Latin

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[4]In the following, Emerging Europe includes the transition countries in Central, Eastern and Southern Europe. It does not include states that used to be part of the Soviet Union. In the following, the terms "Emerging Europe" and "European transition countries" are used interchangeably.

[5]Due to missing country-level data on savings and investment, this chart is based on the regional definition of "Central and Eastern Europe" in the IMF's World Economic Outlook database.

5

Figure 2

Savings and investment in European Transition Countries, 1994-2008

Source: IMF, WEO Database 2009.
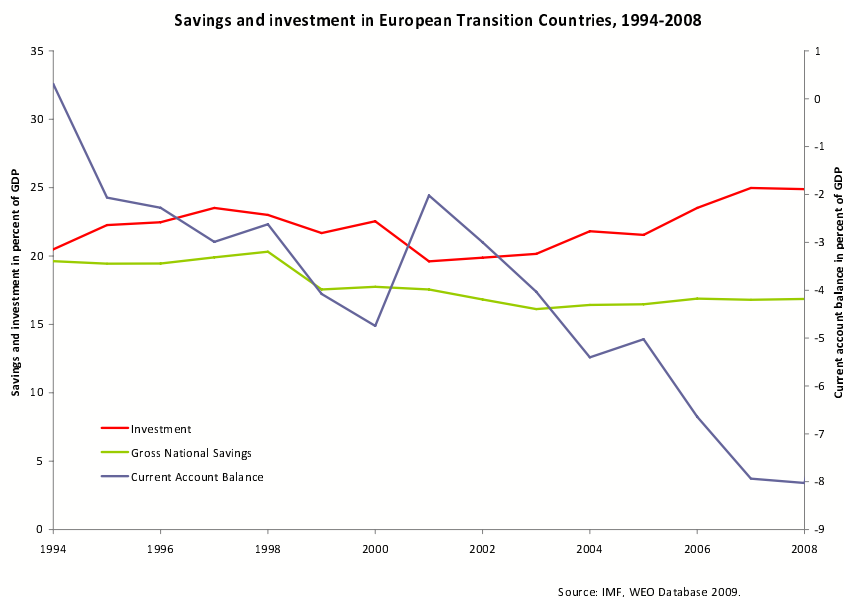
America just before the crisis, see also Fabrizio, Leigh, and Mody, 2009).[6]

Finally, it can be shown that there is indeed a significant negative cross-country correlation between current account balances and real GDP per capita growth rates in Emerging Europe. In contrast, this correlation is positive in the overall sample of low- and middle income countries excluding European transition countries (see Figures 3 and 4). Although correlation does not imply causation and a more sophisticated analysis will be needed to verify this conjecture, these observations raise the question whether Emerging Europe is different with respect to the impact of financial integration on economic growth.[7]

3   Historical Parallels

The facts presented in the previous section indicate that the combination of high sustained growth and large current account deficits is unusual in the developing country experience since the mid 1990s. But is it also unusual in a broad historical perspective? To answer

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[6]In Section 3, we show, however, that there were comparable episodes in economic history.

[7]Note that the same relationship is obtained when considering the time period 1998 till 2005, which is used in the regressions. Moreover, the stylized fact is also visible in a scatter plot of industry-level growth rates (as used in the empirical analysis) and financial integration. See Tables A.1 and A.2 in the Appendix.

6

Figure 3

Current account balances and growth, 1994-2008
Developing countries (excluding European transition countries)

y = 0.10x + 5.02

GDP growth per capita, PPP (av. 1994 - 2008)

- South-East Asia
- Latin America
- Africa
- CIS and Middle East

Source: IMF, WEO Database 2009.

CA/GDP, % (av. 1994-2008)
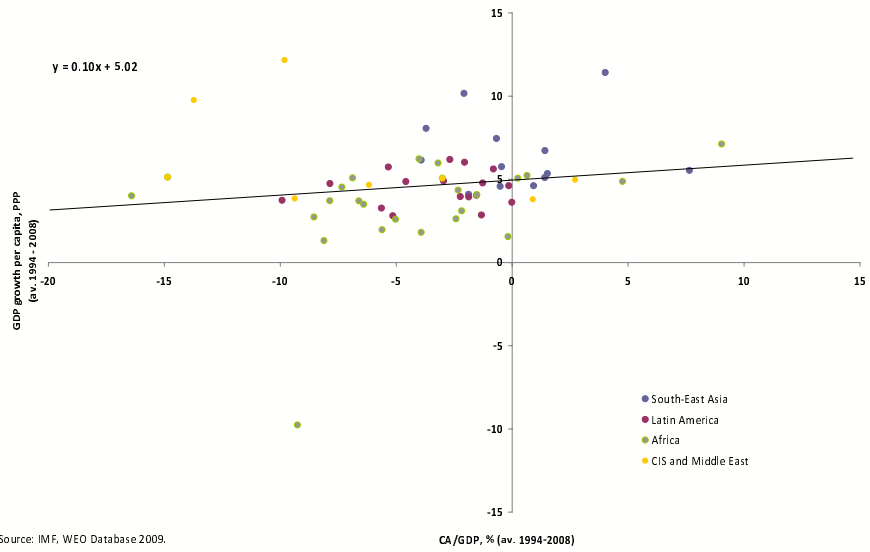
Figure 4

Current account balances and growth, 1994-2008
European Transition Countries

GDP growth per capita, PPP (av. 1994 - 2008)

y = -0.30x + 5.07

Source: IMF, WEO Database 2009.

CA/GDP, % (av. 1994 - 2008)

7
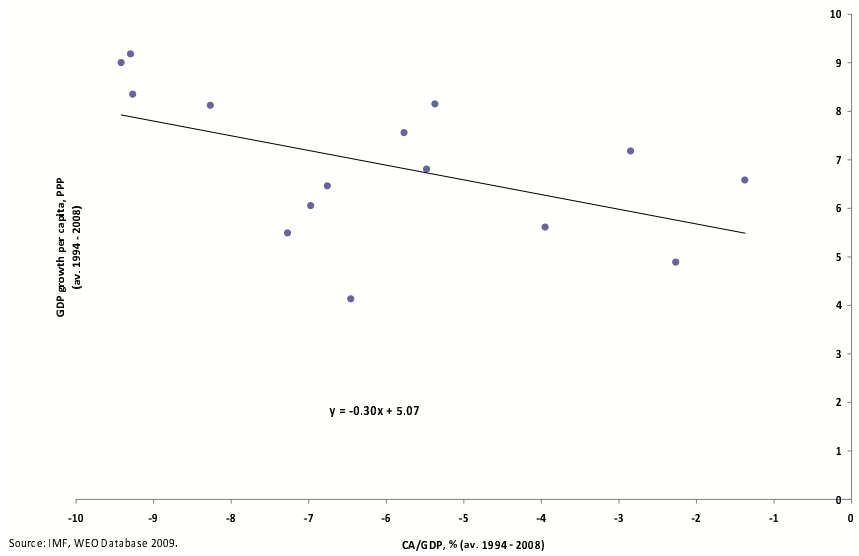
this question, purchasing power-adjusted GDP per capita and current account data were collected for a broad group of countries from the Americas, the Asia-Pacific region, and Europe from 1850 to 2008. A two-stage selection was then made: in the first stage, all episodes with an average annual growth rate above 2.5 percent over a time span between 10 and 20 years - comparable to the recent growth phase in the European transition region - were identified. This led to 321 episodes. In the second stage, all episodes from that group where average current account deficits exceeded 4.2 percent of GDP (the average value for Emerging Europe between 1995 and 2008, based on the regional definition of "Central and Eastern Europe" in the IMF's World Economic Outlook database) were selected. The resulting set contains 10 growth episodes with high current account deficits for Emerging Europe after 1990 (with an average growth rate of 5.6 percent and an average current account deficit of 7.6 percent) against 39 episodes from other regions (see Table 1). Therefore, growth episodes accompanied by large capital inflows do indeed seem much less frequent, in relative terms, in the broad non-transition sample.

There are, however, a small number of growth episodes in history that indeed show a similar pattern: Canada and Finland in the pre-World War I episode, Norway, Portugal, and Spain during the 1920s, the post-World War II catch-up in Western Europe, Latin America from the 1960s until the 1980s' debt crisis, and some countries from Emerging Asia between the 1970s until the mid 1990s. When analyzing what these episodes have in common with the current transition experience, one observes that most of these episodes involved some policy or regime change prior to the episode (e.g., post-war reorganization, introduction of democracy, or renouncing import substitution growth strategies). A possible interpretation of the observed association between high capital inflows and growth is that these changes increased the distance between the actual and the steady state capital stocks either by making existing capital obsolete or by increasing expected total factor productivity (TFP), and hence desired levels of per capita capital. In such a situation, the growth benefits of financial integration are particularly strong because the transition between actual and desired capital stocks can be significantly accelerated by capital inflows (Hoxha, Kalemli-Ozcan, and Vollrath, 2009).

In Emerging Europe, financial integration was preceded by some degree of capital obsolescence and accompanied by strong advances in political integration - especially with the EU. This suggests a possible explanation of the stylized fact presented in Section 2. Once it became clear that European transition countries would become part of the EU or an EU-dominated Europe, there was a reasonable expectation that their institutions

Table 1

Country	Start	End	Length	Growth	CA
Finland	1868	1877	10	3.13	-6.29
Canada	1879	1888	10	3.17	-6.11
Canada	1897	1906	10	5.19	-4.41
Finland	1903	1913	11	2.57	-6.71
Norway	1919	1930	12	4.01	-5.12
Portugal	1920	1929	10	3.17	-15.62
Spain	1920	1929	10	2.93	-4.24
Portugal	1953	1962	10	4.32	-7.90
Germany	1957	1966	10	4.19	-21.22
Korea	1957	1966	10	3.12	-9.25
Italy	1959	1968	10	5.30	-11.87
France	1960	1970	11	4.47	-7.91
Spain	1961	1970	10	7.21	-6.59
United Kingdom	1963	1973	11	2.77	-5.04
Portugal	1964	1973	10	7.01	-9.03
Korea	1968	1977	10	8.31	-7.37
Malaysia	1971	1980	10	5.65	-5.34
Thailand	1973	1982	10	4.51	-5.84
Sri Lanka	1977	1986	10	3.81	-8.97
Pakistan	1978	1987	10	3.71	-4.50
Nepal	1984	1994	11	2.93	-6.24
Thailand	1987	1996	10	7.75	-5.44
Vietnam	1988	1997	10	5.24	-5.56
Sri Lanka	1990	2000	11	4.04	-4.79
Laos	1999	2008	10	4.10	-12.52
Costa Rica	1965	1974	10	4.03	-7.71
Honduras	1970	1979	10	3.11	-11.54
Haiti	1971	1980	10	3.21	-11.32
Uruguay	1972	1981	10	2.93	-9.36
Paraguay	1972	1981	10	6.08	-6.85
Jamaica	1986	1995	10	2.57	-4.30
Nicaragua	1995	2004	10	3.95	-20.64
Costa Rica	1998	2007	10	3.65	-4.50
Panama	1999	2008	10	3.63	-5.80
Ireland	1971	1980	10	3.20	-8.91
Spain	1971	1980	10	3.76	-5.84
Portugal	1976	1991	16	3.44	-6.16
New Zealand	1993	2002	10	2.52	-4.68
Greece	1998	2007	10	4.04	-7.73

Sources: For GDP data: Historical Statistics of the World Economy: 1-2006 AD by Angus Maddison, updated to 2008 using real GDP growth rates from the IMF's World Economic Outlook (WEO) database. For current accounts and trade balances, 1950–2008: WEO database; for pre-1945: Jones and Obstfeld (2001). For seven countries not covered by Jones and Obstfeld, Michael Bordo and Christopher Meissner's Financial Crisis Database.

