



The collateral effects of political integration on credit growth in the new member states of the EU



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ABSTRACT

Since 2009, low interest rates have been associated with increases in credit growth and overheating pressure in many emerging markets. In the new member states (NMS) of the European Union (EU), however, domestic lending contracted along with a shrinkage in cross-border financial inflows. In this paper, I investigate whether political integration with the EU has strengthened the relation between domestic credit growth and international financial inflows in the NMS in comparison to other emerging markets. Taking into account the period 2008–2014 and the boom period in the run-up to the 2008 crisis, I provide empirical evidence that domestic lending in both periods is more responsive to changes in cross-border bank lending if a country is a member of the EU. The paper's finding lends support to studies suggesting that political integration has collateral effects on emerging markets via financial integration.

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1. Introduction

The collapse of Lehman Brothers in 2008 and the following global financial crisis depressed markets around the world. To stabilize the financial markets and fight the so-called Great Recession, the world's major central banks opted to cut interest rates toward zero and implement unconventional policies such as large-scale bond-buying programs. The central banks in most emerging markets followed the monetary policy of the advanced economies.

It is debatable to which extent the low interest rate policies helped stimulate lending in the advanced economies, as the link between monetary expansion and domestic credit creation via the portfolio re-balancing channel seems broken due to prevailing risks in the domestic and global economies (see, e.g., [Orlowski, 2015](#)). However, the fall in interest rates was accompanied by an increase in financial inflows and a pick-up in investments and growth in many emerging markets. The corresponding rise in credit growth and inflation has become a major concern for policymakers in a number of emerging and developing countries in Latin America and East Asia (e.g. [Borio et al., 2011](#); [Reinhart, 2013](#); [Hoffmann and Loeffler, 2014](#)). In the new member states of the European Union (NMS),¹ however, domestic credit to the private sector decreased widely from 2008 to 2014.

This paper suggests that *political integration* with the EU has strengthened the link between international financial inflows and domestic credit growth in the NMS relative to other emerging market countries. Building on [Lane and McQuade's \(2014\)](#) empirical model, I provide empirical evidence that domestic lending is more responsive to changes in cross-border

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¹ In this study, I refer to Bulgaria, Estonia, Czech Republic, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia and the Slovak Republic as NMS.

bank lending if a country is a member of the EU. Given the stark decline in cross-border financing in the NMS since 2009, political integration with the EU explains much of the recent contraction in domestic lending in these countries.

In the 2000s, EU accession provided hope for institutional reforms and macroeconomic convergence. Previous research therefore found that *political integration* with the EU created financial benefits for emerging Europe. For instance, [Hauner et al. \(2007\)](#) and [Luengnaruemitchai and Schadler \(2007\)](#) show that government bond yields dropped significantly when EU membership was decided in the NMS. In line with this, [Ebner \(2009\)](#) suggests that investors were willing to hold lower-yielding NMS bonds even when the current fundamentals would have justified a higher bond premium. [Friedrich et al. \(2013\)](#) provide evidence that current account deficits (which reflect international capital inflows) were not associated with substantial growth over a longer period (until 2008) in any region apart from emerging Europe.²

Taking into account the post-2008 period as well as the 2002–2008 boom period, I further show that the strong link between cross-border financial flows and domestic credit growth in the NMS of the EU is not just a side-effect of the ongoing European crisis. In fact, also in the run-up to the crisis, a rise in cross-border lending translated into more rapid domestic lending if the country was a member of the EU. Therefore, I argue that political integration with the EU strengthened, for good or ill, financial linkages between the EU and the NMS.

This paper is related to the growing literature on the link between international capital flows and domestic credit growth. For instance, [Mendoza and Terrones \(2012\)](#) show that large international capital inflows (current account deficits) can help explain episodes of rapid credit growth. Recent research has focused particularly on the type of capital inflows associated with domestic credit growth, suggesting that rises in cross-border bank flows rather than equity flows tend to increase domestic lending (e.g. [Calderón and Kubota, 2012](#); [Borio and Disyatat, 2011](#)). For the EU, [Lane and McQuade \(2014\)](#) provide evidence that increases in cross-border bank inflows contributed to domestic credit growth until 2008.

However, the link between international debt inflows and credit growth is not obvious and may differ between countries. If domestic banks finance domestic credit to the private sector mainly domestically, e.g. via deposits, changes in international financial inflows may not result in credit growth. In contrast, if banks finance domestic credit mainly via loans or deposits from global banks, we would expect a closer dependence of domestic credit growth on cross-border financial inflows.³ This paper finds that political integration can influence the dependence of domestic credit growth on external financing.

In particular, this paper suggests that in the 2000s, when European financial markets seemed sound, EU accession and the adoption of EU rules provided additional credibility to the convergence process⁴ of the NMS, shrinking political and sovereign risks. This led to increased financial integration with the euro area, mounting cross-border financing of banks, and enhanced domestic lending in the NMS until the 2008 financial crisis. The dependence of domestic credit growth on foreign funding increased in the NMS of the EU relative to that in other emerging market countries. However, since 2009 the problems in the euro area and its shaky financial system pulled the NMS into the maelstrom of crisis. My findings therefore imply that for the NMS of the EU the collateral effects of political integration with the EU via financial integration very much depend on the time period under consideration and the expectations stemming from the EU's political and economic institutions.

2. EU membership and the link between cross-border financial flows and domestic credit growth: a graphical assessment

In order to analyze whether the strength of the link between cross-border bank flows and domestic credit growth differs if a country is a member of the EU, I evaluate data for 89 emerging and developing countries. The full country list is presented in [Appendix A](#). The countries were selected based on the World Bank categories “emerging market” and “developing country”, while domestic credit data were taken from the World Development Indicators (WDI).

I begin with a graphical assessment of the link between cross-border bank flows and credit growth. [Fig. 1](#) plots the rise in domestic credit to the private sector as a percentage of GDP for each region of emerging markets since 2008. “NMS” means new member states of the EU.

Domestic credit to the private sector has declined by more than 15 percent since 2008. In contrast, in Eastern Europe and Central Asia (ECA), Eastern and Southeastern Asia (ASIA), South America (SA), Central America and the Caribbean (CAC) and Sub-Saharan Africa (SSA), domestic credit to the private sector as a percent of GDP grew by several percentage points in the same period. The South American and the Eastern and Southeastern Asian countries stick out with particularly high rates of credit growth. In the Middle East and North Africa (MENA), we see smaller changes in average credit growth.

