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Financial markets and the current account – emerging Europe versus emerging Asia

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Abstract

Financial globalisation has been associated with divergent current account patterns in emerging market economies. While countries in emerging Asia have been running sizeable current account surpluses, countries in emerging Europe have been facing large current account deficits. In this paper we test for the relevance of financial market characteristics in explaining divergent current account patterns in emerging Europe and emerging Asia based on the assumption that both regions constitute two different convergence clubs with the euro area and the US representing the core, respectively. In line with the theoretical literature, we find that better developed and more integrated financial markets increase emerging markets´ ability to borrow abroad. The degree of financial integration within the convergence clubs as well as the extent of reserve accumulation are found to be the most significant factors to explain divergent current account patterns in emerging Europe and emerging Asia. We conclude that the overall character of integration matters for the pattern of current account developments in catching-up economies.

JEL classification: F15, F21, O16, O52, O53

Keywords: real convergence, economic integration, saving and investment, current account developments, financial markets, emerging market economies

Non technical summary

Over the last ten years, the process of financial globalisation has been associated with strongly divergent current account patterns in emerging market economies engaged in a rapid catching-up process. While most countries in emerging Europe have been reporting substantial current account deficits, in emerging Asia – in line with the so-called Lucas paradox – the convergence process has been associated with substantial net capital outflows. This paper examines whether and to what extent financial development and financial integration can explain this divergence, making recourse to the notion that the countries in emerging Europe and the euro area/EU 15 as well as emerging Asia and the US form two different convergence clubs.

Based on an econometric panel analysis, we find that financial market characteristics are major determinants of current account developments in the European and Asian emerging market economies. In general, catching-up countries with more developed and more integrated financial markets are able to engage in borrowing abroad, thus raising domestic investment relative to domestic savings. Moreover, in line with the recent literature, the results confirm that the relationship between financial integration and the current account depends on the level of income.

However, several standard indicators of financial development and financial integration fail to account for the divergent patterns of the current account in emerging Europe and emerging Asia. Instead we find that the degree and institutional pattern of financial integration *within* the convergence clubs – together with the level of foreign exchange reserves – contribute significantly to the model's predictions of strikingly different current account patterns in emerging Europe and Asia.

These differences in financial integration point to the peculiar environment of "deep integration" between core and periphery characterising developments in the European convergence club. This allows emerging Europe to enter a growth path driven by domestic demand, in particular by investment, financed to a substantial part by foreign savings. Thus, emerging Europe has shown substantial current account deficits as predicted by standard theory. In emerging Asia, however, where financial globalisation has not evolved under conditions of "deep integration", countries entered a growth path based on export-led growth and rising current account surpluses. This raises the question whether the example of emerging Europe indicates that a transfer of credibility, quality and institutions from the core might be a precondition for emerging markets pursuing consumption-smoothing activities in a globalised financial system on a significant scale.

Nicht technische Zusammenfassung

In den letzten zehn Jahren ging der Prozess der Finanzmarktintegration mit stark unterschiedlichen Leistungsbilanzentwicklungen in catching-up Ländern einher. Während die meisten Volkwirtschaften in *Emerging Europe* substantielle Leistungsbilanzdefizite aufweisen, ist der Aufholprozess in *Emerging Asia* – gemäß dem so genannten Lucas Paradox – mit erheblichen Netto-Abflüssen von Kapital verbunden. Das Papier untersucht, ob und in welchem Ausmaß die Entwicklung der Finanzmärkte und deren Integration zu dieser Divergenz beitragen. Hierbei wird unterstellt, dass *Emerging Europe* und der Euro-Raum/EU 15 sowie *Emerging Asia* und die USA zwei unterschiedliche Konvergenzclubs bilden.

Eine ökonometrische Panel-Analyse bestätigt, dass Finanzmarktcharakteristika eine wesentliche Determinante der Leistungsbilanzentwicklung darstellen. So sind Aufholländer mit weiter entwickelten und stärker integrierten Finanzmärkten in der Lage, sich zunehmend im Ausland zu verschulden, verbunden mit einem relativ zur inländischen Ersparnis anwachsenden heimischen Investitionsvolumen. Entsprechend der aktuellen Literatur bestätigen die Ergebnisse zudem, dass die Beziehung zwischen Finanzmarktintegration und Leistungsbilanz vom Niveau des Einkommens abhängig ist.

Finanzmarktentwicklung und globale Finanzmarktintegration leisten jedoch nur einen geringen Beitrag zur Erklärung der divergierenden Leistungsbilanzentwicklungen in *Emerging Europe* und *Emerging Asia*. Dagegen tragen starke Unterschiede hinsichtlich des Grades der Finanzmarktintegration *innerhalb* der Konvergenzclubs – zusammen mit der Akkumulation von Devisenreserven – signifikant zur Erklärung hoher Leistungsbilanzdefizite in *Emerging Europe* und Leistungsbilanzüberschüssen in *Emerging Asia* bei.

Die divergierenden Strukturen *intra-regionaler* Finanzmarktintegration entsprechen unterschiedlichen Integrationsansätzen zwischen Kern und Peripherie in den beiden Konvergenzclubs. Diese haben den Zusammenhang zwischen Finanzmarktentwicklung und Leistungsbilanzsalden unter den Bedingungen finanzieller Globalisierung in beiden *catching-up* Regionen geprägt. Daher stellt sich die Frage, ob der Transfer von Glaubwürdigkeit, Qualität und Institutionen, der die europäische Integration insgesamt kennzeichnet, eine Voraussetzung dafür darstellt, dass Aufholländer unter den Bedingungen eines zunehmend international vernetzten Finanzsystems Konsumglättung als Bestandteil des catching-up Prozesses anstreben.