- and, hence, TFP levels - would eventually converge to the European average, raising the expected steady state. This may have created incentives for foreign investors and banks, particularly from Western Europe, to pursue long-term investment strategies in the region (even ahead of actual institutional improvements). These would include the build-up of branches and subsidiaries with a better knowledge of the financial needs of local businesses and thus better opportunities to finance growth-generating investments. In this way, financial integration may have speeded up the transition process from the current to the expected steady state, which would have taken a much longer time period if it had had to be financed by domestic savings. On top of this, the "collateral benefits" of financial integration (see Kose, Prasad, Rogoff, and Wei, 2009, 2010) may even have led to higher steady state growth rates, e. g. by accelerating financial deepening. One goal of our empirical analysis is to check whether there is any empirical support for the proposed explanation of the stylized fact.[8]

4   Is Emerging Europe Different? – Baseline Specification

4.1   Empirical Model

Our analysis is based on industry-level data, applying the methodology developed in the seminal paper by Rajan and Zingales (1998) to the context of financial integration. The approach relies on the following theoretical presumption: some industries depend on external finance - as opposed to internal finance, such as retained earnings - more than others (for example, because they have to make large investments that generate cash flows only after several years). If financial integration "works" in the sense that it facilitates access to financing and thereby ultimately influences investment and growth, it should have a larger effect on industries that depend strongly on external financing. This implication can be tested by estimating an econometric model in which the growth effect of financial integration is allowed to vary according to the external financial dependence of an industry.

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[8]Given our short sample period of 7 years, we cannot distinguish between the transition to a higher steady state and higher steady state growth rates in our empirical analysis.

The estimation equation underlying the baseline specification is as follows:

$$Growth_{j,k} = \alpha_k + \beta_j + \gamma \cdot industry\,share_{j,k}$$
$$+ \delta_0 \cdot (ext.dependence_j \cdot fin.integration_k)$$
$$+ \delta_1 \cdot (ext.dependence_j \cdot fin.integration_k) \cdot Emerg.Europe\,dummy_k + \varepsilon_{j,k},$$
(1)

where j denotes the industry and k the country. One major advantage of this methodology is that is controls for country (α_k) and industry (β_j) fixed effects, which mitigates the endogeneity problem. Furthermore, the industry share is included in order to account for the fact that young industries on average grow faster than mature industry; hence, we expect γ to be negative. The two interaction terms capture the effect of financial integration on industry-level growth, depending on external dependence of an industry. External dependence measures the degree to which firms of industry j are dependent on external finance. In the first interaction term, external dependence is interacted with various measures of financial integration at the country level. The second interaction term is additionally interacted with an indicator variable that takes on the value of 1 when a country is part of Emerging Europe. This term captures differences between European transition economies and other developing countries regarding the effect of financial integration on industry-level growth.

Hence, the main coefficients of interest are δ_0 and δ_1. δ_0 captures the impact of financial integration, depending on external dependence, in countries outside of Emerging Europe. If industries that rely strongly on external financing benefit more from financial integration in this group of countries, this coefficient should be positive. δ_1 captures the *differential* effect of financial integration in Emerging Europe. A significant coefficient implies that the growth effects of financial integration are different in European transition countries. The sum of δ_0 and δ_1 captures the total effect of financial integration (again depending on external dependence) in Emerging Europe. Note that the overall effect of financial integration cannot be identified because the level effect is absorbed by the country fixed effects; only the slope effect measuring the dependence on external dependence is identified.

Table 2

Descriptive statistics at country level

Country	Number of Sectors	Average sector growth rate	Financial Integration Measures									Emerging Europe	Transition Sample
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		
Albania	13	9.9	-3.8	1.3	79.5	1.3	-2.6	20.5	27.6	**55.2**	71.3	1	1
Armenia	51	8.2	-9.7	2.7	109.3	1.4	-3.0	25.8	56.4	49.3	38.1	0	1
Botswana	3	-6.8	7.7	1.8	155.9	-2.4	-2.8	18.7	25.2	65.0	59.0	0	0
Brazil	59	7.0	-1.7	-1.0	86.5	1.5	-1.3	19.8	34.7	22.5	33.5	0	0
Bulgaria	53	8.1	**-5.4**	**-1.1**	158.8	5.5	-4.9	26.5	70.1	60.0	49.4	1	1
Czech Republic	46	3.5	-4.1	-3.0	145.7	3.6	-0.6	42.0	32.4	80.8	52.9	1	1
Estonia	43	10.2	-8.4	-6.1	173.7	7.0	3.8	58.6	50.2	98.5	47.6	1	1
Georgia	40	8.3	-8.8	-1.3	90.9	4.0	-2.2	28.1	47.7	15.0	14.4	0	1
Hungary	59	5.6	-7.5	-3.0	156.8	1.7	1.1	52.6	55.2	89.5	83.1	1	1
Indonesia	59	2.8	3.1	13.1	122.4	-1.5	-14.4	7.0	80.8	17.2	33.3	0	0
Jordan	43	9.3	0.9	-3.0	198.6	11.8	-4.9	48.7	83.0	3.5	13.8	0	0
Korea Rep.	62	5.4	3.6	-0.8	96.0	0.7	-3.1	10.3	27.4	34.2	16.4	0	0
Latvia	46	8.0	-8.8	-5.5	146.4	1.1	6.8	28.1	63.8	46.0	30.4	1	1
Lithuania	59	12.3	-7.5	-2.7	89.8	2.4	2.0	23.8	37.8	84.5	**47.4**	1	1
Macedonia, FYR	14	-4.1	-5.6	-2.1	103.3	4.3	0.3	**24.6**	45.0	56.7	36.1	1	1
Madagascar	8	-27.5	-6.4	6.5	**130.7**	0.8	-6.9	8.9	99.4	100.0	97.5	0	0
Moldova	41	5.0	-6.9	3.2	172.7	2.9	-4.5	32.2	97.1	38.5	38.9	0	1
Panama	21	-2.9	-5.6	-1.9	339.2	1.2	-5.8	61.7	152.4	56.0	65.8	0	0
Philippines	37	3.8	-0.4	2.9	139.9	0.0	-2.6	18.6	75.6	10.8	14.0	0	0
Poland	60	4.8	-3.7	-2.6	88.3	2.4	0.8	23.1	35.8	65.7	64.5	1	1
Romania	40	-3.5	-5.8	-2.4	77.1	2.2	1.0	19.6	29.7	48.3	58.4	1	1
Slovak Republic	39	6.5	-7.0	-5.0	140.7	5.2	-0.5	32.8	**48.0**	81.5	70.6	1	1
Slovenia	51	-1.9	-1.5	-0.9	118.7	1.1	4.7	16.8	45.1	19.8	26.2	1	1
South Africa	8	7.6	-1.2	-0.6	130.3	3.0	**-1.3**	28.4	23.2	1.8	14.6	0	0
Uruguay	37	3.4	-0.9	0.4	180.1	**1.9**	4.0	15.2	81.2	55.5	79.4	0	0
Median:			-5.4	-1.1	130.7	1.9	-1.3	24.6	48.0	55.2	47.4		
Average sector growth rate above threshold		4.4	3.9	5.9	6.4	5.1	6.8	5.5	5.4	4.1			
Average sector growth rate below threshold		5.9	6.2	4.5	4.0	5.3	3.6	4.8	5.0	6.0			

(1) Current account (average from 1998-2005)*
(2) (Assets-Liabilities)/GDP (change from 1998-2005)**
(3) (Assets+Liabilities)/GDP (average from 1998-2005)**
(4) FDI Liabilities (change from 1998-2005)**
(5) Debt Liabilities (change from 1998-2005)**

(6) FDI Liabilities (average from 1998-2005)**
(7) Debt Liabilities (average from 1998-2005)**
(8) Foreign Bank Asset Shares (average from 2000-2005, missing data before 2000)***
(9) Foreign Bank Number Shares (average from 1998-2005)***

Sources: * IMF, World Economic Outlook Database; ** Milesi-Ferretti (2007), *** Claessens et al. (2008)

4.2 Data

Industry growth We use industry data from the Industrial Statistics Database provided by the United Nations Industrial Development Organization (UNIDO). Since our focus is on the European transition region, we are using the UNIDO (Revision 3) dataset, which is the only version covering transition economies to a large extent. This comes at the cost that other regions have a lower coverage (see Appendix A.2 for details).[9] We restrict our analysis to developing countries because we are interested in explaining the differences in the growth performance within the group of developing countries rather than those between developing and industrialized countries. Starting from the maximum sample of developing countries for which industry data is available, we follow Prasad, Rajan, and Subramanian (2007) in eliminating a number of countries according to some pre-defined criteria to avoid a distortion of results. Specifically, we drop small island economies, countries relying strongly on oil exports, and countries with substantial inflows of developmental aid (see Appendix A.1 for details). This selection procedure leads us to a sample of 25 middle- and low-income countries, twelve of which are from Emerging Europe.

As a measure of industry growth, we calculate average growth rates of real output over the period 1998 to 2005.[10] This time period reflects the trade-off between choosing a long time span to capture medium-term effects of financial integration and smooth out business cycle effects, and maintaining a reasonably large cross-section of countries, including a broad set of transition countries.[11] Moreover, we exclude the boom in transition economies preceding the subprime crisis to avoid biasing our results towards finding positive growth effects in these countries. Therefore, our results should be considered a lower bound to the actual growth effects of financial integration.[12]

Table 2 shows the composition of the sample and some descriptive statistics at the country level.[13] The sample used in most of our regressions contains 992 observations. Note that

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[9]For example, the current version of the UNIDO (Revision 3) dataset does not include sector-level output data for Mexico or Thailand after 2000.

[10]Note that the growth variable has been winsorized at the 1st and 99th percentiles.

[11]Long-run effects, especially those from FDI, are unlikely to materialize in such a short time period.

[12]It would be desirable to also explore the effect of financial integration on TFP growth (as in Bonfiglioli, 2008; Kose, Prasad, and Terrones, 2009). Due to a lack of sufficient data on investment in the given data set, such an analysis in not feasible here.

[13]For overall descriptive statistics, see Table A.3 in the Appendix.

the sample is highly unbalanced as many countries do not provide any information on some sectors.

Industry share The *industry share* of an industry j in country k is computed as the ratio of the size of this industry and the size of the entire manufacturing sector of the respective country in 1998.