² Collateral effects of political integration are not exclusive to the NMS and have also been analyzed for other regions and time periods. For instance, [Ferguson and Schularick \(2006\)](#) provide evidence that members of the British Empire were preferred by investors, as such membership signaled institutional quality. These countries attracted larger financial inflows, particularly from Britain, which allowed governments to borrow at lower cost. [Mitchener and Weidenmier \(2008\)](#) find an “Empire effect” on trade between Empire countries. Moreover, numerous studies on “currency union effects” suggest that bailout expectations, to take one example, increase inter-country linkages.

³ Note that there is an extensive literature that analyzes the role of, e.g., foreign banks on cross-border banking as well as credit growth in general (e.g. [Adams-Kane et al., 2013](#); [Peek and Rosengren, 1997](#)) as well as in the NMS of the EU (e.g. [Vogel and Winkler, 2012](#); [De Haas, 2014](#)). However, none of these studies analyze whether there are differences in the link between international capital flows and domestic credit growth between different emerging market country groups and whether this difference may be attributed to political integration.

⁴ Such institutions did not only include the EU financial regulatory and supervisory system ([Cihák and Fonteyne, 2009](#)) and market reforms, but also prescriptions for a rather cautious fiscal policy.

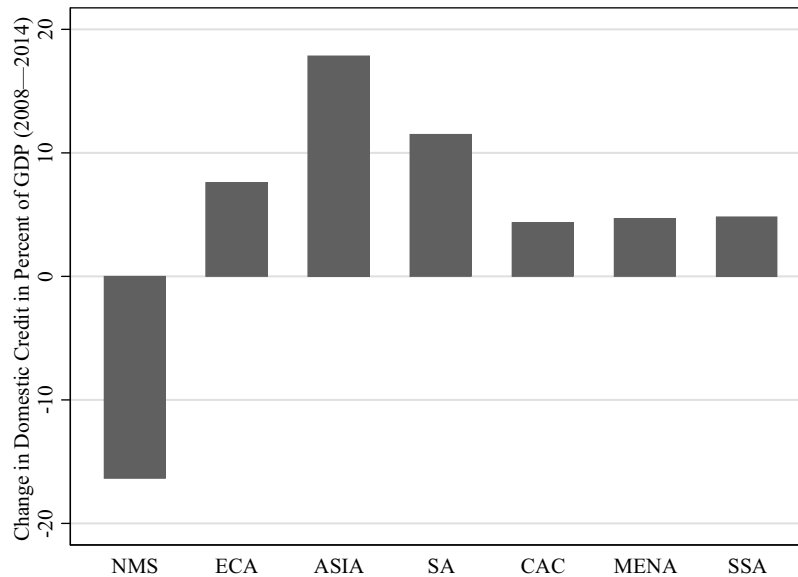


Fig. 1. Credit Growth in Emerging and Developing Countries (2008–2014).

Fig. 2 plots the development of outstanding foreign claims of Bank of International Settlements (BIS) reporting banks vis-à-vis each NMS from 1998 to 2014, as reported by the BIS's Locational Banking Statistics. The figure shows that outstanding foreign claims rose sharply in all NMS until 2008. The increase started when the European Central Bank (ECB) lowered interest rates in response to the troubles in global asset markets following the bursting of the dot-com bubble. Cross-border bank lending picked up even more in 2003 when the EU's eastern enlargement was finally decided. Specifically, EU banks that had bought large shares of the NMS banking system during their transition to market economies started to engage in cross-border lending. Even in Poland, a country that did not experience a credit boom during the 2000s, outstanding foreign claims jumped from 10% of GDP in 2000 to 25% in 2008.

Since 2009, however, in most NMS the amount of outstanding foreign claims as a percentage of GDP has fallen dramatically and not recovered. Only in the Slovak Republic was the initial drop in foreign bank claims offset after the introduction of the euro in 2009. Fig. 3 illustrates the correlation of the change in outstanding foreign claims, i.e. financial flows, and changes in domestic credit for the NMS during this period. The slope of the line suggests that the two variables move together. A fall in cross-border financing accompanied a fall in domestic lending in the NMS, and vice versa.

The central concern of the paper is, however, to analyze whether the link between cross-border financing and domestic lending is stronger if an emerging market country is a member of the EU. Fig. 4 illustrates the development of foreign claims for different country groups. It is notable that foreign claims of BIS-reporting banks fell drastically only vis-à-vis the NMS. The NMS are also the only country group with a substantial decline in domestic credit (on average). In fact, in some country groups, cross-border lending has fallen since 2008, while domestic lending has increased.

3. Empirical analysis

To test whether the link between cross-border financing and domestic credit growth is stronger in the NMS than in other emerging markets, I augment the empirical model used in Lane and McQuade (2014) and regress the change in domestic credit from 2008 to 2014 on a set of explanatory variables. The focus on medium-term effects in regressing multiyear non-overlapping changes on a set of explanatory variables instead of year-over-year changes will reduce the distortions provoked by short-run volatility. This approach is also common in the empirical literature on determinants of the current account balance (e.g. Chinn and Prasad, 2003), for example. My augmented cross-sectional model for the post-2008 period takes the following form:

$$\Delta DC_{i,2014-2008} = \alpha_0 + \alpha_1 DC_{i,2008} + \alpha_2 GDPpc_{i,2008} + \alpha_3 \Delta FF_{i,2014-2008} + \alpha_4 D_i + \alpha_5 (D_i * \Delta FF_{i,2014-2008}) + \alpha_6 \Delta DC_{i,2008-2002} + \varepsilon_i$$

where $\Delta DC_{i,2014-2008}$ is the non-overlapping absolute change in domestic credit to the private sector scaled by GDP between 2012 and 2008 for every country i .