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1. Introduction

Over the last decade, the process of financial globalisation has been associated with strongly divergent current account patterns in emerging market economies engaged in a rapid catching-up process. While countries in emerging Europe and emerging Asia have been receiving substantial gross financial inflows, both regions have differed significantly with regard to direction and size of net capital flows. Most countries in emerging Europe, in line with standard economic theory[1], have been reporting substantial current account deficits over the last ten years (Bussière/Fratzscher/Müller, 2004; Herrmann/Jochem, 2005). Growth has been driven by domestic demand, in particular by investment, partly financed by foreign savings. By contrast, in emerging Asia – as described by the so-called *Lucas paradox*[2] – the convergence process has been associated with current account surpluses[3], while periods of expansionary domestic demand and deteriorating net exports proved to be indicators of an ensuing crisis (ADB, 2005).[4]

There is a broad consensus in the literature that the state of financial development and international financial integration plays a key role in explaining why emerging economies' current account patterns contradict standard theory (Prasad/Rajan/Subramanian, 2007) or are in line with predictions based on consumption-smoothing behaviour (Blanchard/Giavazzi, 2002 and Abiad/Leigh/Mody, 2007). Against this background, this paper analyses the

* The views expressed in the paper are those of the authors and do not necessarily represent those of the Deutsche Bundesbank or the ECB. Excellent research assistance by Silvia Magnoni, Livia Chitu and Michael Grill is gratefully acknowledged. The authors would also like to thank Neeltje van Hooren (World Bank) for data support. The paper has benefited from valuable comments by Heinz Herrmann, as well as participants of a seminar at Deutsche Bundesbank, the ECB conference on central, eastern and south-eastern Europe, an ECB seminar, the informal network of ESCB economists, and the members of the International Relations Committee of the ESCB. Corresponding author: sabine.herrmann@bundesbank.de.

[1] Standard economic theory suggests that the process of income convergence will be accompanied by capital flows from rich to emerging economies, reflecting return differentials and economic agents´ preferences for consumption smoothing, see Obstfeld/Rogoff (1996).

[2] Lucas (1990). Empirical evidence in line with the Lucas paradox has been provided by Lane/Milesi-Ferretti (2001) indicating that low income levels seem to be correlated with low investment inflows, and Prasad et al. (2007), concluding that emerging markets do not rely on capital inflows from rich countries as they generate more savings than they invest.

[3] In recent years, many resource-rich economies have seen improving current account balances as well, mainly reflecting the rise in oil and other raw material prices. However, the largest contribution to persistently high current account surpluses of emerging markets has been made by resource-poor Asian countries (Felipe et al., 2006).

[4] For a detailed account of growth processes in both regions see Crafts (1999), IMF (2006c), Schadler et al. (2006), Arratibel et al. (2007).

relationship between financial markets and current account developments in emerging market economies in Europe[5] and Asia[6]. It aims at shedding light on the question to what extent financial market characteristics have been at the heart of the strikingly different current account patterns observed in both regions.

The paper goes beyond the literature in several respects: *First*, we test for the significance of a range of variables indicating different types and dimensions of financial development and integration. *Second*, we analyse the relationship between financial markets and current account developments by way of comparison between emerging Europe and emerging Asia. *Third*, we make recourse to the concept of *convergence clubs*, with two peripheries and their two cores. The United States is identified as the core in the case of emerging Asia, while the euro area/EU-15 is the core of the convergence club in Europe.[7] This does not only reflect differences in the overall pattern of convergence but also allows us to distinguish between global and *intra-regional* financial integration *within* the convergence clubs. *Fourth*, we go beyond the identification of statistically significant determinants and reveal to what extent these variables actually contribute to the level of the current account balances.

Our analysis suggests that financial markets and financial integration are important factors in determining current account balances and their dispersion. At the same time, the *overall* state of financial development and integration provides little mileage for explaining the divergent current account patterns in emerging Europe and emerging Asia. Rather, the differences reflect the different ways financial integration *with the respective core* has been proceeding. Moreover, the different ways of financial integration are strongly rooted in a different overall integration approach between core and periphery taken in the two convergence clubs.

The paper is structured as follows: *Section 2* introduces the convergence club concept, while *Section 3* provides an overview of real convergence and current account developments in emerging Europe as well as in emerging Asia. *Section 4* reviews the literature on the role of financial markets for the current account. In *Section 5*, we test direction and significance of several financial sector variables for current account positions in the European and Asian emerging market economies. *Section 6* summarises and concludes.

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[5] The emerging European countries are the new EU Member States Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia as well as the candidate (Croatia, FYR Macedonia and Turkey) and potential candidate countries (Albania, Bosnia & Herzegovina, Montenegro and Serbia) for EU accession.

[6] The emerging Asia group refers to developing Asian countries such as China, Indonesia, Malaysia, Philippines and Thailand, as well as the newly industrialized Asian economies, i.e. Hong Kong, Korea, Singapore and Taiwan. Furthermore, India and Vietnam are part of the sample.

[7] However, we do not attempt to explain global configurations of current accounts or "global imbalances", even though we are well aware that the condition of a global current account balanced by definition implies that current account balances across countries must be interrelated, which might be

2. The concept of convergence clubs

Standard economic theory predicts that countries with a relatively low per capita income should catch up with richer ones, driven by differences in the marginal returns to capital. On a global level, however, the empirical evidence suggests increasing divergence of income levels over time.[8] This contradiction between theory and evidence triggered among others[9] the convergence club concept (Abramovitz 1986, Baumol 1986). It takes a historical perspective by noting two features of modern growth processes: (a) there have been leading countries in terms of growth and development; b) there has been only a small group of countries who managed to converge with the leader over time.[10] Leader and followers form specific convergence clubs with a core (leader) and a periphery (converging countries). Convergence is driven by spillovers from the core to the periphery as converging economies engage in similar lines of production and in extensive trade and financial linkages with the core (Baumol 1986).[11]

We apply the convergence club concept to emerging Europe and emerging Asia, as – following Eichengreen (2004) – the process of globalisation can still be very much analysed in a core – periphery framework, with the industrial countries acting as the core and emerging markets acting as the periphery. However, several indicators suggest that the two emerging regions converge to two different cores.

In Europe the convergence process of emerging economies has been shaped to a large extent by European integration, i.e. the process of accession to the European Union. This is most

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partly reflected in the US current account deficit. Gruber/Kamin (2005) provide an analysis explicitly aimed at explaining current account patterns of emerging Asia and the US.

[8] For an overview see Pritchett (1997).

[9] Endogenous growth theory challenged the assumption of a smoothly falling marginal product of capital over time, by making technical progress endogenous (Arrow 1962, Romer 1986, Lucas 1988, Grossman and Helpman 1991). As a result, the level of technical progress is country-specific and the model does not predict convergence across countries. Standard theory responded by introducing the concept of conditional convergence claiming that the steady state countries are converging to is country-specific, as it depends on a list of macroeconomic, financial sector and institutional variables (Mankiw 1995, Sala-i-Martin 1997). Thus, the law of marginal returns to capital holds but does not necessarily imply convergence.