External dependence The *external dependence* ratios of industries are taken from Rajan and Zingales (1998) and are defined as the ratio of capital expenditures minus cash flow from operations, divided by capital expenditures. Hence, they measure the share of capital expenditures that cannot be financed internally in a given industry. Since observed external dependence ratios in developing countries are distorted by financial frictions, Rajan and Zingales suggested to use the corresponding ratios of U.S. industries, arguing that the U.S. capital market comes closest to the ideal of a frictionless market. The fact that these ratios were computed on the basis of data from the 1980s comes in handy here, since the U.S. industry structure at that time should better reflect today's industry structure in developing countries than a corresponding up-to-date ratio. It should be noted that we had to adjust the industry definitions in our dataset to those used by Rajan and Zingales (1998) (see Appendix A.2 for details).

Financial integration Regarding financial integration, Kose, Prasad, Rogoff, and Wei (2009) argue in favor of quantity-based, de facto measures. The early literature had used mostly de jure measures, such as those based on the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). However, such measures do not fully capture the degree of enforcement and effectiveness of capital controls as well as regulations in other fields that affect capital flows. Regarding the choice between quantity- and price based measures, Kose, Prasad, Rogoff, and Wei point out that observed price differences may be due to risk and liquidity premia rather than being an indication of low financial integration. In addition, domestic financial markets might not be liquid enough to efficiently diminish price differentials, so that price-based measures may underestimate the true degree of financial integration. Therefore, quantity-based measures are also used in this study.

We use nine *de facto*, *quantity-based* measures of financial integration. To ensure comparability with Prasad, Rajan, and Subramanian (2007) and Abiad, Leigh, and Mody

(2009), we use the current account deficit in percent of GDP - taken from the IMF's World Economic Outlook database - as our first variable (CA, see Table 2 for the values of financial integration measures of all included countries). Moreover, we compute six measures from the External Wealth of Nations Mark II Database, which was constructed and updated by Lane and Milesi-Ferretti (2007). We use both stock and flow variables.[14] First, we use the standard measure of *gross financial integration*, defined as the sum of total foreign assets and total foreign liabilities in percent of GDP (GFI). Gross measures of financial integration have the advantage that they also capture risk-sharing benefits of financial integration. Then we consider various measures taking into account only foreign liabilities (capturing only the financing side of financial integration), distinguishing different types of foreign liabilities: Foreign direct investment (FDI) and foreign debt (D), both expressed in percent of GDP.[15] In addition, we consider the changes of these variables between 1998 and 2005: the change in FDI liabilities (ΔFDI) and the change in foreign debt (ΔD). Further, we consider the change in net foreign assets (defined as the difference between foreign assets and foreign liabilities) between 1998 and 2005 in percent of GDP (ΔNFA), which serves as a valuation-change adjusted equivalent to the current account. Finally, we use two measures capturing the presence of foreign banks, which is one distinguishing feature of financial integration in the European transition region. First, we use the share of assets held by foreign banks in total assets of the respective banking system (*Foreign bank asset share*); second, we use the share of the number of foreign banks in all banks (*Foreign bank number share*). Both variables are taken from Claessens, Van Horen, Gurcanlar, and Sapiain (2008).[16]

It should be noted that the variable choice reflects our intention to mainly capture the benefits of financial integration running through the financing side, e.g., the loosening of capital constraints of local firms and the transfer of managerial skills from parent firms to local firms through FDI transactions. To capture benefits from risk-sharing, other variables may be appropriate. However, the financing side is likely to be the most relevant transmission channel in the European transition region. Nevertheless, the estimated values should be seen as a lower bound for the gains from financial integration because risk-sharing benefits are not fully captured.

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[14]Strictly speaking, what we call "flows" are valuation effect-adjusted changes in stocks over the sample period.

[15]We do not consider portfolio equity flows because they are quantitatively insignificant in the transition region.

[16]"Foreign bank number shares" are measured as an average from 1998 to 2005, and "foreign bank asset shares" as an average between 2000 and 2005 due to missing data.

Note that the stock variables enter as averages over the sample period, i. e. 1998 to 2005 (unless noted otherwise). The same time period is used when considering changes in financial integration. In order to minimize endogeneity problems, the use of starting values of the stock variables would be preferable. However, in our case, the starting values do not reflect actual differences in financial integration in the considered time period because all financial integration measures increased sharply between 1998 and 2005 in the transition region.

4.3   Results

We now discuss the results from the baseline regression (1), shown in Table 3. The columns show the regressions using different measures of financial integration in the interaction terms.[17] In all regressions, the industry share enters negatively as expected and is significant at the 1 percent level (see first line of the table, p-values are in parentheses). The next two lines in the table report the coefficients of the two interaction terms. The second line shows the coefficients of the Rajan-Zingales interaction term (corresponding to δ_0 in equation 1). It is to be interpreted as the effect of financial integration, depending on external dependence, for countries *not* belonging to Emerging Europe (called "other countries" in the table). If there were a sectoral growth effect for this group of countries, this coefficient should be significantly negative for the first two measures of financial integration (where a higher value indicates less financial integration) and significantly positive for the remaining measures. In line with the existing literature, we find no evidence of a sectoral growth effect of financial integration for these countries. The coefficient is insignificant in all regressions, and it even has the "wrong" sign in some cases.

The third line shows the differential sectoral growth effect in European transition countries, relative to the effect of other developing countries (corresponding to δ_1 in equation 1). We find that this coefficient goes in the expected direction in 8 out of 9 cases and is mostly significant. Hence, there appear to be significant differences between European transition countries and other developing countries: industries in European transition economies benefit more from financial integration than those in other developing countries. The total sectoral growth effect for European transition countries can be seen in the fourth

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[17]We use robust standard errors throughout. Clustering by country or sectors yields very similar results. However, in a cross-sectional framework with fixed effects in both dimensions, clustering does not seem to be necessary. Moreover, the number of clusters is relatively small, which reduces the reliability of clustered standard errors.

line, which is the sum of the coefficients from the second and third line (corresponding to $\delta_0 + \delta_1$). We see that the total sectoral growth effect shows the expected sign in 8 out of 9 case and is significant in all these cases at the 5 percent level. The exception are foreign debt flows, which show the "wrong" sign and are insignificant. Hence, a large *change* in foreign debt does not seem to be conducive to economic growth (whereas a high level is beneficial). This finding can be explained by the fact that high debt flows often go along with credit booms and other types of vulnerabilities, which make a country more prone to adverse shocks, and is well in line with the existing literature (see, e. g., Kose, Prasad, Rogoff, and Wei, 2009).[18]

Table 3

Baseline Regressions

(Regression coefficients; p-values in parentheses; dependent variable: average growth in sectoral output, 1998-2005)

	Financial integration (FI) measure								
	CA	ΔNFA	ΔFDI	ΔD	GFI	FDI	D	Foreign bank asset share	Foreign bank number share
Industry share	-0.323	-0.309	-0.301	-0.308	-0.311	-0.316	-0.308	-0.31	-0.317
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sectoral growth effect, depending on external finance (other countries)	0.395	-0.218	0.133	0.449	0.021	-0.010	0.010	0.025	0.003
	(0.29)	(0.56)	(0.72)	(0.19)	(0.26)	(0.9)	(0.79)	(0.74)	(0.97)
Differential sectoral growth effect (Emerging Europe)	-1.09	-0.9	1.249	-0.847	0.042	0.15	0.112	0.062	0.09
	(0.02)	(0.19)	(0.03)	(0.16)	(0.01)	(0.03)	(0.01)	(0.29)	(0.07)
Memo: Sectoral growth effect, depending on external finance (Emerging Europe)	-0.695	-1.118	1.382	-0.397	0.063	0.14	0.123	0.087	0.093
	(0.03)	(0.04)	(0.02)	(0.36)	(0.01)	(0.05)	(0.04)	(0.02)	(0.04)
Memo: Differential in real growth rates in Emerging Europe	1.55	1.70	1.35	-0.62	1.46	0.72	1.92	1.44	1.21
Memo: Difference in differential in real growth rates	2.43	1.37	1.22	-1.31	0.98	0.77	1.76	1.03	1.18
Observations	992	992	992	992	992	992	992	992	992
Number of Countries	25	25	25	25	25	25	25	25	25

Note: The table shows results from nine regressions that differ with respect to the financial integration measure used. The dependent variable is average annual growth in sectoral output. Each regression includes country and industry fixed effects (results not shown), as well as two interaction terms: industry external dependence interacted with financial integration; and this term in turn interacted with a dummy variable denoting whether the country belongs to Emerging Europe. "Sectoral growth effect...(other countries)" denotes the coefficient of the first interaction term; "Differential sectoral growth effect in Emerging Europe" that of the second interaction term. In addition, the total sectoral growth effect in Emerging Europe is shown, computed as the sum of the coefficients. Finally, the table displays the differences in sectoral growth rates between the sectors at the 75- and 25-percentiles of external dependence in the countries at the 75- and 25-percentiles of the respective financial integration measure for Emerging Europe, as well as the difference in the differential in real growth rates between the two country groups.

Data sources: UNIDO (sectoral ouput data); IMF (current account data); Claessens et al. (2008) (foreign bank number and asset shares) and Lane and Milesi-Ferretti (2007) (all other financial integration measures).

In order to get a sense of the economic significance of the coefficients, we calculate dif-

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[18]Debt flows also show a different pattern than other financial integration measures in all following regressions.

ferentials in real growth rates, as suggested by Rajan and Zingales (1998). That is, we consider two industries at the 25th and 75th percentile of external dependence, and two countries at the 25th and 75th percentile of the respective measure of financial integration. Then we compare the difference between the sectoral growth rates of the two industries across the two countries. The number of 1.55 in the fifth line of the first column then implies that an externally dependent industry grows by 1.55 percentage points faster than a hardly externally dependent industry if it is based in a financially integrated country rather than in a hardly financially integrated country (holding constant industry shares). We hence see that the sectoral growth effect of financial integration is substantial in European transition countries: It ranges between 0.72 and 1.92 percentage points. The sixth line finally displays the *difference* in the differentials in real growth rates between European transition countries and other developing countries. We see that this difference is substantial in economic terms. The value of 2.43 in the first column, for example, implies that the differential real growth rate (as calculated above) in Emerging Europe exceeds that in other developing countries by 2.43 percentage points.

Hence, there is strong evidence for European transition countries that industries depending on external financing grow relatively faster (compared to industries not depending on external financing) in financially integrated countries than in less integrated countries. There exists no such effect for developing countries outside of Emerging Europe.