As independent variables, I include the level of initial domestic credit (scaled by GDP) ($DC_{i,2008}$) and the log of GDP per capita ($GDP_{i,2008}$) to capture the stage of financial and economic development. The idea behind this is that when the initial level of domestic credit is low, we can expect a catch-up in financial deepening that may explain credit growth. Similarly,

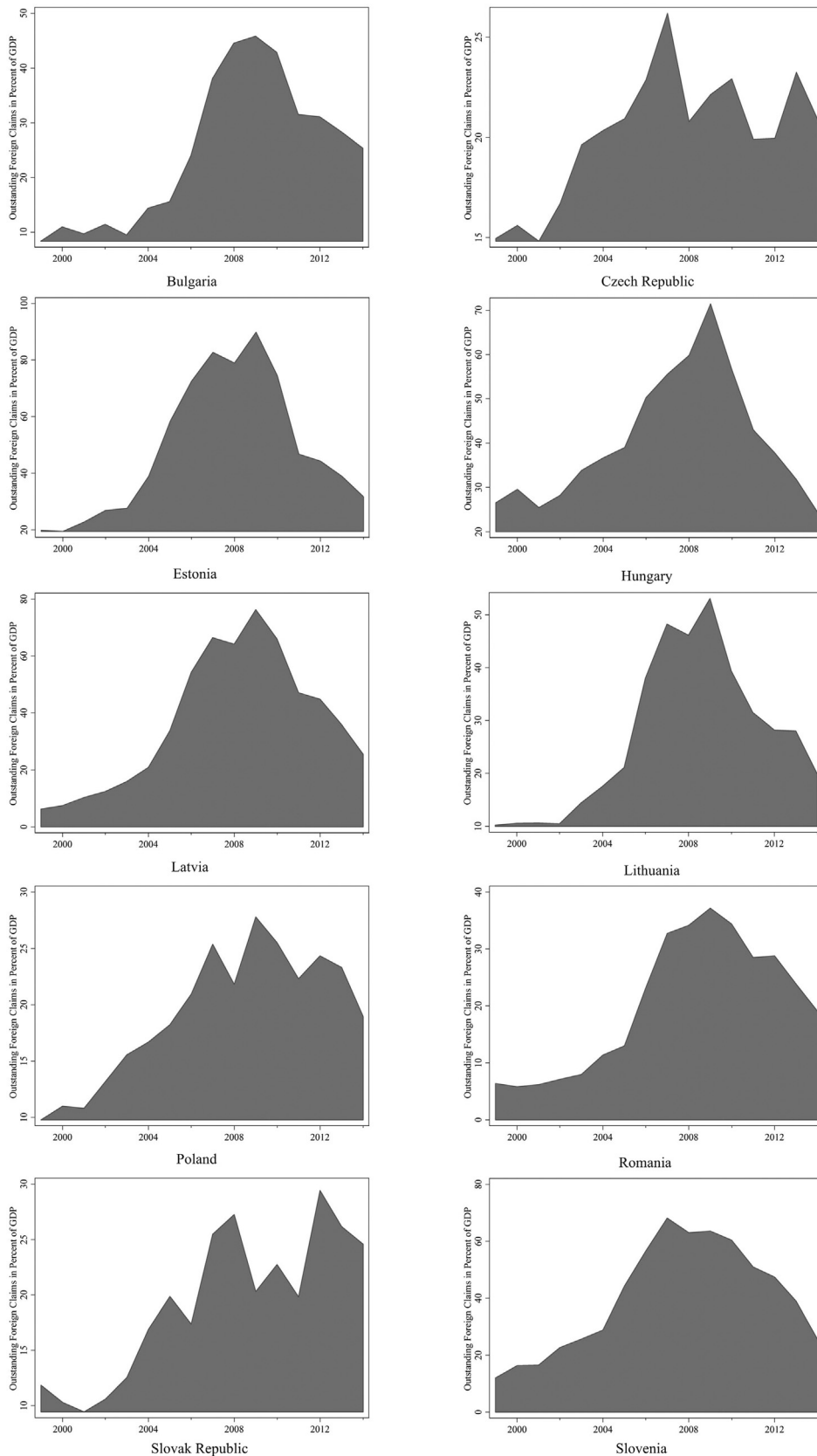


Fig. 2. Development of Foreign Bank Assets/GDP in the New Member States.

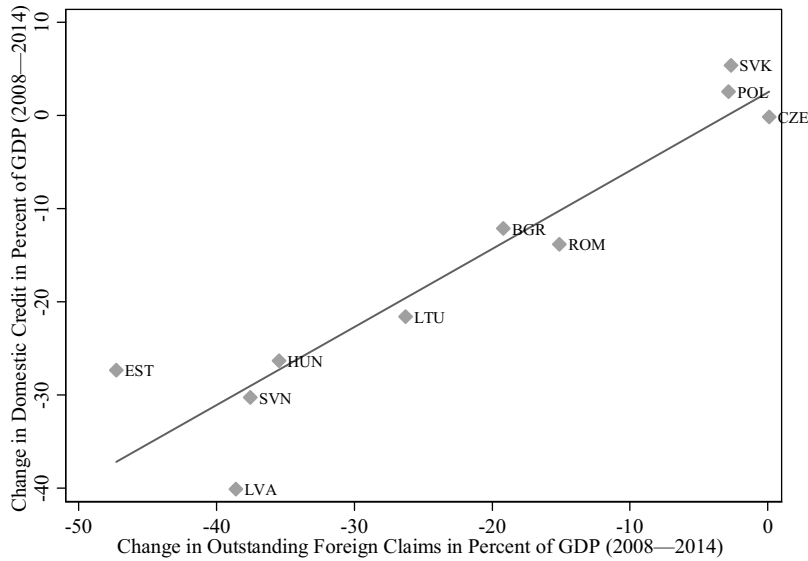


Fig. 3. Credit Growth and Change in Foreign Bank Claims in NMS (2008–2014).