[10] As stressed by Quah (1996) this is a main difference to the concept of conditional convergence which focuses on whether each country converges to its own steady state, different from that of other countries.

[11] By definition, this implies that countries mainly producing and exporting raw materials, are not "converging", even if they might experience a rise in per capita income levels (Dowrick and DeLong 2003). The convergence club concept does not provide a coherent answer to the question why some countries have been able to join a convergence club while others have not been able to do so (Blomstroem, Lipsey and Zejan 1992, Galor 2007). According to Abramovitz (1986) "social capability", which depends – among others – on education, the organization of firms, i.e. governance, openness etc., as well as macroeconomic and monetary conditions determine whether low-income countries can exploit the potential for rapid growth given by their technological backwardness and join a convergence club. Thus, the variables are similar to the ones used by growth empirics to account for factors determining country-specific steady states.

obvious with regard to institutional integration,[12] but applies to economic integration as well. Trade and financial integration have mainly taken the form of integration with the euro area/EU-15 and euro area/EU-15 residents have been the most important foreign investors in the region. Moreover, when taking a monetary perspective, the countries in emerging Europe predominantly use the euro as the main anchor currency (ECB 2007).[13] Against this background we identify a European convergence club with the euro area as the core and emerging Europe as the periphery.

In institutional terms, the convergence process in emerging Asia has been very different, as there is no framework comparable to the one of European integration in linking the periphery to the core. However, from an economic perspective, there are several indicators pointing to the US as the core country emerging Asian economies aim at converging to. For example, the US dollar serves as the main anchor the economies base their exchange rate policies on or to which they keep a fixed or quasi-fixed peg. Furthermore, all Asian countries - except for Indonesia - show strong trade integration with the US, with the US export share in 2006 being the largest to any single country, significantly exceeding the share of Japan and the euro area.[14] The same applies to the degree of financial integration as the stock of consolidated foreign bank claims by US banks is most pronounced in most Asian countries under review.[15] Thus, we identify a second convergence club with the US as the core and emerging Asia as the periphery.

The convergence club concept and the identification of two different convergence clubs with emerging European and emerging Asian countries constituting the respective peripheries broadens the analysis of financial development and financial integration in both regions by adding an additional, regional dimension. Current account patterns in both peripheries may not only be influenced by progress in domestic financial development and integration in global financial markets, but also by the depth and form of financial integration between core and periphery within the respective convergence club.

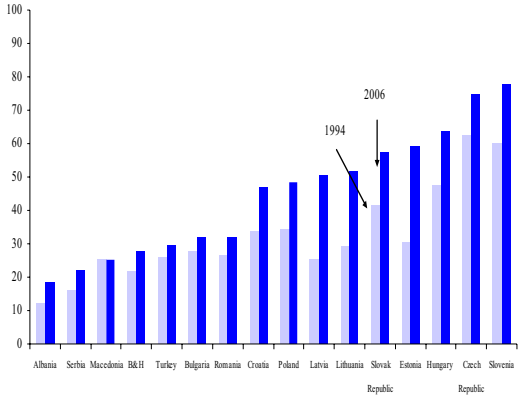
[12] All countries in emerging Europe reviewed in our sample have either become Member States of the European Union or are candidate and potential candidate countries with the perspective of becoming an integral part of the EU, once they meet the established criteria (Council of the European Union, 2003).
[13] Taking a historical perspective, the role of the exchange rate regime in a process of financial integration between core and periphery is reviewed by Bordo and Flandreau (2003).
[14] See Direction of Trade Statistics, IMF.
[15] In China, Hong Kong, Indonesia and Thailand Japanese banks hold the largest claims on the respective countries. See Consolidated Banking Statistics, BIS.

3. Real convergence and current account developments in central, eastern and south-eastern Europe and in emerging Asia – an overview

Reviewing the process of real convergence in both peripheries suggests that between 1994 and 2006, emerging Europe and emerging Asia have seen similar dynamics of catching up.[16] On average, Asian countries experienced a slightly higher growth rate (5.6%) than the emerging European countries (4.1%), with China (9.7%) and Estonia (6.6%) being the fastest growing countries within the respective convergence clubs.

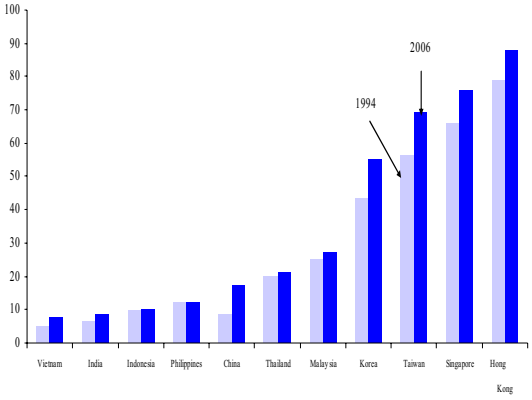
In emerging Europe, GDP per capita, compared to the euro area average, rose by more than 12 percentage points in the period under review *(Figure 1/2)*.[17] By contrast, Asian countries – on average – improved their relative per capita income position[18] vis-à-vis the United States by only 6 percentage points, mainly reflecting strong population growth.[19] The convergence process was strongly influenced by the 1997/98 financial crisis. Thailand, Indonesia, the Philippines and Malaysia, i.e. four of the five countries that were hit hardest, rank last in terms of catching-up with US per capita income between 1994 and 2006.[20]

Figure 1: GDP per capita in Emerging Europe (PPP), 1994/2006
(in percent of euro area average)



Source: IMF, authors calculations.

Figure 2: GDP per capita in Emerging Asia (PPP), 1994/2006
(in percent of US average)



Source: IMF, authors calculations.

[16] For Bosnia and Herzegovina, the average applies to the period 1999-2006 to avoid a bias due to the immediate post-war recovery with exceptionally strong annual growth rates. Data for Serbia are available only from 1999. Montenegro is not included in the analysis.

[17] In Europe, the improvement in living standards was strongest in the Baltic countries, while progress was slow (with relative GDP per capita increasing by less than 15%) in Bosnia and Herzegovina, Bulgaria, FYR Macedonia, Serbia and Turkey, reflecting political and economic crises, including wars, in particular in the first half of the review period. (For Bosnia and Herzegovina or Serbia, the averages are calculated from 1999 or 2000 to 2006.)