5 Why is Emerging Europe Different? - Evidence From Threshold Regressions

5.1 Empirical Model

Given these strong results on the differences between the European transition region and other developing countries, the question arises what drives these remarkable differences. Threshold effects and other types of non-linearities have become popular explanations of the difficulty to detect growth effects of financial integration in broad country samples. One of the first papers to find evidence of threshold effects is by Borensztein, De Gregorio, and Lee (1998) who detect threshold effects in human capital regarding the effect of FDI on economic growth. Brezigar-Masten, Coricelli, and Masten (2008) examine whether financial development and financial integration have non-linear effects on economic growth,

using macroeconomic and industry-level data for Europe. The authors conclude that the benefits of financial integration become significant at higher levels of financial development. Kose, Prasad, and Taylor (2009) examine various types of threshold effects for financial integration (e. g., financial development, institutional quality, regulation, trade openness, macroeconomic policies) in a sample of 84 countries (21 industrial and 63 developing countries) over the period 1995-2004. The results indicate that thresholds exist, but their level depends on the type of capital examined (i. e., thresholds are lower for FDI and portfolio equity flows). Abiad, Leigh, and Mody (2009) provide evidence that part of the observed difference between Europe and other countries can be explained by threshold effects in institutional quality and financial integration itself. However, Imbs (2009) stresses in a comment on that paper that a significant part of the European effect remains unexplained, even after including threshold effects.

However, since most of these studies include both developing and developed countries, their results may be driven by the difference between developing and developed countries, and not by differences within the group of developing countries. We therefore test for threshold effects within our sample of developing countries, using the same sectoral analysis as above (Section 4.1). We check for threshold effects in several dimensions: financial development (as suggested by Prasad, Rajan, and Subramanian, 2007), institutional quality and financial integration itself (as suggested by Abiad, Leigh, and Mody, 2009), and in addition also trade integration, the second pillar of the "development model" in the European transition region.

In order to test for the presence of threshold effects, we add another interaction term to the baseline model, which multiplies the original interaction term with a threshold dummy variable indicating whether some other variable (measuring financial development, institutional quality, trade integration, or financial integration itself) is above the sample median. Hence, we estimate the following model:

$$
\begin{aligned}
Growth_{j,k} = {} & \alpha_k + \beta_j + \gamma \cdot industry\,share_{j,k} \\
& + \delta_0 \cdot (ext.dependence_j \cdot fin.integration_k) \\
& + \delta_1 \cdot (ext.dependence_j \cdot fin.integration_k) \cdot Emerg.Europe\,dummy_k \\
& + \delta_2 \cdot (ext.dependence_j \cdot fin.integration_k) \cdot threshold\,dummy_k + \varepsilon_{j,k},
\end{aligned}
\tag{2}
$$

Our estimation strategy is to see whether the interaction term with the Emerging Eu-

rope dummy remains significant, once we introduce threshold effects. If not, threshold effects are able to explain the difference between European transition countries and other developing countries. If yes, there must be something else that explains the observed differences.

5.2   Threshold Variables

The threshold dummy variables are equal to one if the respective threshold variable (*financial development, institutional quality, trade integration,* or *financial integration* itself) is above the sample mean of countries, and zero otherwise.[19] Financial development is measured by private domestic credit over GDP and is taken from Beck, Demirgüc-Kunt, and Levine (2000). Institutional quality is measured by the variable "Regulatory quality" provided by the World Bank (Worldwide Governance Indicators). The variable refers to the year 1998. Trade integration variable is measured by an "adjusted trade intensity" according to Pritchett (1996). It is created by taking the residuals from a regression of openness on the log of population, size, remoteness, income per capita (as well as its square) and indicator variables for oil exports and landlockedness of a country. Estimation takes place in a panel framework, but the variable is created from the resulting 1998 value. The cutoff values of these threshold dummies, as well as the values for individual countries are displayed in Table 4. Financial integration is measured by the same variables as above. See Table 2 for cutoff levels.

5.3   Results

The first set of regressions (Table 5) considers threshold effects in *financial development* (private credit/GDP). The idea is that financial integration may be more beneficial if the financial system of the developing country is sophisticated enough to efficiently absorb foreign funds. Let us first explain the interpretation of the coefficients in the threshold regressions. The coefficients in the second line (corresponding to δ_0 in equation 2) now denote the sectoral growth effect for countries that are neither in the transition region, nor above the median of financial development. The coefficient in the third line (corresponding to δ_1) has a similar interpretation as before: it denotes the differential sectoral growth

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[19]As a robustness check, we reran all regressions using alternative thresholds, such as the 25th or 75th percentiles. In addition, we allow all variables to enter continuously in the interaction terms.

Table 4

Values of additional threshold variables

Country	Financial Development	Quality of Institutions	Trade Integration
Albania	0.0	-0.3	-49.1
Armenia	0.1	-0.7	-20.8
Botswana	0.1	1.1	26.7
Brazil	0.4	0.4	4.4
Bulgaria	0.1	0.2	27.4
Czech Republic	0.6	0.7	34.8
Estonia	0.2	1.4	41.0
Georgia	0.0	-0.8	-15.1
Hungary	**0.2**	1.1	47.7
Indonesia	0.5	0.0	16.7
Jordan	0.7	0.7	51.8
Korea Rep.	1.4	**0.4**	-6.5
Latvia	0.1	1.0	-18.7
Lithuania	0.1	0.7	-3.7
Macedonia, FYR	0.2	-0.2	-20.5
Madagascar	0.1	-0.6	3.9
Moldova	0.1	-0.2	-1.2
Panama	0.7	0.9	70.8
Philippines	0.5	0.5	54.7
Poland	0.2	0.7	-28.1
Romania	0.1	0.4	-3.6
Slovak Republic	0.5	0.2	32.3
Slovenia	0.3	1.1	-3.9
South Africa	1.1	0.2	**0.4**
Uruguay	0.4	1.0	-39.3
Average sector growth rate above threshold	4.62	5.54	5.17
Average sector growth rate below threshold	5.73	4.77	5.16

Notes: Bold figures indicate the median. All 50%-threshold dummies take on a value of 1 when greater than the median. Sources: Financial development measured by domestic private credit over GDP, Beck et al. (2000). Institutional quality measured by regulatory quality, World Bank (2008). For definition of trade integration, see text.

effect in European transition countries relative to other developing countries (holding constant financial development). Finally, the coefficient in the fourth line (corresponding to δ_2) gives the differential sectoral growth effect in countries above the median of financial development relative to those below the median (independently of whether the country is in the European transition region or not).

Table 5

Evidence on Threshold Effects - Financial Development

(Regression coefficients; p-values in parentheses; dependent variable: average growth in sectoral output, 1998-2005)

| | Financial integration (FI) measure | | | | | | | | |
| | | | | | | | | Foreign bank | Foreign bank |
Threshold effects in financial development:	CA	ΔNFA	ΔFDI	ΔD	GFI	FDI	D	asset share	number share
Industry share	-0.327	-0.306	-0.32	-0.322	-0.322	-0.33	-0.323	-0.317	-0.324
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sectoral growth effect, depending on external finance, in other countries with below-median financial development	0.522	0.181	-1.099	1.710	0.004	-0.094	-0.023	0.004	-0.036
	(0.2)	(0.84)	(0.21)	(0.03)	(0.89)	(0.37)	(0.66)	(0.96)	(0.65)
Differential sectoral growth effect in Emerging Europe	-1.085	-1.242	1.960	-1.902	0.050	0.204	0.137	0.075	0.116
	(0.02)	(0.19)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.23)	(0.06)
Differential sectoral growth effect in countries with above-median financial development	-0.587	-0.423	1.362	-1.324	0.018	0.130	0.050	0.051	0.054
	(0.25)	(0.62)	(0.09)	(0.08)	(0.33)	(0.09)	(0.25)	(0.24)	(0.32)
Memo: Difference in differential in real growth rates	2.61	2.02	1.92	-3.03	1.20	1.05	2.42	1.31	1.72
Observations	992	992	992	992	992	992	992	992	992
Number of Countries	25	25	25	25	25	25	25	25	25

Note: Financial development is measured by domestic private credit over GDP and is taken from Beck et al. (2000). For other sources and explanatory notes, see Table 2 and text.

We find only weak evidence of threshold effects in financial development. The coefficient of the threshold interaction (fourth line) is mostly insignificant (apart from the coefficient on debt flows, which again has the "wrong" sign, and the two FDI measures which are significant at the 10 percent level). Hence, threshold effects can be found only with respect to foreign direct investment. Most importantly, the Emerging Europe interaction term remains significant in all cases, compared to the baseline regression.[20] Moreover, the difference in the differential in real growth rates between Emerging Europe and other developing countries actually _increases_ in most instances (on average, it increases by about one third).[21] Hence, threshold effects in financial development cannot explain why Emerging Europe appears to be different.

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[20]It also turns significant for debt flows, but again in the opposite direction.

[21]As an alternative, we measured financial development by stock market capitalization. These regressions yield the same results: there is little evidence of threshold effects, and the Emerging Europe interaction term remains significant.

Table 6

Evidence on Threshold Effects - Institutional Quality

(Regression coefficients; p-values in parentheses; dependent variable: average growth in sectoral output, 1998-2005)

Threshold effects in institutional quality:	Financial integration (FI) measure								
	CA	ΔNFA	ΔFDI	ΔD	GFI	FDI	D	Foreign bank asset share	Foreign bank number share
Industry share	-0.322	-0.31	-0.308	-0.31	-0.316	-0.324	-0.319	-0.307	-0.32
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sectoral growth effect, depending on external finance, in other countries with below-median institutional quality	0.383	-0.229	-0.404	0.488	0.012	-0.078	-0.016	0.034	-0.010
	(0.3)	(0.55)	(0.6)	(0.2)	(0.71)	(0.57)	(0.76)	(0.68)	(0.89)
Differential sectoral growth effect in Emerging Europe	-1.231	-1.001	1.387	-0.753	0.040	0.134	0.099	0.067	0.088
	(0.03)	(0.25)	(0.03)	(0.23)	(0.01)	(0.04)	(0.02)	(0.27)	(0.08)
Differential sectoral growth effect in countries with above-median institutional quality	0.203	0.152	0.647	-0.191	0.008	0.070	0.038	-0.014	0.017
	(0.69)	(0.85)	(0.36)	(0.7)	(0.67)	(0.47)	(0.3)	(0.76)	(0.73)
Memo: Difference in differential in real growth rates	2.97	1.63	1.36	-1.20	0.95	0.69	1.76	1.17	1.30
Observations	992	992	992	992	992	992	992	992	992
Number of Countries	25	25	25	25	25	25	25	25	25

Note: Institutional quality is measured by regulatory quality and is taken from the World Bank (2008). For other sources and explanatory notes, see Table 2 and text.

The results are similar in the regressions including a threshold dummy interaction for *institutional quality* (see Table 6). Here the threshold interaction never has a significant effect on economic growth, and the Emerging Europe interaction term again stays significant in all cases. The difference in differential growth rates between the two groups of countries is almost unchanged (it even increases slightly). Hence, threshold effects in institutional quality cannot explain either why the European transition region is different.[22]

The third threshold specifications focus on *trade integration*. The results are again similar to the previous threshold specifications (see Table 7). The interaction term with the threshold variable is insignificant in all cases. In line with the specifications for financial development and institutional quality, the Emerging Europe interaction term remains significant in all cases. The difference in the differential in real growth rates between Emerging Europe and other developing countries is about the same as in the baseline specification. Hence, these results imply that threshold effects in trade integration cannot be an explanation for the observed difference either.