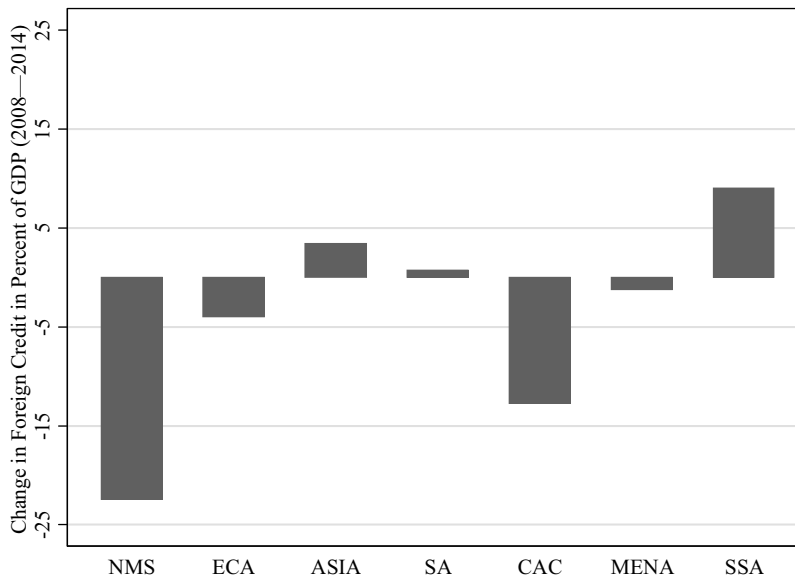


Fig. 4. Change in Foreign Bank Assets in Emerging Markets (2008–2014).

countries with a lower level of GDP per capita are expected to catch up, which may lead to higher credit growth in the medium term.⁵

The variable $\Delta FF_{i,2014-2008}$ captures international financial inflows (in percentage of GDP) from 2008 to 2014. I focus on the use of the 2008–2014 change in outstanding foreign claims of BIS-reporting countries (in percent of GDP), i.e. cross-border bank flows. Additional cross-border financing of banks may increase domestic credit growth. I expect a positive coefficient.

To test whether political integration with the EU makes a difference, I construct an NMS dummy D_i that takes the value 1 if a country is a member of the EU and zero otherwise. The coefficient on the NMS dummy would only result in a different intercept. Because I aim to test whether a fall or rise in cross-border lending has a larger effect in the NMS than in other emerging markets, I add an interaction term of the NMS dummy and the financial flow variable to the regression ($D_i * \Delta FF_{i,2014-2008}$). This interaction term is my main variable of interest. A positive and significant coefficient on the

⁵ The exact variable definitions and data sources are presented in Appendix B.

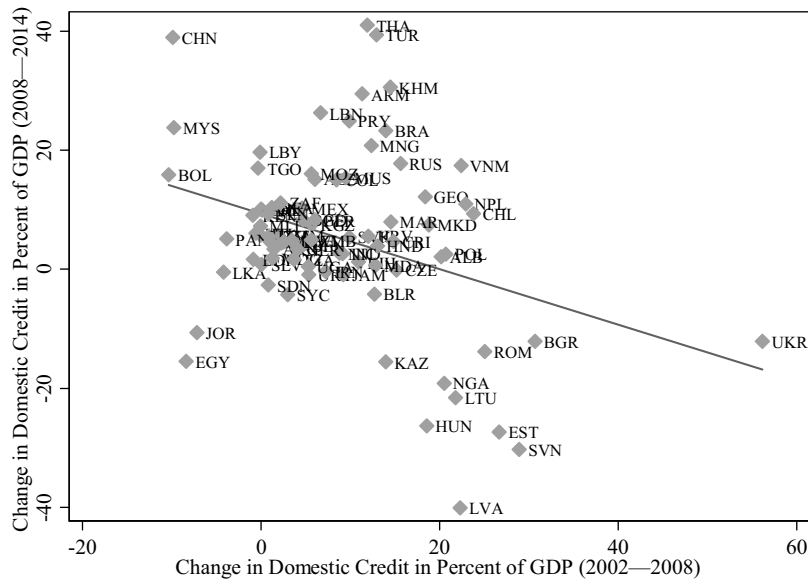


Fig. 5. Credit Expansion as Proxy for Credit Contraction: Full Sample.

interaction term signals that the fall in cross-border lending depresses domestic credit growth in EU member countries more than in non-EU members. Given the tremendous fall in cross-border lending in the post-2008 period, this link may be of some importance.

Finally, I include the absolute change in domestic credit between 2008 and 2002 ($\Delta DC_{i,2008-2002}$).⁶ According to the credit boom gone bust explanation, the severity of a credit contraction following financial crises depends on the size of the credit expansion during the boom (Eichengreen and Mitchener, 2003), which may have emerged along with sectorial malinvestment and structural distortions in booming economies (Borio and Disyatat, 2011). If there is already a debt overhang or substantial malinvestment, this may explain why there is no urge for credit expansion despite low interest rates, and vice versa: the debt overhang first needs to be coped with. Structural adjustments in overinvested industries are time consuming. They typically result in unemployment and a period of depressed credit demand. For instance, Reinhart and Reinhart (2010) show that “after the fall” countries often end up on a lower growth path and that demand for credit falls for some time following a period of increased leverage and credit expansion.

Lane and McQuade (2014) identify the years in the run-up to the 2008 financial crisis as a global credit boom period. Brown and Lane (2011) provide a detailed analysis of whether this led to a debt overhang in emerging Europe that may inhibit further credit expansion. The study does not find evidence of a general debt overhang; only the Baltic countries and Slovenia may have accumulated too much debt in the enterprise sector. The authors also found that within the EU area Latvia and Lithuania accumulated high shares of nonperforming loans in the banking sector. Therefore, banks in these countries may not be in a good position to lend.

Fig. 5 illustrates that there is a correlation between domestic credit growth during the credit boom of the 2000s and a period of low interest rates after 2008 for the full sample of countries. The correlation coefficient is -0.45 and highly significant. However, this correlation is mainly driven by the NMS in the sample. When excluding the NMS, the correlation coefficient drops down to -0.12 .

Fig. 6 describes the phenomenon for the NMS and shows a correlation coefficient of -0.85 . The higher the credit growth was in the boom period of the 2000s, the lower the credit growth that occurred thereafter. The NMS identified as having a debt overhang in the enterprise sector as well as those with the most nonperforming loans are among the countries with the highest rates of credit growth from 2002 to 2008. Thus, the lending boom of the 2000s, rather than a greater dependence on financial flows, may explain the lower levels of credit growth in most NMS since 2009.

Data on domestic credit to GDP for recent years is incomplete for Venezuela, Ghana, Tunisia, Yemen, Angola and Mauritius. Dropping these six countries leaves 83 observations for the baseline cross-sectional analysis.