[18] The GDP per capita is reported in purchasing-power-parity (PPP) adjusted terms.

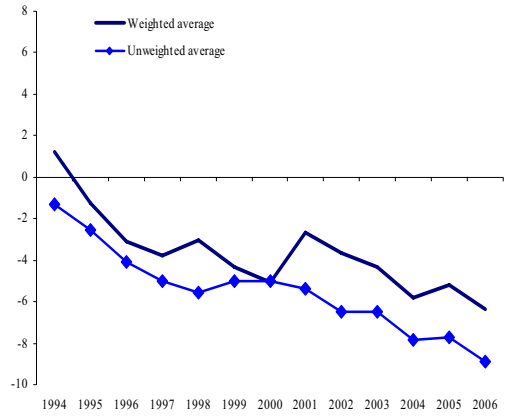
[19] While all Asian countries increase their population between 1994 and 2006, ten out of 16 CEE/SEE countries report a decline in population. Furthermore, it should be noted that in 1994 euro area GDP per capita stood at about USD 20.000 compared to around USD 26.000 in the US. Over the review period, euro area GDP per capita rose by 57%, while growth of US GDP per capita reached 65%.

[20] However, the relative income position of Korea, although strongly affected by the crisis, increased by almost 30% in the review period.

In Europe the convergence process has been accompanied by substantial current account deficits (*Figure 3*).[21] Between 1994 and 2006, only seven countries recorded one or two years with current account surpluses, either in the mid-1990s or as part of an adjustment process after a period of financial turbulences.[22] By contrast, Asian countries show, on average, a positive current account position in most of the years under consideration (*Figure 4*). The 1997 financial crisis marks a clear turning point, as five countries, Indonesia, Malaysia, Thailand, Hong Kong and Korea, saw a shift from deficits to sustained surpluses. China, Singapore and Taiwan recorded current account surpluses over the whole review period, while developments in the remaining countries have been more heterogeneous.[23]

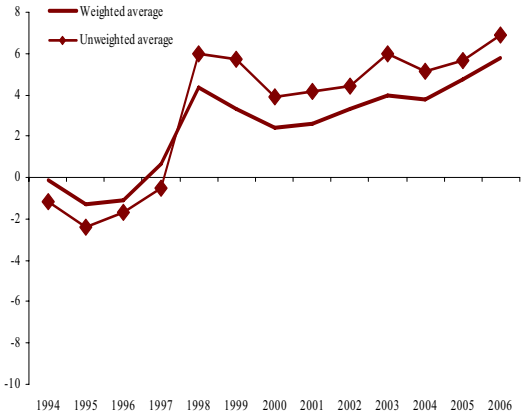
In emerging Europe, current account deficits have been mainly reflecting a rise in investment, while in emerging Asia, current account surpluses after the financial crisis can almost completely be attributed to a decline in investment (*investment drought*). The strong rise in the weighted savings rate in Asia is to a large extent driven by developments in China, where public sector saving has been continuously increasing over time (*public savings glut*).[24]

Figure 3: Current account balances in Emerging Europe, 1994-2006
(weighted /non-weighted averages, as % of GDP)



Source: IMF, authors calculations.

Figure 4: Current account balances in Emerging Asia, 1994-2006
(weighted/ non-weighted averages, as % of GDP)



Source: IMF, authors calculations.

[21] In general, smaller countries recorded higher current account deficits, explaining the wedge between the weighted and non-weighted average of current account deficits in Charts 3 and 4.
[22] Slovenia is the major exception. The country recorded a total of five years of current account surpluses and – with less than 1% of GDP – it has the lowest average current account deficit in emerging Europe. By contrast, Bosnia and Herzegovina, Serbia and Montenegro, the Baltic countries and Hungary had the highest current account deficits, on average. Turkey has seen three episodes of strong current account reversals linked to post-crisis adjustments over the review period. As a result, Turkey is the country with the second lowest average deficit over the review period (-2.0% of GDP).
[23] The current account balance of the Philippines switched signs three times, while Vietnam, after showing current account deficits of close to or even higher than 10% in the mid- to late 1990s, has also seen sub-periods of surpluses and smaller deficits. Finally, India's current account has been close to balance over the whole review period, fluctuating in a narrow range between -1.7 and +1.5% of GDP.
[24] In India and Vietnam private saving rates have been continuously increasing as well. However, as these countries were not really impaired by the crisis, investment also rose, implying only moderate external imbalances.

In both regions, a higher per capita income[25] – relative to the core – has been associated with an improving current account position (correlation coefficient Europe: 0.3, Asia: 0.6). While this is in line with the predictions of standard theory, there is a strong level effect which distinguishes the European from the Asian sample. In emerging Asia, even countries with a comparatively low per capita income have not borrowed abroad to raise present consumption. Moreover, a negative correlation (correlation coefficient Europe: -0.6, Asia: -0.2) between growth and the current account balance can be observed in both samples. Thus, within the peripheries patterns are in line with the predictions of standard theory, suggesting a positive correlation between net capital inflows and growth (Prasad/Rajan/Subramanian, 2007). However, there is again a significant level effect between the two regions, as in emerging Asia even the fastest growing countries have not been characterised by current account deficits, but only by smaller surpluses.[26]

In the following, we analyse whether the characteristics of the financial markets might have an important bearing on the development of the current account and to what extent they can explain divergent external balances in emerging Europe and Asia.

4. The current account and financial development – a review of the literature

In recent years, a broad consensus emerged in the literature that underdeveloped and weak financial markets represent one factor explaining why many emerging markets have not recorded substantial current account deficits as predicted by standard theory.[27] Underdeveloped and weak domestic financial markets hamper the ability of emerging markets to transform domestic savings in domestic investment and to engage in substantial foreign borrowing. Thus, emerging markets with underdeveloped financial markets will – in principle – invest less than predicted by standard theory and hence will show a tendency towards current account surpluses. [28]

Financial development is difficult to quantify. In the literature a low degree of financial development has been associated with

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[25] If not explicitly mentioned differently, GDP per capita figures are in PPP terms.

[26] On a global scale, Gourinchas/Jeanne (2007) found that capital flows have been more pronounced to emerging market countries with - on average - lower rates of growth. Like the Lucas paradox, this contradicts the predictions of standard economic theory with regard to the allocation of capital, which is why they refer to the empirical evidence as the *allocation puzzle*.