The final threshold specification focuses on *financial integration* itself. We ran regressions for all of our financial integration measures. For most measures, the results are virtually identical to the preceding threshold specifications. Some noteworthy results are, how-

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[22] Again, we also tried an alternative measure of institutional quality, namely "rule of law." The results are unchanged.

Table 7

Evidence on Threshold Effects - Trade Integration

(Regression coefficients; p-values in parentheses; dependent variable: average growth in sectoral output, 1998-2005)

Threshold effects in trade integration:	Financial integration (FI) measure								
	CA	ΔNFA	ΔFDI	ΔD	GFI	FDI	D	Foreign bank asset share	Foreign bank number share
Industry share	-0.329	-0.309	-0.318	-0.309	-0.320	-0.330	-0.325	-0.315	-0.324
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sectoral growth effect, depending on external finance, in other countries with below-median trade integration	0.465	-0.135	-1.298	1.187	-0.001	-0.149	-0.043	0.009	-0.024
	(0.22)	(0.86)	(0.24)	(0.04)	(0.97)	(0.35)	(0.45)	(0.92)	(0.73)
Differential sectoral growth effect in Emerging Europe	-0.889	-0.936	1.068	-1.279	0.039	0.141	0.102	0.055	0.083
	(0.06)	(0.2)	(0.06)	(0.05)	(0.01)	(0.03)	(0.01)	(0.35)	(0.1)
Differential sectoral growth effect in countries with above-median trade integration	-0.480	-0.089	1.450	-0.893	0.017	0.118	0.057	0.031	0.048
	(0.24)	(0.9)	(0.14)	(0.13)	(0.33)	(0.23)	(0.14)	(0.43)	(0.26)
Memo: Difference in differential in real growth rates	2.14	1.52	1.04	-2.04	0.93	0.73	1.80	0.96	1.23
Observations	992	992	992	992	992	992	992	992	992
Number of Countries	25	25	25	25	25	25	25	25	25

Note: Trade intergration is measured as the residual from a panel regression of openness (i.e. EX + IM in per cent of GDP) on the logs of population, area, remoteness, income per capita, income per capita squared, and indicator variables for oil exports and landlockedness. For other sources and explanatory notes, see Table 2 and text.

ever, obtained for the financial integration measures related to parent banking. Table 8 presents the results for the regressions using foreign bank asset share as interaction variable; Table A.4 in the Appendix displays the results for the regressions using foreign bank number shares.[23]

While there is again no evidence of threshold effects, the coefficient of the Emerging Europe interaction term now becomes smaller (in absolute value) in all regressions and is insignificant in all but two regressions (see Table 8). The difference between Emerging Europe and other developing countries in terms of the differential in real growth rates decreases markedly (by about one fifth on average). Results are similar when using the foreign bank number share as threshold variable, though the reduction in the coefficients and in differential growth rates is somewhat smaller. These results are remarkable. They suggest that the presence of foreign banks in the region may be related to the question of why Emerging Europe appears to be different. But even here, the unexplained part of the difference remains substantial.[24]

The large unexplained difference even remains when we include all four threshold interactions (financial development, institutional quality, trade integration and financial inte-

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[23]From a conceptual point of view, the first variable is preferred. However, the second may be subject to less measurement error.

[24]These results are broadly in line with the country-level results by Abiad, Leigh, and Mody (2009).

Table 8

Evidence on Threshold Effects - Financial Integration (Foreign Bank Asset Share)

(Regression coefficients; p-values in parentheses; dependent variable: average growth in sectoral output, 1998-2005)

Threshold effects in financial integration (foreign bank asset share):	Financial integration (FI) measure								
	CA	ΔNFA	ΔFDI	ΔD	GFI	FDI	D	Foreign bank asset share	Foreign bank number share
Industry share	-0.323	-0.311	-0.300	-0.307	-0.311	-0.317	-0.309	-0.313	-0.325
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sectoral growth effect, depending on external finance, in other countries with below-median financial integration	0.414	-0.209	0.119	0.503	0.005	-0.054	-0.022	-0.016	-0.106
	(0.27)	(0.58)	(0.75)	(0.15)	(0.85)	(0.61)	(0.65)	(0.88)	(0.33)
Differential sectoral growth effect in Emerging Europe	-0.771	-0.696	0.894	-0.636	0.033	0.106	0.080	0.051	0.075
	(0.13)	(0.41)	(0.54)	(0.28)	(0.05)	(0.16)	(0.07)	(0.39)	(0.13)
Differential sectoral growth effect in countries with above-median financial integration	-0.485	-0.314	0.377	-0.687	0.016	0.075	0.053	0.043	0.095
	(0.29)	(0.7)	(0.79)	(0.22)	(0.34)	(0.38)	(0.13)	(0.53)	(0.18)
Memo: Difference in differential in real growth rates	1.86	1.13	0.87	-1.01	0.80	0.55	1.41	0.90	1.10
Observations	992	992	992	992	992	992	992	992	992
Number of Countries	25	25	25	25	25	25	25	25	25

Note: Financial integration is measured by the foreign bank asset share from Claessens et al. (2008). For other sources and explanatory notes, see Tables 2, 3, and text.

gration, measured either by foreign bank asset or number share) at the same time (see Tables 9 and A.5). In fact, the difference between Emerging Europe and other developing countries even increases in some regressions, compared to the baseline regression.

As a further robustness check, we repeated all regressions using different thresholds, such as the 25th and 75th percentiles. For all threshold variables, the main result is robust: the Emerging Europe interaction term remains statistically significant in most cases. In addition, we reran all regressions using continuous interactions terms instead of threshold dummies. Hence, the threshold dummy in equation 2 would be replaced, for example, by financial development itself. Again, the Emerging Europe interaction term remains significant in most cases, even in the regressions using foreign bank asset or number shares as interaction variables. Taken together, these results imply that none of the considered factors can satisfactorily explain the differences between Emerging Europe and other developing countries. As a final step, we therefore analyze whether political integration may explain why financial integration appears to work better in European transition countries than elsewhere.

Table 9

Robustness: All Interaction Terms - Foreign Bank Asset Shares

(Regression coefficients; p-values in parentheses; dependent variable: average growth in sectoral output, 1998-2005)

	Financial integration (FI) measure								
	CA	ΔNFA	ΔFDI	ΔD	GFI	FDI	D	Foreign bank asset share	Foreign bank number share
Industry share	-0.327	-0.309	-0.325	-0.321	-0.326	-0.334	-0.33	-0.316	-0.328
	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sectoral growth effect, depending on external finance, in other countries with below-median values of all threshold variables	0.502	-0.011	-1.641	2.057	-0.022	-0.156	-0.071	-0.012	-0.117
	0.22	0.99	0.19	0.02	0.63	0.42	0.29	0.91	0.29
Differential sectoral growth effect in Emerging Europe	-0.957	-0.837	1.627	-1.790	0.037	0.168	0.081	0.069	0.089
	0.11	0.49	0.31	0.03	0.09	0.09	0.17	0.3	0.17
Differential sectoral growth effect in countries with above-median financial development	-0.367	-0.862	1.012	-1.312	0.012	0.103	0.007	0.040	0.028
	0.5	0.41	0.28	0.08	0.54	0.27	0.9	0.38	0.62
Differential sectoral growth effect in countries with above-median institutional quality	0.194	-0.097	0.296	-0.052	0.004	0.025	0.022	-0.017	-0.017
	0.72	0.9	0.68	0.92	0.83	0.81	0.61	0.76	0.79
Differential sectoral growth effect in countries with above-median trade integration	-0.191	0.679	0.614	-0.346	0.011	0.032	0.044	0.009	0.019
	0.76	0.53	0.57	0.56	0.53	0.78	0.28	0.83	0.67
Differential sectoral growth effect in countries with above-median financial integration	-0.280	-0.653	0.145	-0.795	0.012	0.029	0.032	0.027	0.090
	0.68	0.54	0.92	0.22	0.47	0.74	0.37	0.74	0.33
Memo: Difference in differential in real growth rates	2.31	1.36	1.59	-2.85	0.89	0.87	1.43	1.20	1.31
Observations	992	992	992	992	992	992	992	992	992
Number of Countries	25	25	25	25	25	25	25	25	25

Note: For sources and explanatory notes, see preceding tables and text.

6 Why is Emerging Europe Different? – The Role of Political Integration

6.1 Empirical Model

The analysis of financial, institutional and trade threshold effects has shown that the difference between European transition countries and other countries is not easily explained. Only financial integration in the form of parent banking allows to explain at least part of the difference. Therefore, we now turn to the third pillar of the development model in the European transition region, political integration. The interactions between financial and political integration have hardly been analyzed in the literature.[25] For European transition countries, the degree of political integration with the EU is certainly one of the most important determinants of economic and political conditions.

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[25]Campos and Coricelli (2009) analyze the relationship between democratization and financial reforms.

Political integration may affect economic growth in several ways. First, it may increase political stability. This can even happen when several developing countries in the same region conclude a regional integration agreement. The effect will be even stronger if the regional integration agreement includes developed countries. Second, there may be positive institutional spillover effects among politically integrated countries. This effect will again be strongest if developing countries join a regional integration agreement with highly developed countries, as is the case in the EU. Here one would expect an "export" of institutions from the country with more developed institutions to the developing country.[26] Such effects may result in an (expected) increase in total factor productivity (TFP). The expectation of improvements in political stability and institutional quality influences foreign investors' behavior. If, for example, political integration raises expectations of future reforms and of a firm commitment to sound economic policy, investors may be willing to pursue potentially growth-enhancing investment strategies that otherwise would not be profitable, or excessively risky. For example, they may be willing to enter long-term commitments. The creation of branches and subsidiaries of foreign banks in Eastern Europe is a good example. Such investments may speed up the transition to a higher steady state, or even increase steady state growth rates, e. g., through financial deepening. Given these arguments, we would expect the benefits of financial integration to be largest when it is accompanied by political integration.

To analyze the role of political integration, we start from the basic specification and add another interaction term:

$$
\begin{aligned}
Growth_{j,k} = {} & \alpha_k + \beta_j + \gamma \cdot industry\ share_{j,k} \\
& + \delta_0 \cdot (ext.dependence_j \cdot fin.integration_k) \\
& + \delta_1 \cdot (ext.dependence_j \cdot fin.integration_k) \cdot Emerg.Europe\ dummy_k \\
& + \delta_2 \cdot (ext.dependence_j \cdot fin.integration_k) \cdot political\ integration_k + \varepsilon_{j,k},
\end{aligned}
\tag{3}
$$

The estimation strategy is the same as in the section on threshold effects (Section 5). The critical question is how to define political integration.

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[26]However, we have even seen such spillover effects among developed countries in the EU. Consider, for example, the effects of EU competition policy on countries like Germany.

6.2 Political Integration Index

In the literature, there are several approaches to measure political integration. Beckfield (2006) measures political integration as the number of cases referred from national courts to the European Court of Justice. Lee and Barro (2006) measure political proximity by the extent to which two states have common foreign policy interests. The latter are proxied by the voting correlations in the UN General Assembly. Dreher (2006) and Dreher and Martens (2008) construct the KOF-Index of Globalization, which contains a political dimension that comprises the number of embassies and high commissions in a country, the number of international organizations to which the country is a member, the number of UN peace missions a country participated in, and the number of treaties signed between two or more states since 1945. All these measures capture only very specific aspects of political integration. We therefore construct a broad index of political integration (see Appendix A.3 for an in-depth description of the construction of the index).