Table 1 describes the estimation results of my model. Column 1 shows that the 2008 GDP per capita and credit-to-GDP ratios do not explain the variation in changes in credit to GDP between countries. Consistent with the graphical assessment,

⁶ The pairwise correlation coefficient of the nonperforming loans ratio and my credit boom variable is 0.4 and highly significant. I use the credit boom index because nonperforming loan data is available for only 53 of the countries in my sample. The regression results are robust to the use of the nonperforming loan ratio. Coefficients on nonperforming loans are negative and significant at the 5% level, which confirms that a higher share of nonperforming loans is associated with lower credit growth.

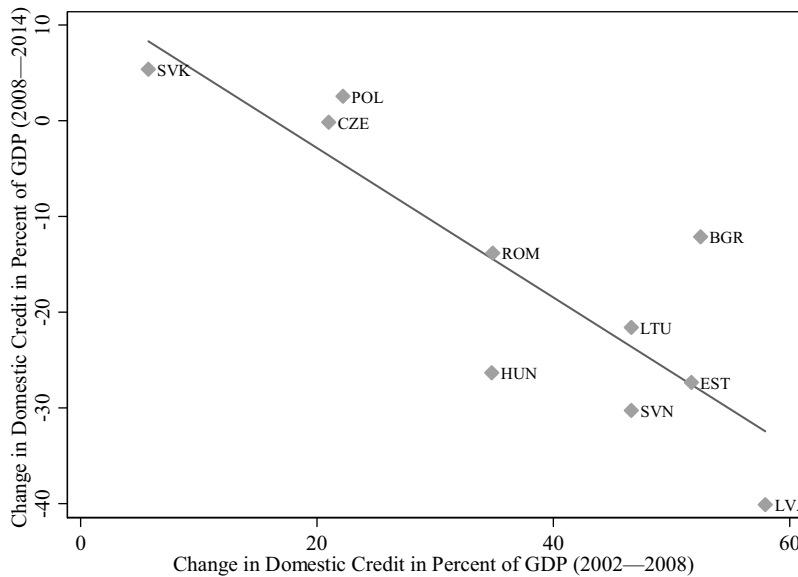


Fig. 6. Credit Boom as Proxy for Credit Bust: NMS.

column 1 of Table 1 suggests that changes in financial flows do not generally explain the difference in domestic credit growth between countries either. The link between credit growth and cross-border bank flows is not stable across countries.

However, the coefficient on the interaction term turns out to be positive and significant: a rise in foreign bank claims does have a larger effect on credit growth in EU member countries than in other emerging markets. In other words, if a country is a member of the EU, bank lending hinges more on cross-border financial inflows. Because EU banks substantially reduced their exposure in the NMS during the period of observation, domestic credit shrank.⁷ Note that the coefficient on the NMS dummy is insignificant. This NMS dummy captures the difference in credit growth with respect to other emerging markets when cross-border bank flows are zero. Therefore, if EU membership affects how financial flows relate to credit growth, the interaction term and not the intercept is of interest.⁸

Column 2 of Table 1 shows the regression results when controlling for the magnitude of the 2002–2008 *credit boom* in the regression. The negative coefficient on the credit boom variable implies that countries with larger changes in domestic credit to GDP from 2002 to 2008 have seen relatively smaller credit growth thereafter. Therefore, some of the differences in post-2008 credit development may be attributed to the expansion during the boom. The coefficient on the interaction term is robust to the change, suggesting that cross-border lending has a larger impact on credit growth in the NMS than in other countries.⁹

Next, we shall consider two sub-periods, 2008–2011 and 2011–2014. In 2011, government bond spreads in the euro area widened substantially. They reached a high in September due to rising default and liquidity risks, triggering the subsequent European debt crisis. Therefore, 2011 is a natural cut-off point to see if the results are similar for the entire period or change with distance to the initial 2008 crisis event.

Columns 3 and 4 reveal that in both sub-periods domestic lending depended more on foreign financial flows if a country was a member of the EU. Moreover, column 5 of Table 1 shows that when I pool the sub-periods, I get results that are consistent with the baseline cross-sectional regression.

However, the link between domestic lending and cross-border financing in the NMS was somewhat weaker between 2008 and 2011 than between 2011 and 2014 (column 3). The contraction in credit seemed to be partly caused by a fall in credit demand in the 2008–2011 period (see the coefficient on the credit boom variable). Many NMS experienced substantial credit growth before the crisis. Moreover, Vogel and Winkler (2012) have shown that, following the collapse of Lehman Brothers in 2008, European banks indeed stabilized domestic lending in the NMS. When the problems started to spill over to other markets, policymakers tried to ensure that emerging Europe would not be affected by the crisis. The quickly launched Vienna Initiative was part of this endeavor. The Vienna Initiative and its successor provided a forum for banks that invested in Central and Eastern Europe to avoid a sudden withdrawal of funds by coordinating interests. No such initiative was launched for emerging markets elsewhere. Thus, tight political and financial integration with the euro area allowed for outside support as well as easier access to “bailout institutions”.

⁷ The joint coefficient is significantly different from zero (<5% level).

⁸ By contrast, adding an interaction term and a dummy variable for East Asia would result in a high positive coefficient that remains significant after adding the interaction term. The interaction term does not help explain the difference in credit growth in East Asia.

⁹ Appendix C describes the robustness of the results.

Table 1
Regression Results.¹⁰

	(1) (2008–2014)	(2) (2008–2014)	(3) (2008–2011)	(4) (2011–2014)	(5) (3y–Pooled)
Initial Credit	0.082 (0.053)	0.117** (0.055)	0.073** (0.036)	0.064** (0.029)	0.068*** (0.023)
Initial GDP p.c.	0.352 (1.357)	0.045 (1.343)	–0.295 (0.887)	0.221 (0.768)	–0.095 (0.617)
NMS Dummy	–6.739 (6.599)	–4.698 (6.571)	4.036 (4.306)	–7.838** (3.395)	–2.699 (2.824)
Bank Flows	0.031 (0.054)	0.038 (0.054)	0.029 (0.089)	0.033 (0.042)	0.029 (0.042)
NMS Dummy × Bank Flows	0.894*** (0.229)	0.792*** (0.232)	0.529** (0.240)	1.195*** (0.227)	0.767*** (0.190)
Credit Boom		–0.164** (0.081)	–0.131** (0.055)	–0.031 (0.047)	–0.102*** (0.038)
Constant	2.424 (9.495)	4.884 (9.417)	3.638 (6.198)	1.196 (5.432)	2.668 (4.348)
Observations	83	83	87	83	170
Adj. R ²	0.404	0.420	0.171	0.591	0.327
Prob > F	0.003	0.001	0.016	0.000	0.000

Notes: Robust standard errors are in parentheses.