[27] By contrast, most of the traditional literature neglected financial sector development as a potential determinant of the current account balance. See e.g. Gosh and Ostry (1992), Debelle and Faruqee (1996), Calderón et al. (2001), Felipe et al. (2006).

[28] Theoretically, however, the impact on the current account is ambiguous, as financial sector development may foster domestic savings as well as domestic investment. For example, Edwards (1995), Chinn/Prasad (2000), Chinn/Ito (2005) and Herrmann/Jochem (2005) suggest that an efficient

- a low level of financial intermediation and financial sector quality,
- a strong accumulation of foreign exchange reserves, serving as a signalling and shock-absorbing device substituting for highly developed financial markets, and
- a limited ability to engage in international financial integration.

Concretely, three approaches linking underdeveloped financial markets with current account developments in emerging markets can be distinguished.

1. Financial intermediation and financial sector quality.[29] Underdeveloped financial sectors are seen as an impediment for emerging economies to convert domestic savings and capital inflows into high-quality assets and thus investment, creating a shortage of assets (Cooper, 2005; Caballero, 2006). As a result, financial capital flows *uphill*, i.e. from emerging to mature markets where funds can be invested in a stronger institutional setting offering higher returns.[30] This might lead to current account surpluses in emerging economies despite their low capital-labour-ratios. As financial development would induce a rise in domestic investment, a higher degree of financial intermediation and financial sector quality should be associated with a current account deterioration (Clarida, 2005; Mendoza et al., 2006).[31]

2. Built-up of foreign exchange reserves. The *precautionary savings view* (Aizenman and Lee, 2005; Aizenman, 2007) identifies foreign exchange reserve accumulation by emerging market economies as a substitute for developed financial markets in absorbing terms of trade shocks.[32] Episodes of financial crisis reveal financial sector weaknesses in emerging economies and reinforce the need to built-up foreign reserves.[33] The *new mercantilist view*

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financial sector is associated with an increase in domestic savings which would lead to an improvement of the current account.

[29] This view has been pioneered by McKinnon (1973) and Shaw (1973). The focus on financial sector quality echoes a broader view taken in the literature according to which the quality of institutions in general might lead to a divergence of marginal productivity of capital in mature versus emerging market economies irrespective of the capital-labour-ratios, see e.g. Lucas (1990), Caselli and Feyrer (2007), Acemoglu et al. (2005). According to Alfaro et al. (2005) and Mishkin (2005) the quality of domestic institutions is an important determinant of capital flows. In a similar vein, Stulz (2005) suggests that poor corporate governance and high political risk prevent the providers of capital from fully accruing the investment returns.

[30] This idea is similar to the approach of Ju/Wei (2006/2007) assuming that countries with a low quality of financial institutions will participate in international financial integration by recording FDI inflows while at the same time realising outflows of other financial capital. Thus, underdeveloped financial sectors are by-passed by economic agents through integrating with mature market economies.

[31] Caballero, Farhi and Gourinchas (2006) conclude that more pronounced homogeneity of the regions´ capacity to generate financial assets would mitigate global current account imbalances.

[32] According to this view, challenges associated with financial integration between mature and emerging economies are not the main motive for emerging market economies to engage in a strategy of foreign reserve accumulation and current account surpluses, even though greater integration might increase the responsiveness of financial flows to terms of trade shocks (Aizenman and Riera-Crichton, 2006, p. 8). Aizenman (2007) suggests that sizeable foreign exchange reserves help by providing self insurance against sudden stops.

[33] See Gruber and Kamin (2005), Eichengreen (2006), Aizenman and Lee (2005), Bernanke (2005), Aizenman and Marion (2003), Choi/Sharma/Stromqvist (2006) amd Durda/Mendoza/Terrones (2007). Weaknesses in the quality of the financial sector have been identified as a major cause of financial

(Dooley/Folkerts-Landau/Garber, 2003, 2004, 2007) claims that financial markets in emerging economies are unable to integrate in the global financial system due to a lack of credibility. To gain credibility, emerging markets have to accumulate foreign assets, mainly foreign exchange reserves. These assets, placed at the core of the convergence club, serve as collateral for private capital inflows from mature markets, mainly in the form of FDI.[34]

3. *Financial integration*. Underdeveloped financial sectors are regarded as a major obstacle for an international integration of the financial sector which hampers borrowing abroad and thus weakens the link between income convergence and the current account. Vice versa, a high degree of financial integration, as for example achieved in Europe (Blanchard/Giavazzi, 2002 and Abiad/Leigh/Mody, 2007) allows catching-up economies to run sizeable current account deficits.[35]

The literature suggests that a lack of financial development is a key obstacle for emerging markets to engage in consumption-smoothing activities, thereby affecting the current account. In the following, we test the various propositions associated with the different dimensions of financial sector development empirically for the two peripheries under review.

5. The current account and financial development – an empirical investigation

5.1. Model specification

We test direction and significance of financial development for current account developments in the emerging regions under review by estimating an inter-temporal model which defines the current account balance as the difference between domestic saving and investment. Saving as well as investment ratios are replaced by a function of different variables.[36] The estimated equation follows a reduced-form approach similar to those used by Chinn/Prasad (2000), Chinn/Ito (2005/2007), Abiad/Leigh/Mody (2007) to examine the determinants of the current account balances:

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crises in emerging market economies, most prominently in the case of the Asian financial crisis (McKinnon and Pill, 1996; Dooley, 1997; Radelet and Sachs, 2000; Llewellyn, 2002).

[34] The collateral character of official foreign exchange reserves stems from the fact that they could be seized by the authorities in the core country in case of misbehaviour by authorities in the periphery, for example in the form of re-nationalisation of foreign investment. The need to pledge collateral will vanish when emerging market economies have matured, i.e. when they have credibly adopted political and economic standards similar to those prevailing in the core country. Post-war Europe and Japan provide the most prominent example for such a process of gaining credibility.

[35] However, financial integration may also support behaviour in line with the Lucas paradox, if financial integration is a precondition for the ability of emerging market economies to invest in mature financial markets (Greenspan, 2003). Thus, from a theoretical point of view, the impact of deeper financial integration on the current account is, again, found to be ambiguous.