We follow the work by Nye (1968), which theoretically identifies four dimensions of the political integration process: an *institutional* dimension, a *policy* dimension, an *attitude* dimension (subdivided in attitudes of the government and the public) and a *stability* dimension. We then operationalize each of these dimensions by creating a corresponding subindex that takes on a value between 0 and 10. Finally, we combine all subindices into a composite index - also ranging on a scale from 0 to 10, where 10 denotes the highest level of political integration. For each of our sample countries, we identify the regional integration agreement that we consider the most important one. A full list is displayed in Table 10.

The dimensions are operationalized as follows: The *institutional* dimension is supposed to capture the degree of supranationality of each regional integration agreement. We approximate it by setting the corresponding organizational budgets in relation to the number of member countries in the respective regional integration agreement. The *policy* dimension is supposed to measure the variety and extent of policy coordination that a regional integration agreement implies. It consists of five subcomponents that evaluate different types of policies (i.e. security policy, trade policy, monetary policy, free movement of people, further integration intentions). The *attitude* dimension is split in two parts. First, to measure the conformity of government views across countries, we examine the correlation of voting behavior in the UN General Assembly between each country and a corresponding base country over the period 1998 to 2005 (cf. Lee and Barro, 2006).

Country	Regional Integration Agreement	Institutions	Policy	Attitude (Government)	Attitude (Public opinion)	Security	Final Score
		30%	40%	10%	10%	10%	
Slovak Republic	European Union	10	10	9.4	5.2	6.7	**9.1**
Slovenia	European Union	10	10	9.5	3.6	7.1	**9.0**
Estonia	European Union	10	9	9.4	6.6	6.5	**8.9**
Latvia	European Union	10	9	9.3	3.8	6.3	**8.5**
Lithuania	European Union	10	9	9.6	2.9	6.5	**8.5**
Hungary	European Union	10	8	9.7	5.4	6.8	**8.4**
Poland	European Union	10	8	9.5	5.0	6.3	**8.3**
Czech Republic	European Union	10	8	9.5	4.0	6.8	**8.2**
Bulgaria	European Union	10	7	9.4	6.1	5.7	**7.9**
Romania	European Union	10	7	9.4	4.0	5.6	**7.7**
Albania	SAP Process	2	6	9.1	10.0	4.1	**5.3**
Macedonia, FYR	EU Candidate	3	6	9.2	5.8	3.7	**5.2**
Moldova	Eastern Partnership	1	4	9.0	8.0	4.4	**4.0**
Botswana	African Union	1	5	4.4	5.5	6.8	**4.0**
Uruguay	UNASUR	1	5	4.4	5.3	6.5	**3.9**
Brazil	UNASUR	1	5	3.7	6.5	4.8	**3.8**
South Africa	African Union	1	5	4.4	5.5	4.6	**3.8**
Georgia	Eastern Partnership	1	4	8.3	6.1	2.8	**3.6**
Armenia	Eastern Partnership	1	4	5.4	5.9	4.3	**3.5**
Philippines	ASEAN	1	3	7.8	7.5	2.9	**3.3**
Indonesia	ASEAN	1	3	9.2	5.9	2.4	**3.3**
Jordan	League of Arab States	1	2	8.7	7.8	4.5	**3.2**
Madagascar	African Union	1	3	4.1	5.5	4.9	**3.0**
Panama	Central American Integration System	1	3	1.7	5.9	5.3	**2.8**
Korea Rep.	ASEAN (only dialouge partner)	1	2	0.0	4.3	5.5	**2.1**

Notes: For a detailed description of sources and procedures, see text and Appendix.

Table 10

Second, to capture the attitude of the public towards a regional integration agreement, we use a set of questions from the World Values Survey concerning confidence in the local regional integration agreement.[27] Finally, the *stability* dimension is supposed to proxy for the stability of the political integration agreement in the future, based on the current and past political stability in a country. Here, we use the Political Stability and Absence of Violence index from the Worldwide Governance Indicators provided by the World Bank.

By assigning a weighting scheme of 30%, 40%, 20%, 10%, we then combine the four subindices to a composite index of political integration. The resulting index values for all sample countries are shown in Table 10. As expected, countries from Emerging Europe obtain high scores of political integration (see last column of Table 10). However, we also observe some variation within this group of countries. For example, Romania receives a score of 7.7, compared to a score of 9.1 for the Slovak Republic, even though both countries are EU members. It is also interesting to see that a country like (South) Korea obtains a very low value of political integration. Even though Korea is a relatively open country, it is not strongly politically integrated in the region. It is not even a regular member of ASEAN, but only serves as a dialogue country.

We refrain from estimating threshold effects of political integration because a threshold dummy here would be almost indistinguishable from the Emerging Europe dummy. Therefore, it is almost tautological that the Emerging Europe interaction becomes insignificant if a threshold dummy of political integration is introduced. By using the index as a continuous variable instead of a threshold variable, more information is provided that may help distinguish between the regional dummy and the index of political integration.

6.3   Results

The results are revealing (see Table 11). For the first time, all coefficients of the Emerging Europe interaction term become insignificant and their p-values take on much higher values than before. Hence, there are no longer significant differences between the growth effects of financial integration in Emerging Europe and other developing countries once we control for an interaction with political integration. However, the interaction terms with political integration are also statistically insignificant. These findings can be explained

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[27]Data from this survey was also used by Ekinci, Kalemli-Ozcan, and Sorensen (2008) who analyze the effect of social capital on the degree of financial integration of regions within the EU.

by the high correlation between the Emerging Europe dummy variable and the political integration index (the correlation coefficient is 0.92). Indeed, the two interaction terms are jointly significant in most cases. Hence, this approach is not able to disentangle the effects of the two variables due to the high correlation between them.

Table 11

Financial and Political Integration - World

(Regression coefficients; p-values in parentheses; dependent variable: average growth in sectoral output, 1998-2005)

| | Financial integration (FI) measure | | | | | | | | |
	CA	ΔNFA	ΔFDI	ΔD	GFI	FDI	D	Foreign bank asset share	Foreign bank number share
Industry share	-0.322	-0.31	-0.3	-0.313	-0.313	-0.316	-0.309	-0.309	-0.317
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sectoral growth effect, depending on external finance (other countries)	0.147	0.568	1.365	-1.858	0.071	0.234	0.125	0.069	-0.001
	(0.93)	(0.87)	(0.62)	(0.4)	(0.17)	(0.42)	(0.33)	(0.66)	(0.99)
Differential sectoral growth effect (Emerging Europe)	-1.445	0.430	3.161	-4.332	0.118	0.517	0.281	0.122	0.085
	(0.54)	(0.94)	(0.48)	(0.21)	(0.17)	(0.28)	(0.18)	(0.59)	(0.7)
Differential sectoral growth effect through political integration	0.073	-0.242	-0.374	0.69	-0.015	-0.072	-0.034	-0.012	0.001
	(0.87)	(0.81)	(0.66)	(0.3)	(0.35)	(0.42)	(0.39)	(0.77)	(0.98)
Observations	992	992	992	992	992	992	992	992	992
Number of Countries	25	25	25	25	25	25	25	25	25

Note: The construction of "Political Integration" is explained in the text. For other sources and explanatory notes, see Tables 2 and 3 and text.

To circumvent this multicollinearity problem, we present an alternative specification where we restrict the sample to the transition region only. Thus, we focus on the variation in the political integration index *within* the transition region. In this specification, we no longer include a regional interaction term (i. e., δ_1 does not exist here), as the sample corresponds almost exactly to the Emerging Europe region used to define the regional dummy. The difference consists of only three countries (Armenia, Moldova, and Georgia), which belong to the transition sample, but not to Emerging Europe.

The results from the second approach, based on a sample of 15 countries from the transition region, are presented in Table 12. Most strikingly, the interaction term with the political integration index has the expected sign in all but one regression (again debt flows) and is mostly significant at the 5 percent level. Two of the three cases where the interaction term is not significant are in regressions using foreign bank presence as a measure of financial integration. This is presumably due to the fact that the variation of foreign bank presence within the group of transition countries is relatively small; thus, it may be difficult to estimate its effect precisely in a sample that is restricted to transition

31

countries.

The effect of political integration is also economically important. Raising the political integration index from the level of Albania (5.3) to that of Poland (8.3) increases the differential in real growth rates by between 0.39 and 1.92 percentage points. Changing the index from the lowest value (Korea, 2.1) to the highest (Slovak Republic, 9.1) would amount to a change in the differential in real growth rates of up to 4.48 percentage points. This is a substantial effect.

Table 12

Financial and Political Integration - Transition Countries

(Regression coefficients; p-values in parentheses; dependent variable: average growth in sectoral output, 1998-2005)

	Financial integration (FI) measure								
	CA	ΔNFA	ΔFDI	ΔD	GFI	FDI	D	Foreign bank asset share	Foreign bank number share
Industry share	-0.339	-0.324	-0.343	-0.346	-0.354	-0.354	-0.352	-0.342	-0.358
	(0.04)	(0.05)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)
Sectoral growth effect, depending on external finance	1.186	0.173	-4.272	5.134	-0.068	-0.409	-0.174	-0.013	-0.102
	(0.16)	(0.95)	(0.08)	(0.02)	(0.31)	(0.13)	(0.11)	(0.95)	(0.65)
Differential sectoral growth effect through political integration	-0.223	-0.166	0.587	-0.684	0.012	0.055	0.028	0.015	0.026
	(0.03)	(0.65)	(0.04)	(0.02)	(0.05)	(0.05)	(0.04)	(0.46)	(0.26)
Memo: Differential in real growth rate due to political integration	0.36	0.13	0.64	-1.20	0.32	0.21	0.22	0.21	0.29
Observations	655	655	655	655	655	655	655	655	655
Number of Countries	15	15	15	15	15	15	15	15	15

Note: The construction of "Political Integration" is explained in the text. The memo item transforms the differential sectoral growth effect through political integration (third line) into the corresponding differential in real growth rates per index unit. For other sources and explanatory notes, see Tables 2 and 3 and text.

Taken together, these results suggest that political integration may play a crucial role in explaining why Emerging Europe was different in the considered time period. In the European transition region, financial integration was accompanied by political integration with the EU, which may have provided an anchor for relatively stable economic and political prospects. This in turn may have influenced the way foreign investors employed their capital in the region. The strong presence of foreign banks in European transition countries could itself be a consequence of political integration. This explanation would rationalize the lack of statistical significance of the Emerging Europe interaction term in the threshold regressions for financial integration when the latter was measured by foreign bank presence. Overall, these results indicate that the benefits a country can reap from financial integration are much larger if it is accompanied by political integration.