* Significant at the 10% level.

** Significant at the 5% level.

*** Significant at the 1% level.

The evolving European banking and debt crisis, however, has undermined such attempts, as foreign affiliates of EU banks in particular now tended to restrict lending (see also [Adams-Kane et al., 2013](#)). Therefore, I find a stronger link between financial flows and domestic credit for the 2011–2014 period than for the 2008–2011 period for the NMS of the EU. Domestic or other international banks did not offset the decline in credit of EU banks and their affiliates, as was the case in East Asia for example, due to the risen liquidity risks in ailing European financial markets and the financial deleveraging in the euro area.

These contagion effects beyond the euro area suggest that repairing the financial sector and improving the quality of monetary and financial institutions in the core European economies is important for the EU as a whole.

4. Did the crisis make a difference?

If political integration with the EU strengthens the link between cross-border banking and domestic lending, it will also have done so in the run-up to the financial crisis. In other words, we expect that political integration with the EU lowered the risks associated with borrowing in EU capital markets and lending in the domestic markets during the boom period, for example, as sovereign and political risks declined with EU membership when EU markets were considered sound.

There is evidence that, during the 2000s, supply or “external” factors played a strong role in financing credit growth in the NMS. In particular, low euro area interest rates contributed to propelling capital inflows, high rates of credit growth, and ever-rising current account deficits as banks financed household consumption and investment in the expectation of future incomes ([Bakker and Gulde, 2010](#); [Hoffmann, 2010](#); [Jevcak et al., 2010](#)). Substantial growth was accompanied by financial inflows as well as credit growth in the run-up to the 2008 financial crisis. The Baltic countries grew at a rate of about 10 percent per annum in the years prior to the crisis.

[Friedrich et al. \(2013\)](#) find that current account deficits were only associated with substantial growth over a longer period in emerging Europe. In contrast to other emerging markets such as Latin America and East Asia, there seemed to be a stronger link between financial inflows and growth in emerging Europe via *political integration*. In fact, many emerging markets like China experienced export-led growth. [Friedrich et al. \(2013\)](#) explain that *political integration* with Western Europe positively affected the link between capital flows and growth in emerging Europe until 2008. They argue that EU accession provided hope for future institutional reform and macroeconomic convergence.

For the countries that became members of the EU, several reforms beyond the liberalization of capital markets were expected, which created optimism about investment returns. In order to join the euro area, these Central and Eastern European countries adopted the institutions other EU countries had agreed on, including not only the EU’s financial regulatory and supervisory system ([Čihák and Fonteyne, 2009](#)) and market reforms, but also prescriptions for a rather cautious fiscal policy. When the eastern enlargement of the EU was finally decided, uncertainties regarding potential EU

¹⁰ Alternatively, I could use current account balances as a proxy for net financial flows. Since debt flows are more closely linked to credit growth ([Calderón and Kubota, 2012](#); [Lane and McQuade, 2014](#)), a compensation for a fall in foreign bank financing by a rise in equity financing may balance the current account but still result in declining domestic lending.

membership faded and political risks declined. Because fiscal prudence and exchange rate stability were mandatory prerequisites for an eventual euro introduction, sovereign default risks fell as well. Foreign financing became more attractive in the NMS of the EU.

There is evidence of a *political integration effect* on lending to the government in the pre-crisis years. Several studies find that a significant drop in government bond yields, metaphorically labeled the “EU halo effect,” occurred when EU membership was decided (Hauner et al., 2007; Luengnaruemitchai and Schadler, 2007). Due to the adoption of a common regulatory framework, EU membership signaled more than just guaranteeing stable government finances. Anticipating institutional improvements and a substantial catch-up, investors were more willing to hold bonds of NMS and provide additional credit to NMS governments even when current fundamentals would have justified a higher bond premium (Ebner, 2009).

To determine whether or not EU membership also strengthened the link between international financial flows and domestic lending during the boom relative to other emerging markets, I repeat the empirical exercise using data for the 2002–2008 period. The results are presented in column 1 of Table 2. Again, higher financial inflows do not explain domestic lending differences between countries in general. Adding the NMS dummy and the interaction term gives results similar to those for the post-2008 period.

Being an NMS of the EU increased the responsiveness of domestic lending to financial inflows in the pre-crisis period as well. Because during this period cross-border lending contributed to domestic credit growth instead of to a shrinkage, this finding is compatible with Friedrich et al.’s (2013) conclusion that political integration (with the EU) may have benefitted the countries by strengthening the link between financial integration and economic growth.

Column 2 describes the results from a pooled regression using the 2002–2008 and 2008–2014 periods. Again, the coefficient on the interaction term is robust in size and significant at the 1% level. To test whether these results are driven by the crisis, I added a *euro area crisis* dummy that takes the value 1 for the 2008–2014 period and the value zero for the 2002–2008 period. I multiply this dummy with the interaction term that captures the additional effect of cross-border bank flows for NMS and run the regression again. As shown in column 2, the crisis did not change the relationship between the development of foreign claims and credit growth in the NMS. In both periods, a rise in cross-border claims enhanced domestic lending if a country was an EU member. The coefficient on the interaction term that captures whether there is an additional effect in the crisis period remains insignificant at commonly used levels.

The presented results also hold when looking at 3-year non-overlapping periods. In column 3, I show the results from running the regression using the 2002–2005 and 2005–2008 boom periods. I find coefficients of similar size as for the entire boom period. The results in column 4 further include the 2008–2011 and 2011–2014 periods, doubling the sample size again. Adding a dummy variable and the interaction term for the post-2008 period of low interest rates, I find no difference in the link between financial flows and domestic lending in the EU members between the boom and bust periods (column 4). Although the condition of the EU’s financial system seems to affect the direction of financial flows in the NMS, the strong link between domestic lending and international financial flows in the NMS cannot be attributed to the financial crisis.