[36] Usually, saving and investment as well as their main determinants are to some extent correlated. Thus, some of the selected variables might affect both, the saving and the investment rate as well.

$$(1) \qquad \left(\frac{CA}{GDP}\right)_{it} = \alpha_i + \alpha_x X_{it} + \varepsilon_{it}$$

The dependent variable is the current account balance in percent of GDP. The vector of explanatory variables X_{it} includes basic macroeconomic determinants of saving and investment, namely the per capita *INCOME* (in PPP terms) relative to the reference country [37] and the *DEPENDENCY* ratio. [38] We expect that the relationship between the change in the relative per capita income and the current account to be negative, and a higher dependency ratio to be associated with a higher current account deficit, indicating that a higher ratio of the non-working to the working population reduces the saving rate. In addition, we test for the significance of the overall level of gross *CAPITAL* inflows (as a percentage of GDP) and the impact of flows taking the form of foreign direct investment (as a percentage of GDP), *FDIGDP*. Both variables[39] are expected to carry a negative sign, as higher gross inflows are associated with lower interest rates and hence higher investment, while FDI inflows have been found to boost domestic investment more strongly than other capital flows (Bosworth and Collins, 1999; Mody and Murshid, 2002; Mileva, 2007).[40]

The focus of our empirical investigation is on testing for the impact of financial development on the current account by including several financial variables representing different dimensions of financial development:

The ratio of private *CREDIT* to GDP, *M2* in relation to *GDP* and a banking *CRISIS* indicator according to Caprio/Klingebiel (2003)[41] are variables directly capturing quantity and quality of financial intermediation in emerging Asia and emerging Europe. A higher degree of financial intermediation and a better quality of the domestic financial sector (less crisis-prone) should be associated with higher current account deficits (lower surpluses), as the financial sector is assumed to take a more active and facilitating role in fostering domestic investment.

The stock of foreign *RESERVES* in percent of GDP is used as a proxy for the built-up of precautionary savings/collateral, indicating substantial financial sector weaknesses. Thus, we

[37] The euro area serves as a reference for the relative per capita income in the European economies and the US per capita income is the benchmark for the Asian emerging markets.
[38] In addition, we tested for the significance of other macroeconomic variables, following for example Chinn/Prasad (2000) and Chinn/Ito (2005/2007), including the government budget balance, the net external position, a trade openness indicator (ratio of exports and imports to GDP) as well as the terms of trade. However, they turned out to be insignificant and, thus, were excluded from the analysis.
[39] We take the lagged values of both variables as we are interested in the long-term production effects on investment which might go beyond the one-time effects in the context of the financial transaction.
[40] Thus, the net impact of strong FDI inflows on the current account is likely to be negative, even though FDI inflows have also been found to have a positive effect on domestic saving.
[41] The variable is important to take account of the impact of the Asian financial crisis in 1997/1998. Edwards (2001) argue that current account dynamics surrounding crisis years might show an anomalous behaviour. As Gruber/Kamin (2005), we only take account of *systemic* financial crises. The dummy variable is one when the country suffers a crises and zero otherwise.

expect the variable to have a positive coefficient. As reserve accumulation is also seen as a policy tool to deal with terms of trade shocks impinging on the real effective exchange rate or to pursue an export-led growth strategy, we also test for the impact of the real effective *EXCHANGE* rate (log), with real appreciation leading to a worsening of the current account.

We also control for the influence of financial integration, expecting a negative coefficient, as a higher degree of integration facilitates borrowing abroad and thus strengthens the ability of countries to perform consumption-smoothing activities.[42] Expanding the analysis by Abiad/Leigh/Mody (2007) and Blanchard/Giavazzi (2002), we test for the relevance of four aspects of financial integration:

- the regulatory state of financial openness as measured by the *CHINN_ITO* Index,
- the state of *OVERALL INTEGRATION* in the international financial system, with the sum of foreign assets and liabilities/GDP serving as a proxy (see Lane/Milesi-Ferretti, 2006),
- the degree of *INTRA*-convergence club financial *INTEGRATION*, proxied by the consolidated foreign bank claims of the US/euro area BIS reporting banks on the respective periphery countries in emerging Asia and emerging Europe (expressed as a percentage of GDP of the recipient country), and
- the share of *FOREIGN*-owned *BANKING* assets (in percent of total banking sector assets in the periphery countries), measuring the degree of financial integration with regard to financial institutions. Given that most of the foreign banks entering emerging European countries have been banks from the euro area, we interpret this variable as an additional indicator for financial integration within the respective convergence clubs.

We also expect that financial integration affects the current account differently in different stages of economic development. Thus, all variables measuring the degree of financial integration are interacted with the per capita income variable. (*For the status quo of financial integration in both regions see figures in the Annex.*)

Finally, ε_{it} represents the disturbance term of the estimation. The database covers 27 emerging markets in Europe and Asia, namely the 16 countries in central, eastern and south-eastern Europe as well as 11 developing and newly industrialized Asian economies.[43] Due to the transition in emerging Europe, the period of analysis is restricted to 1994 to 2006.[44] Thus,

[42] We focus on quantity-based measures of actual financial integration, as price-based indicators are more vulnerable to be biased by common factors or and/or similarities in fundamentals. See also Adam et al. (2002) and Baltzer et al. (2007).
[43] For a detailed description of the countries under review and the estimated variables see the Annex.
[44] Transition from plan to market started in 1989. However, its initial impact had been so strong that data before 1994 may be significantly biased by a transition effect.

we take annual data, as the short observation period does not allow testing with a panel that contains non-overlapping 5-year period averages of the data for each country, as done in Chinn/Prasad (2000), Gruber/Kamin (2005) and Abiad/Leigh/Mody (2007).[45]

Our approach raises the issue of *endogeneity*.[46] Capital flows may be largely endogenous, i.e. a consequence of current account developments, rather than an exogenous variable. For example, a high degree of financial integration might reflect strong demand for financing in the countries under review rather than exogenously determining savings and investment, and thus current account developments in the respective country. There is no unanimous answer to this question in the literature (see e.g. Fry et al., 1995). However, as it is assumed that credit markets in emerging economies are constraint by supply factors due to underdeveloped financial sectors and inefficient financial institutions (contrasting with more mature financial markets, where credit can be assumed to be mainly demand driven), it is consistent to treat variables depicting characteristics of financial markets and financial integration as exogenous determinants of domestic saving and investment decisions. Furthermore, the variables used in the estimation can be treated as exogenous, as - with the exception of FDIGDP - , they do not have a net flow dimension, but depict either stock variables or gross flows. Moreover, the flow variables (CAPITAL and FDIGDP) are lagged. Finally, we take account of a possible endogeneity in a technical sense by referring to an IV-estimator (see section 5.3.).