7   Conclusion

Using the methodology by Rajan and Zingales (1998) based on industry-level data from a sample of low and middle income countries, we have shown that the European transition region benefited much more strongly from financial integration in terms of economic growth than other developing countries since the late 1990s. The effect of financial integration on growth is not only statistically significant, but also economically important. Hence, the experience of Emerging Europe seems to conform to neoclassical growth theory, which predicts that openness to foreign capital should allow countries to grow faster toward their steady state income levels.

The difference between the effect of financial integration in Emerging Europe and elsewhere in our sample period cannot be explained by threshold effects in financial development, institutional quality, and trade integration. There is no evidence of such threshold effects in our sample, and the Emerging Europe interaction term remains significant in these regressions. However, there is substantial evidence that the finding can be explained by the region's high level of political integration with the European Union. Within the group of transition countries, the effect of financial integration was found to be strongest for countries that are most highly politically integrated with the EU. This suggests that political and financial integration are complementary and that political integration can considerably increase the benefits of financial integration. A possible explanation of our findings is that the process of political integration with Europe created expectations of a stable political and economic environment in the European transition countries and of the eventual catch-up of their institutions with those of Western European countries. This in turn made it profitable for foreign investors to engage in projects that would otherwise have been considered too risky, with beneficial effects on economic growth.

We also found some evidence that threshold effects in financial integration in the form of foreign bank presence help explain why financial integration "worked" in the transition region. In the respective threshold specification, the Emerging Europe interaction term became insignificant in most regressions. There are two interpretations of this result. First, a high degree of foreign bank presence may simply be picking up the political integration effect that we find separately. Second, European parent banks may have provided their subsidiaries in the transition region with resources and knowledge, with beneficial effects on financial systems at large. This may have allowed for a more efficient allocation of foreign capital.

Our results have important policy implications. They suggest that the negative side effects of financial integration that became evident in the current crisis, such as credit booms, over-indebtedness of firms and households, and especially a high exposure to foreign currency debt, must be weighed carefully against clear evidence that financial integration has had significant growth effects in the transition region. This does not imply that the risks associated with financial integration do not need to be taken seriously, but it does suggest that policy should seek various ways to better manage those risks, rather than push back against financial integration per se (see also European Bank for Reconstruction and Development, 2009, 2010).

Furthermore, our results suggest that financial integration works best when accompanied by a process of political integration with more advanced countries. In fact, the same forces stimulating growth in the presence of political integration may also lower costs in times of crisis. Indeed, there is evidence of a protective role of foreign banks in the current crisis (see Berglöf, Korniyenko, Plekhanov, and Zettelmeyer, 2009; Herrmann and Mihaljek, 2010).[28] Emerging Europe provides the most prominent example of such a political integration process, and in this respect, it is indeed different from other developing countries. But, in the medium term, the European model might also be replicable elsewhere.

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[28]See also De Haas and van Lelyveld (2010) on internal capital markets of multinational banks.

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A   Appendix

A.1   Country selection

Starting with all countries contained in the UNIDO (Revision 3) database, the sample is narrowed down by excluding those countries that satisfy one of the following four criteria (similar to Prasad, Rajan, and Subramanian, 2007):

1. To obtain a homogenous sample of middle and low income countries, we exclude countries where the average purchasing power adjusted GDP per capita over the period 1994-2008 is more than 20,000 US-$. In addition, we also exclude Portugal from the sample, which nowadays is considered a high income country, but would not be eliminated by this selection criterion.

2. We exclude small open island economies (which typically have extremely high financial integration measures) if they are smaller than 30,000 sq. km.

3. We eliminate countries with an average value of oil exports over GDP of more than 10 percent to avoid the problem that potential growth effects in highly financially integrated countries are overshadowed by windfall profits and corresponding current account surpluses in commodity exporting countries.

4. Finally, we drop countries that on average received development aid of more than 15 percent of GDP over the period 1994 to 2008 to focus on the growth effects of private capital flows.

A.2   Sectoral data

Output growth   We use industry output data from the 3rd revision of the Industrial Statistics Database with 4-digit level International Standard Industrial Classification of All Economic Activities (ISIC codes) provided by the United Nations Industrial Development Organization (UNIDO). To calculate real output growth, we deflate output in current prices in national currencies, using national GDP deflators from the International Financial Statistics database.

Sector definitions Since the industry-level data from Rajan and Zingales (1998) consists of a mixture of 3-digit and 4-digit level ISIC codes that are consistent with UNIDO data from the 2nd revision, they differ from the 4-digit level classification that is applied in the 3rd revision, which we are using. While external dependence ratios exist for 36 industries in their sample (of which 27 are at the 3-digit level and 9 are at the 4-digit level), our dataset contains 127 industries at the 4-digit level. Unfortunately, there is no straightforward conversion method to convert industries from the 2nd to the 3rd revision or vice versa, since some of the industry definitions mutually contain each other. However, a correspondence table for converting industries from the 3rd to the 2nd revision is provided by the United Nations Statistics Division. Based on this table, we proceed in the following way:

- All external dependence ratios with a 4-digit level ISIC code from the 2nd revision, can easily be matched with the corresponding industries in the 3rd revision.

- For all other sectors, we use the 3rd digit of the 4-digit level ISIC code in the 3rd revision (which unfortunately is still more detailed than the 3rd digit of the 3-digit ISIC code in the 2nd revision) and match it with the external dependence ratio of the suggested industry according to the correspondence table or, in case of more than one corresponding industry, the industry that is obviously dominating.

- However, in the case of 7 sectors, where each industry from the 3rd revision is corresponding to a greater number of industries from the 2nd revision and none of them is obviously dominating, we use the average of these industries' external dependence ratios.

- Finally, in three cases, where an external dependence ratio of a sub-industry in the 3rd revision data is available, we redefine the top-level industry by excluding this separately listed industry from the definition to avoid inconsistencies.

A.3   Political integration index

Our index of political integration is based on the work by Nye (1968) who suggests several dimensions of political integration: an institutional dimension, policy dimension, attitude dimension (split into government and public opinion), and a stability dimension.

In each geographical region, we focus on the regional integration agreement that we consider the most important one, or the one that delivers the highest degree of political integration: European Union (EU) for all transition countries; Union of South American Nations (UNASUR) / Southern Common Market (MERCOSUR) for South America; Central American Integration System (SICA) for Central American countries; Association of Southeast Asian Nations (ASEAN) for Asian countries; African Union (AU) for African countries; League of Arab States (Arab League) for countries in the Middle East.

For each dimension of political integration, a subindex is constructed that ranges from 0 to 10, where a value of 10 denotes the highest level of political integration. By assigning a weight to each subindex, we construct the composite index of political integration. Nye (1968) does not suggest any weighting scheme. We decided to give the highest weight to the institutional and the policy dimensions (30 and 40 %, respectively), and somewhat smaller weights to the softer factors as attitude (20%) and political stability (10%). The results are not sensitive to this choice.[29] In the following, the construction of each subindex is described in detail.

Institutional dimension (30 %) We capture the degree of supranationality of each regional integration agreement by setting the organizational budgets in relation to the number of member countries in the respective regional integration agreement. We collect annual budget figures of all regional integration agreements from various sources for the year 2010. The primary source is the Yearbook of International Organizations 2010/11, as it provides comparable and up-to-date US dollar figures. We complement these numbers by considering web pages, annual reports, press statements, and newspaper articles.

EU candidate, aspirant, and Eastern partnership countries in the transition region clearly tend towards the European Union, but are no official members yet, and thus do not contribute to the budget. To reflect expectations about future EU membership, we assigned a share of the EU budget to each of them: 25 % for candidate countries, 10 % for aspirant countries, and 1 % for Eastern partnership countries. These numbers are rather conservatively chosen. Similarly, Korea - who is not a full member state of ASEAN, but a dialogue partner - is assigned a 75 % share of the ASEAN budget figure. In the next step, the corresponding budget figures are divided by the number of member states listed in the CIA World Factbook (excluding associated countries and observer countries). The

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[29]Regressions using an index constructed on the basis of equal weights yield virtually the same results.

resulting numbers range from around 467,000 USD in the case of UNASUR/MERCOSUR to 7.2 billion USD in case of the European Union. These numbers are translated into our index scale in the following way. All EU countries receive a value of 10. As the distance to all other agreements is enormous (the ratio between the EU budget per member state and the second highest budget per member state, that from the African Union, is 1539!), all other agreements are assigned a value of 1. EU aspirant countries are assigned a value of 2, candidate countries a value of 3.

Policy dimension (40 %) The policy dimension is comprised of five subcomponents that take on values between 0 and 2, and thus also add up to an index between 0 and 10 (see Table A.6). The subcomponents are the following:

1. **Foreign/security policy coordination:** Formal foreign/security policy agreement: 2 (e. g., "European Foreign and Defence Policy"/NATO members), Less formal agreements: 1 (e. g., "Partnership for Peace" members), No agreement: 0 (e. g., Panama).

2. **Trade policy coordination:** Custom Union: 2 (e. g., EU Common Market); Regional Trade Agreement: 1 (e. g., Rep. Korea: Free Trade Agreement with ASEAN); No Regional Trade Agreement: 0 (-); source: WTO Regional Trade Agreements gateway.

3. **Monetary/Currency policy coordination:** Currency Union: 2 (e. g., Euromember countries); Moderate policy coordination: 1 (e. g., EWS II member countries); No policy coordination: 0 (e. g., Brazil).

4. **Movement of people** Free movement to base country: 2 (e. g., Schengen countries); no visa for travel to neighbor/base country required and no visa in return: 1 (e. g., Brazil; base country: Argentina); no free movement/visa required: 0 (e. g., Armenia; base country: Germany); for base country definitions, see attitudes - government; source: http://projectvisa.com.

5. **More integration intended?** Plans to intensify integration: 2 (e. g., UNASUR - "to model a community after the European Union which will include a common currency, parliament, passport, and defense policy"); integration as a goal: 1 (e. g., African Union - "to accelerate political, social, and economic integration");

no intention of integration: 0 (League of Arab States - "promote economic, social, political, and military cooperation"); sources: CIA World Factbook and subjective assessment.

Attitude dimension - Government (10 %)   To measure the conformity of government views across countries, we examine the correlation of voting behavior in the UN General Assembly (source: Erik Voeten and Adis Merdzanovic, "United Nations General Assembly Voting Data") between each country and a corresponding base country over the period 1998 to 2005 (the results are not sensitive to this selection). We use the following base country concept. In a first step, we usually take the country with the highest US Dollar GDP in each regional integration agreement in 2005 as a base country. In case the largest country is included in the sample itself, we use the second largest country as a corresponding base country. The only exception is the African Union as the distance between the countries and their corresponding base countries is too large to assume that a high degree of political integration occurs. Here we use South Africa as a base country for Botswana and Madagascar, and Botswana as a base country for South Africa. We also conduct a number of robustness checks in which we look at the second or even third largest country of the region, but in all cases the correlations are very close. To fit the percentage numbers to our 1 to 10 scale, we multiply each correlation by 10. In case of negative correlations, a value of 0 is assigned.