Table 2
Regression Results.

	(1) (2002–2008)	(2) (6y–Pooled)	(3) (3y–Pooled Boom)	(4) (3y–Pooled)
Initial Credit	–0.200** (0.064)	–0.056 (0.042)	–0.082*** (0.029)	–0.010 (0.019)
Initial GDP p.c.	1.389 (1.612)	1.169 (1.181)	0.902 (0.776)	0.667 (0.505)
NMS Dummy	–0.848 (7.052)	–4.696 (3.822)	2.091 (4.586)	–1.268 (2.590)
Bank Flows	0.262** (0.120)	0.078 (0.052)	0.226*** (0.079)	0.058 (0.040)
NMS Dummy × Bank Flows	0.653*** (0.180)	0.936*** (0.199)	0.499** (0.240)	0.762*** (0.159)
NMS Dummy × Bank Flows × Post-2008 Dummy		–0.145 (0.371)		0.137 (0.293)
Post-2008 Dummy		–0.632 (2.168)		1.234 (1.345)
Constant	4.211 (11.064)	1.798 (7.843)	0.239 (5.429)	–1.730 (3.595)
Observations	87	170	176	347
Adj. R ²	0.413	0.399	0.269	0.287

Notes: Robust standard errors in parentheses.

* Significant at the 10% level.

** Significant at the 5% level.

*** Significant at the 1% level.

5. Summary

This paper has investigated whether domestic credit growth is more closely related to international capital inflows in countries that are members of the EU. The paper has shown that, more than in other emerging markets, domestic lending in the NMS depends on the development of cross-border lending. Because the fall in cross-border lending during the period of low interest rates has been of some significance, this finding is not only significant statistically, but also economically. The paper has further shown that the strong link between cross-border flows and credit growth is not a side effect of the crisis period. In fact, during the boom period a rise in cross-border lending also translated into more rapid domestic credit growth if a country was a member of the EU.

I explain this finding as follows. Political integration, the corresponding adoption of EU rules and catch-up expectations made it easier for banks in the NMS to finance domestic lending using foreign credit during the 2002–2008 boom period. EU membership lowered the (perceived) risks associated with foreign borrowing and increased the dependence of domestic lending on global financial conditions compared with other emerging market countries when EU financial markets and institutions were considered sound and healthy. But there are two sides to every coin. When European financial markets started to shake and the European debt crisis revealed problems in EU institutions, this had devastating effects in the NMS. Domestic lending declined along with the fall in cross-border financing.

Although the contagion effects of the euro area's financial troubles on domestic lending in the NMS are substantial, this paper does not claim that political integration is a problem per se. However, the NMS would have been in a better situation if euro area institutions had been able to prevent the severe buildup of financial imbalances during the 2000s. In summary, the paper suggests that the EU's economic and political institutions, such as the supervisory and regulatory framework or the established bailout institutions, will continue to have an impact on the NMS via financial integration, for good or ill. Therefore, repairing the financial sector and improving the quality of monetary and financial institutions in the core European economies is important for the EU as a whole and not just for the euro area.

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Appendix A. Country sample

For the graphical illustrations, I group countries based on World Bank classifications. However, I also introduce a group for the new member states of the EU (which includes the countries that have recently been re-classified into the group of advanced economies: Czech Republic, Estonia, Slovak Republic, Slovenia) and separate the South American (SA) from the Central American and Caribbean (CAC) countries.

Country Groups	Countries
New Member States of the EU NMS	Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic and Slovenia (since 2004), Bulgaria and Romania (since 2007)
Eastern Europe and Central Asia ECA	Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Croatia, Georgia, Kazakhstan, Kyrgyz Republic, Macedonia, Moldova, Russia, Turkey and Ukraine
Eastern and Southeastern Asia ASIA	Bangladesh, Cambodia, China, India, Indonesia, Malaysia, Mongolia, Nepal, Philippines, Sri Lanka, Thailand and Vietnam
South America SA	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela
Central America and Caribbean CAC	Costa Rica, Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Nicaragua and Panama
Middle East and Northern Africa MENA	Algeria, Egypt, Iran, Jordan, Lebanon, Libya, Morocco, Tunisia and Yemen
Sub-Saharan Africa SSA	Angola, Benin, Burkina Faso, Burundi, Cameroon, Ivory Coast, Ghana, Kenya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Niger, Nigeria, Senegal, Seychelles, South Africa, Sudan, Tanzania, Togo, Uganda and Zambia

Appendix B. Data description

DC Δ DC	Domestic Credit to the Private Sector (% GDP), Annual Absolute Change in DC	World Development Indicators
Foreign Assets Bank Flows	Foreign Assets of BIS Reporting Banks (% GDP), Annual Absolute Change in Foreign Assets	BIS Locational Statistics 6A World Development Indicators
Initial Credit	Domestic Credit to the Private Sector (% GDP) in base year, Annual	World Development Indicators
Initial GDP p.c. Credit Boom	Log of GDP per capita (2005 constant prices in USD) in base year, Annual Absolute Change in Domestic Credit to the Private Sector (% GDP) between 2008 and 2003 (Cross-Sectional Data)	World Development Indicators World Development Indicators
CA	Current Account Balance (% GDP), Annual, Cumulated CA when multi-year periods are considered	World Development Indicators
Foreign Banks	Share of Foreign Banks (% Total Banks)	Claessens and van Horen (2014)
Financial Openness	KA-Open, normalized, Annual Averages for periods	Website of Chinn-Ito Index (8/19/2014 update)
Financial Freedom Crisis	Sub-index Banking crisis dummy, 1=Crisis, 0=None	Website of Heritage Foundation (2014) World Bank, Global Financial Development Database
NonPerforming Loans	Share of nonperforming loans as percentage of gross loans (%)	World Bank, Global Financial Development Database
EU Tradeshare	Each country's annual EU (imports + exports) divided by its world (imports + exports) (in%)	IMF Directions of Trade Statistics (DOTS)
Business Cycle Correlation	GDP Growth (%), annual Correlation of growth rates with EU growth rates, 4-year lagged correlation, annual	World Economic Outlook

Appendix C. Robustness

The presented results are robust to the inclusion of the Chinn-Ito index of financial openness. I also tested whether the NMS dummy merely captures business cycle correlation with the euro area. Neither the addition of the variable for business cycle correlation nor the replacement of the NMS dummy and its interaction term by the variable helps explain the domestic lending variation between countries. The results are also robust to the use of the share of trade with the euro area in percentage of world trade.