5.2. Estimation results

Two models are estimated using a Feasible Generalized Least Squares (FGLS) estimation with fixed effects, AR-terms and panel-corrected standard errors taking into account a heteroskedastic error structure as well as a correlation between countries: (1) a basic model capturing the impact of the macroeconomic variables as well as the overall level of capital flows and FDI, respectively, and (2) a financial development model that takes into account the various variables of financial development and integration introduced in section 5.1.[47] The FGLS estimation results are presented in *Table 1*.[48]

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[45] Chinn/Prasad (2000) examined the robustness of the medium-term results at an annual frequency. They found that while, in general, estimates at an annual frequency are less precise, most coefficients have the same sign and often similar magnitudes.

[46] In addition, it might be argued that a substantial part of the equation is based on a simple balance of payment identity, as several of the explanatory variables are linked to the financial account. However, among these variables only the FDIGDP variable, lagged by one year, properly accounts for a financial account sub-balance. As a result, there is no risk of estimating a balance of payment identity.

[47] Thus, we follow Beck and Katz (1995, 2004) and Edwards (2001) and use a static model whereas a dynamic version is part of the robustness test (see section 5.3).

[48] The panel unit root tests of Levin/Lin/Chu (2002), Breitung (2000), Im/Pesaran/Shin (2003) as well as an ADF test based on Maddala/Wu (1999) were applied. These tests confirmed that the left-hand side variable and most other variables were stationary. The non-stationary variables (INCOME, CREDIT, CHINN_ITO) were differentiated. A time trend is included in the FGLS estimations in order to control for the trend-stationary variables (M2GDP, CRISIS, OVERALL INTEGRATION). The

Table 1. Determinants of the current account – results of the FGLS estimations

	(1) Basic Model	(2) Financial Development Model
D(INCOME)	-0.506 *(-2.74)***	-1.163 *(-9.03)***
DEPENDENCY	-20.220 *(-2.25)***	-33.483 *(-2.00)***
CAPITAL (-1)	-0.080 *(-3.55)***	-0.048 *(-3.39)***
FDIGDP (-1)	-0.151 *(-2.97)***	-0.199 *(-4.27)***
RESERVES		0.253 *(7.73)***
EXCHANGE		-0.311 *(-0.23)*
D(CREDIT)		-9.226 *(-3.70)***
M2GDP		-0.031 *(-1.76)**
CRISIS (-1)		1.880 *(4.25)***
D(CHINN_ITO)		-0.337 *(-1.26)*
OVERALL INTEGRATION		-0.017 *(-2.54)***
INTRA INTEGRATION		-0.154 *(-3.60)***
FOREIGN BANKING		-0.086 *(-3.13)***
Interaction term: Overall Integration *Income		0.0003 *(3.66)***
Interaction term: Intra Integration *Income		0.001 *(1.61)**
Interaction term: Foreign Banking *Income		0.001 *(1.88)**

*** (**) [*] denotes significance at the 1% (5%) [10%] level; t-values in parentheses.

The results of the *basic model* stress the importance of the domestic macroeconomic variables and confirm the expected coefficients. Countries in emerging Europe and emerging Asia experiencing a more pronounced income growth (relative to the core country) are found to record higher current account deficits or lower surpluses.[49] Moreover, as in Masson et al.

results are robust with respect to different models and different specifications, see Chapter 5.3. for a robustness check. AR- terms and trends are not reported in the table. The regression was estimated with Eviews 6.

[49] We were unable to test for consumption smoothing in a strict sense, as the level of per capita income, expressed as a percentage of per capita income at the core, was found to be non-stationary and was

(1998) and Chinn/Prasad (2000), countries with a higher dependency ratio show a higher current account deficit. Furthermore, larger gross inflows of capital as well as stronger FDI inflows, both expressed as a percentage of GDP of the recipient country, increase the current account deficit significantly indicating that foreign capital act as a major source of funding investment. In doing so, the impact of FDI on the current account seems to be remarkably stronger than the influence of capital inflows in general.

The *financial development model* confirms that more developed financial markets allow emerging economies to invest more due to a more sophisticated financial intermediation. This is confirmed by significant negative coefficients of real credit growth and the M2 ratio.[50] Furthermore, the experience of a banking crisis seems to be an incentive for countries to run current account surpluses. In addition, a higher stock of foreign exchange reserves is significantly linked with an improvement in the current account balance in both model specifications. By contrast, we find that an appreciation of the real effective exchange rate, while being associated with a higher current account deficit (lower current account surplus), is not significant in the model specification presented in Table 1.

The model confirms that all indicators of financial integration are negatively correlated with the external balance, with only the Chinn/Ito index failing to be significant. Thus, the model lends support to the hypothesis that the degree of overall financial integration, the extent of financial integration *within* the convergence clubs and the penetration of foreign banks into domestic banking sectors matter for developments in the current account balance.

Finally, all variables representing the de facto degree of financial integration interact positively and significant with the relative income level. Two major results arise:

- *First*, the relationship between financial integration and the current account depends on the level of income. As a result, the parameter of overall financial integration (-0.0169 + 0.0003 * per capita income), intra-regional financial integration (-0.1543 + 0.001 * per capita income) and foreign banking asset share (-0.0864 + 0.001 * per capita income) is negative for low-income countries and positive for high-income countries. Thus, in line with the findings of Abiad/Leigh/ Mody (2007), a higher level of financial integration leads to an increased dispersion of current account balances, as - given a certain income level - deficits and surpluses will be larger compared to a situation with a low level of financial integration.

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differentiated. However, assuming that poorer countries grow faster than richer countries would indirectly lend support to the *consumption smoothing* hypothesis, implying that capital flows *downhill* from rich to poor countries.

[50] As the private credit to GDP ratio has been differentiated, the variable represents the change in the private credit to GDP ratio.