Attitude dimension - Public opinion (10 %)   To capture the attitude of the public towards a regional integration agreement, we use data from the World Values Survey. We use the two latest waves (1995/1998 and 1999/2000), which are available for a broad list of countries. We focus on the question in the "politics and society" section that asks for the "confidence" in the local regional integration agreements. Questions are posed with respect to the following agreements: European Union, MERCOSUR, ASEAN, African Union, and the League of Arab States. 13 sample countries have been surveyed in both waves, and thus we take the average. 7 countries in the sample were surveyed only once, so we include the available result. 5 country/regional integration agreement pairs are not included in the survey. In the case of Botswana and Madagascar, we take the value of South Africa with respect to the African Union. For Korea and Uruguay, we use the confidence in the United Nations by each of the countries as a proxy. For Panama where

this question is not available either, we use the survey result for Puerto Rico with respect to the confidence in the NAFTA as a proxy.

The answer options in all surveys comprise "A great deal," "Quite a lot," "Not very much," and "None at all," and answers for each category are reported in percent. The index value of this subcategory is then constructed as follows: We multiply the given percentage values by 10, 5, -5, and -10, and add 5. This would imply for a country with equally distributed answers (i.e., 50 percent would be have confidence in the agreement and 50 % not) to receive a score of 5. The value of Albania, which obtains a score of 10.6, is adjusted to the maximum value of 10.

The Political stability dimension (10 %)   Nye (1968) recommended using the number of hostile incidents over a specified period. We do not find this concept appropriate, therefore we use instead the Political Stability and Absence of Violence index from the World Bank's Worldwide Governance Indicators (WGI) for the years 1998 till 2005. For each country, we compute an average value of the Political Stability and Absence of Violence index over this period. The original index ranges from -2.5 to 2.5 and thus has to be multiplied by 2 and augmented by 5 to fit into the 0 to 10 scale of our index.

A.4 Appendix graphs and tables

Table A.1

Current account balances and sector growth, 1998-2005
Developing countries (excluding European transition countries)
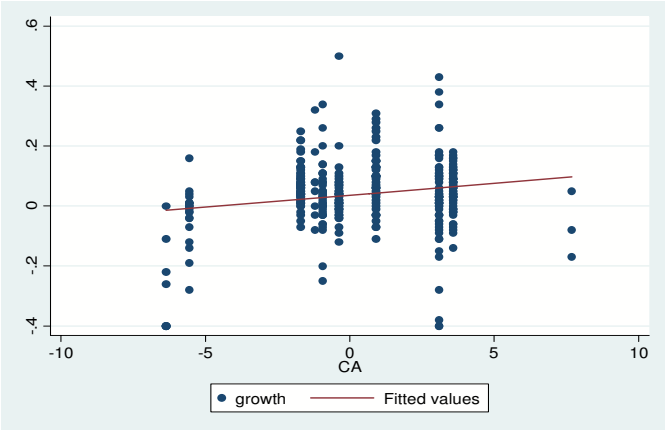
Notes: CA is average current account over GDP, as used in the regressions. Growth is average output growth at the sector level.

Table A.2

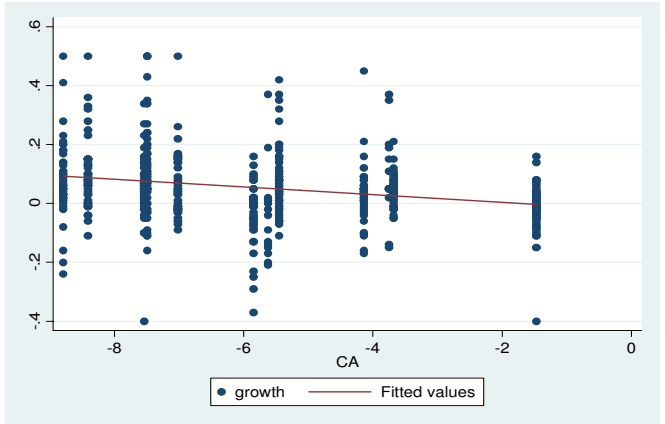**Current account balances and sector growth, 1998-2005**
European transition countries

Notes: CA is average current account over GDP, as used in the regressions. Growth is average output growth at the sector level.

Descriptive statistics at sector level

Variable	Observations	Mean	Std. Dev.	Min	Max
Core Variables					
Real Sector Output Growth	992	0.05	0.13	-0.40	0.50
Initial Industry Share	992	0.02	0.04	0.00	0.45
External Dependence	992	0.38	0.37	-0.45	1.49
Measures for Financial Integration (all divided by GDP)					
Current Account	992	-4.1	4.1	-9.7	7.7
Change in Net Foreign Asset Position	992	-0.7	4.3	-6.1	13.1
Change in Gross Foreign FDI Liabilities	992	2.7	2.7	-2.4	11.8
Change in Gross Foreign Debt Liabilities	992	-1.3	4.7	-14.4	6.8
Gross Financial Integration	992	132.0	46.2	77.1	339.2
Level of Gross FDI Liabilities	992	27.8	14.3	7.0	61.7
Level of Gross Debt Liabilities	992	55.6	24.8	23.2	152.4
Asset Share of Foreign Banks	992	49.4	28.1	1.8	100.0
Number Share of Foreign Banks	992	43.8	21.3	13.8	97.5
Dummy variable					
Emerging Europe Dummy	992	0.53	0.50	0	1
Other Threshold Variables					
Private Credit over GDP	992	0.31	0.22	0.03	0.75
Regulatory Quality	992	0.45	0.57	-0.81	1.39
Trade Integration	992	8.5	28.7	-49.1	70.8
Political Integration Index	992	5.9	2.6	2.1	9.1

Table A.4

Evidence on Threshold Effects - Financial Integration (Foreign Bank Number Share)
(Regression coefficients; p-values in parentheses; dependent variable: average growth in sectoral output, 1998-2005)

Threshold effects in financial integration (foreign bank number share):	Financial integration (FI) measure								
	CA	ΔNFA	ΔFDI	ΔD	GFI	FDI	D	Foreign bank asset share	Foreign bank number share
Industry share	-0.324	-0.310	-0.301	-0.305	-0.312	-0.317	-0.310	-0.313	-0.323
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Sectoral growth effect, depending on external finance, in other countries with below-median financial integration	0.402	-0.216	0.125	0.502	0.008	-0.040	-0.019	0.003	-0.089
	(0.28)	(0.56)	(0.74)	(0.15)	(0.76)	(0.7)	(0.69)	(0.97)	(0.47)
Differential sectoral growth effect in Emerging Europe	-0.874	-0.853	1.049	-0.586	0.035	0.122	0.085	0.055	0.077
	(0.09)	(0.31)	(0.48)	(0.31)	(0.04)	(0.12)	(0.05)	(0.35)	(0.13)
Differential sectoral growth effect in countries with above-median financial integration	-0.399	-0.073	0.222	-0.832	0.013	0.050	0.049	0.029	0.074
	(0.37)	(0.93)	(0.88)	(0.14)	(0.43)	(0.56)	(0.16)	(0.56)	(0.36)
Memo: Difference in differential in real growth rates	2.11	1.39	1.03	-0.94	0.84	0.63	1.50	0.97	1.14
Observations	992	992	992	992	992	992	992	992	992
Number of Countries	25	25	25	25	25	25	25	25	25

Note: Financial integration is measured by the foreign bank number share from Claessens et al. (2008). For other sources and explanatory notes, see Table 2 and text.

Table A.5

Robustness: All Interaction Terms - Foreign Bank Number Share
(Regression coefficients; p-values in parentheses; dependent variable: average growth in sectoral output, 1998-2005)

	Financial integration (FI) measure								
	CA	ΔNFA	ΔFDI	ΔD	GFI	FDI	D	Foreign bank asset share	Foreign bank number share
Industry share	-0.33	-0.307	-0.326	-0.32	-0.328	-0.335	-0.331	-0.317	-0.334
	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sectoral growth effect, depending on external finance, in other countries with below-median values of all threshold variables	0.524	0.056	-1.676	2.028	-0.020	-0.152	-0.069	0.003	-0.105
	0.2	0.96	0.17	0.02	0.65	0.43	0.3	0.97	0.41
Differential sectoral growth effect in Emerging Europe	-1.073	-1.030	1.923	-1.738	0.039	0.184	0.083	0.072	0.091
	0.1	0.39	0.22	0.04	0.08	0.07	0.17	0.28	0.16
Differential sectoral growth effect in countries with above-median financial development	-0.369	-0.773	0.993	-1.318	0.012	0.103	0.005	0.043	0.032
	0.49	0.46	0.29	0.08	0.55	0.27	0.92	0.35	0.57
Differential sectoral growth effect in countries with above-median institutional quality	0.156	-0.126	0.278	-0.049	0.006	0.027	0.025	-0.010	0.019
	0.76	0.87	0.7	0.93	0.78	0.79	0.55	0.84	0.71
Differential sectoral growth effect in countries with above-median trade integration	-0.408	0.507	0.696	-0.310	0.012	0.041	0.044	0.013	0.034
	0.52	0.64	0.5	0.61	0.51	0.71	0.28	0.77	0.44
Differential sectoral growth effect in countries with above-median financial integration	0.090	-0.325	-0.204	-0.910	0.009	0.000	0.027	0.004	0.042
	0.89	0.76	0.89	0.16	0.59	1	0.44	0.94	0.62
Memo: Difference in differential in real growth rates	2.59	1.68	1.88	-2.77	0.93	0.95	1.47	1.27	1.35
Observations	992	992	992	992	992	992	992	992	992
Number of Countries	25	25	25	25	25	25	25	25	25

Note: For sources and explanatory notes, see preceding tables and text.

Country	Regional Agreement	Policy Dimension in Detail				
		Security	*Trade*	*Monetary Policy*	*Movement of People*	*More Integration Intended?*
Albania	SAP Process	2	2	0	0	2
Armenia	Eastern Partnership	1	1	0	0	2
Botswana	African Union	1	2	0	1	1
Brazil	UNASUR	1	2	0	1	1
Bulgaria	European Union	2	2	0	1	2
Czech Republic	European Union	2	2	0	2	2
Estonia	European Union	2	2	1	2	2
Georgia	Eastern Partnership	1	1	0	0	2
Hungary	European Union	2	2	0	2	2
Indonesia	ASEAN	1	1	0	1	0
Jordan	League of Arab States	1	1	0	0	0
Korea Rep.	ASEAN (only dialouge partner)	1	1	0	0	0
Latvia	European Union	2	2	1	2	2
Lithuania	European Union	2	2	1	2	2
Macedonia, FYR	EU Candidate	2	2	0	0	2
Madagascar	African Union	1	1	0	0	1
Moldova	Eastern Partnership	1	1	0	0	2
Panama	Central American Integration System	0	1	0	1	1
Philippines	ASEAN	1	1	0	1	0
Poland	European Union	2	2	0	2	2
Romania	European Union	2	2	0	1	2
Slovak Republic	European Union	2	2	2	2	2
Slovenia	European Union	2	2	2	2	2
South Africa	African Union	1	2	0	1	1
Uruguay	UNASUR	1	2	0	1	1

Notes: The sum of the five columns corresponds to the score "Policy" in Table 10. For a detailed description of sources and procedures, see text.

Table A.6