Adding a banking crisis dummy results in a negative coefficient on the dummy. The other coefficients are, however, robust. Controlling for foreign bank presence or the impact of the exchange rate regime based on the IMF classifications of de facto exchange rate regimes does not change the results. In fact, I found that even given the share of foreign banks, a fall in foreign bank claims affects domestic credit in the NMS more than in other countries when interacting foreign bank presence with the change in foreign bank claims and the respective interaction term. This suggests the presence of a political integration effect that increases the link between financial integration and credit growth in the NMS.

Most of the variables I use in estimating the coefficients are predetermined variables that cannot be affected by domestic credit growth in the sample period. The change in cross-border flows is an endogenous variable. To account for possible endogeneity issues and ensure the correct direction of causality, I also instrumented the financial flow variable with its own lags and re-estimated the equations (as in Lane and McQuade, 2014). The interaction terms remain significant. Again, the results are robust to the use of the current account as net financial flow variable.

References

- Čihák, Martin, Fonteyne, Wim, 2009. 'Five Years After: European Union Membership and Macro-Financial Stability in the New Member States'. (IMF Working Paper 09/68).
- Adams-Kane, J., Julian, C., Janus, L., 2013. 'Foreign Bank Behavior During Financial Crises'. (World Bank Policy Research Working Paper 6590).
- Bakker, B., Gulde, Anne-Marie, 2010. 'The Credit Boom in the EU New Member States: Bad Luck or Bad Policies?'. (IMF Working Paper 10/130).
- Borio, Claudio, Disyatat, Piti, 2011. 'Global Imbalances and the Financial Crisis: Link or No Link?'. (BIS Working Papers 346).
- Borio, Claudio, McCauley, Robert, McGuire, Patrick, 2011. 'Global credit and domestic credit booms'. *BIS Q. Rev.* 43–57.
- Brown, Martin, Lane, Philip, 2011. 'Debt Overhang in Emerging Europe?'. The World Bank (Policy Research Working Paper 5784).
- Calderón, César, Kubota, Megumi, 2012. 'Gross Inflows Gone Wild: Gross Capital Inflows, Credit Booms and Crises'. World Bank (Policy Research Working Paper 6270).
- Chinn, Menzie, Prasad, Eswar, 2003. 'Medium-Term determinants of current accounts in industrial and developing countries: an empirical exploration'. *J. Int. Econ.* 59, 47–76.
- Claessens, Stijn, van Horen, Neeltje, 2014. 'Foreign banks: trends and impact'. *J. Money Credit Bank.* 46 (1), 295–326.
- De Haas, Ralph, 2014. 'The dark and the bright side of global banking: a (Somewhat) cautionary tale from emerging Europe'. *Comp. Econ. Stud.* 56, 271–282.
- Ebner, André, 2009. 'An empirical analysis on the determinants of CEE government bond spreads'. *Emerging Markets Rev.* 10 (2), 97–121.
- Eichengreen, Barry, Mitchener, Kris, 2003. 'The Great Depression as a Credit Boom Gone Wrong'. (BIS Working Papers No 137).

- Ferguson, Niall, Schularick, Moritz, 2006. 'The empire effect: the determinants of country risk in the first age of globalization, 1880–1913'. *J. Econ. Hist.* 66 (2), 283–312.
- Friedrich, Christian, Schnabel, Isabel, Zettelmeyer, Jeromin, 2013. 'Financial integration and growth – why is emerging europe different?'. *J. Int. Econ.* 89, 522–538.
- Hauner, David, Jonas, Jiri, Kumar, Manmohan, 2007. 'Policy Credibility and Sovereign Credit—The Case of the New EU Member'. (States' IMF Working Paper 07/1).
- Hoffmann, Andreas, Loeffler, Axel, 2014. 'Low interest rate policy and the use of reserve requirements in emerging markets'. *Q. Rev. Econ. Finance* 54 (3), 307–314.
- Hoffmann, Andreas, 2010. 'An overinvestment cycle in central and eastern europe?'. *Metroeconomica* 61 (4), 711–734.
- Jevcak, Anton, Setzer, Ralph, Suardi, Massimo, 2010. 'Determinants of Capital Flows to the New EU Member States Before and During the Financial Crisis'. (European Economy Economic Papers 425).
- Lane, Philip, McQuade, 2014. 'Domestic credit growth and international capital flows'. *Scand. J. Econ.* 116 (1), 218–252.
- Luengaruemitchai, Pipat, Schadler, Susan, 2007. 'Do Economists' and Financial Markets' Perspectives on the New Members of the EU Differ?'. (IMF Working Paper 07/65).
- Mendoza, Enrique, Terrones, Marco, 2012. 'An Anatomy Of Credit Booms and Their Demise'. (NBER Working Paper No. 18379).
- Mitchener, Kris, Weidenmier, Marc, 2008. 'Trade and Empire'. (NBER Working Paper 13765).
- Orlowski, Lucjan, 2015. 'Monetary policy and bank credit: a lack of spark'. *J. Policy Model.* 37 (3), 510–520.
- Peek, Joe, Rosengren, Eric, 1997. 'The international transmission of financial shocks: the case of Japan'. *Am. Econ. Rev.* 87 (4), 495–505.
- Reinhart, Carmen, Reinhart, Vincent, 2010. 'After the fall'. In federal reserve bank of kansas city economic policy symposium volume. *Macroeconomic Challenges: The Decade Ahead at Jackson Hole, Wyoming*, on August 26–28, 2010.
- Reinhart, Carmen, 2013. 'Goodbye Inflation Targeting, Hello Fear of Floating? Latin America After the Global Financial Crisis'. (MPRA Working Paper 51282).
- Vogel, Ursula, Winkler, Adalbert, 2012. 'Do foreign banks stabilize cross-Border bank flows and domestic lending in emerging markets? evidence from the global financial crisis'. *Comp. Econ. Stud.* 54, 507–530.