- *Second*, the degree of financial integration has a positive impact on the link between the relative income position and the current account, as a higher level of financial integration contributes to a higher income coefficient (0.0003 * overall financial integration + 0.001 * intra-regional financial integration + 0.001 * foreign banking asset share). Thus, depending on the underlying relationship between per capita income and the current account[51], a higher degree of financial integration strengthens either consumption-smoothing behaviour or will be associated with a shift in the underlying relationship between relative per capita income and the current account from the Lucas paradox to consumption-smoothing.

Overall, the results indicate that more developed financial systems in emerging economies and deeper financial integration are associated with a deteriorating current account balance. Thus, at the current income level of the countries under review, financial development and integration seem to enhance countries' ability to perform consumption-smoothing activities.

5.3. Robustness Check

First, by estimating a dynamic IV estimator according to Anderson/Hsiao (1981) we controlled for possible endogeneity of certain right-hand side variables. This estimator also avoids the Nickell bias. The constant, the second lag of the endogenous variable, the exogenous variables and their lags as well as two lags of the pre-determined variables RESERVES, EXCHANGE, CAPITAL and FDI were used as instruments. The results are comparable with the FGLS estimation. However, the advantages of the dynamic estimator are offset by a lower efficiency compared to the static estimation, also reflecting the limited amount of observations. Moreover, the Nickell bias should not play a major role in our context, given the relatively small number of cross sections and the relatively large number of time periods. Thus, we stick to the static estimation results.

Second, instead of using a linear time trend (in order to control for trend-stationary variables) we run an estimator with period fixed effects (in addition to the cross section fixed effects). Period time dummies are a more general specification of a time trend. The results do not deviate significantly from the FGLS estimator, however, show a slightly reduced significance.

[51] As the level of per capita income was found to be non-stationary, our analysis does not allow us to make inferences on the underlying relationship between per capita income and the current account, i.e. whether financial integration has an impact on the direction of the relationship between income and the current account. Abiad/Leigh/Mody (2007) found that a certain level of financial integration is associated with a shift in the per capita income – current account relationship, with countries below this level of financial integration being subject to the Lucas paradox, while above this threshold level of financial integration consumption-smoothing behaviour is observed.

Third, alternatively, we follow a kind of *encompassing method* by introducing step by step additional variables to see what changes occur when adding additional variables. The coefficients of the estimated variables in these alternative model specifications - except for the dependency ratio which shows a certain variation in the different models - are robust to these alterations. Furthermore, we consider alternative measures of financial sector development and quality, namely the spread between lending and deposit rates and the share of non-performing loans to total loans which turned out to be not significant.

Fourth, we also controlled for the effect of the exchange rate regime. Although standard economic theory does not give any indication that - in the long run - the exchange rate regime has a bearing on the current account balance, it cannot be excluded that short-run adjustment effects occur. These might be of relevance as our analysis is based on annual data. Following IMF (2006b) we include a dummy variable representing the exchange rate regime. It is found that this variable has no significant impact on the current account and, in addition, does not impair the outcome of the original estimation.

Fifth, in a different estimation we exclude China from the analysis as developments in China stand out within the Asian sample. The results deviate only marginally from the original model. Moreover, based on the idea that there might be disadvantages of forcing two different convergence clubs into the straightjacket of a common regression, we run separate estimations of the European and the Asian sample (see e.g. Pritchett, 1997). The results are very much comparable with the original estimation. However, due to the fact that the number of observations is much smaller, some variables exhibit a less pronounced significance. The most striking difference is that the Chinn-Ito capital account openness index turns out to be positive in the European sample while in the Asian sample the variable is negative in line with the result of the overall estimation.

5.4. Contribution Analysis

As a second step, we perform a contribution analysis that provides information on the *economic significance* of the estimated variables. In particular, the analysis reveals to what extent the individual variables have given rise to different patterns of current account developments in emerging Europe and Asia (*Table 2).* [52] The main results can be summarised as follows:

[52] The data result from multiplying the estimated parameters of *the financial development model* by the annual figures of each factor using the average in the two regions. Thus, the analysis informs about the relative contributions of the various variables to the predicted current account/GDP ratio for both peripheries.

Macroeconomic factors have been important and economically relevant determinants of current account developments in emerging Europe and emerging Asia. In particular, the demographic situation seems to have a strong impact on agents' savings behaviour and thus current account balances. The ongoing strong catching-up process also induces an inflow of capital to both regions under consideration.

The Asian financial crisis had a strong positive impact on current account developments in emerging Asia. This is evidenced by the CRISIS variable as such, but is also picked up by D(INCOME), CAPITAL and D(CRDEDIT). While in the aftermath of the Asian crisis income and credit growth slowed in emerging Europe as well, leading to an improvement in the current account, the impact was much milder than in emerging Asia.

The increasing divergence of current account deficits in emerging Europe versus emerging Asia has been mainly driven by (1) the rapidly rising presence of foreign banks in emerging Europe as well as a significantly lower level of financial integration between core and periphery in the US/emerging Asia convergence club compared to the European convergence club, and (2) the rapid accumulation of foreign exchange reserves in emerging Asia which was outpacing similar developments in emerging Europe.

By contrast, standard indicators of financial intermediation (M2GDP, D(CREDIT)) and overall financial integration (OVERALL INTEGRATION) provide little mileage in explaining the divergent pattern of current account developments in the two peripheries. This mainly reflects the fact that on average these indicators do not show a significantly higher level and/or stronger trend of financial development in emerging Europe compared to emerging Asia. By contrast, the level of financial development (M2GDP) and the degree of integration in the global financial system is actually higher in emerging Asia than in emerging Europe,[53] *ceteris paribus* suggesting that emerging Asian countries should have shown a more negative current account balance than countries in emerging Europe.

The latter result might reflect data weaknesses. Standard indicators of financial development might fail to capture borrowing constraints businesses and households effectively face (Eichengreen, 2006; IMF, 2006a), as they might not reveal the true dimension of supply constraints domestic economic agents face in acceding financial services, e.g. the ability of households to take consumer and mortgage credit.[54] Quantitative measures of financial

[53] This is not contradictory to the evidence provided by Abiad/Leigh/Mody (2007), suggesting an extraordinary degree of financial integration in Europe, as it is to a large extent driven by cross-border asset holdings in the European core. Focusing on emerging Europe only, the sum of foreign assets and liabilities – on average, expressed as a percentage of GDP – is still lower than in emerging Asia.

[54] Evidence on financial sector outreach, i.e. the degree of retail banking in emerging market countries is limited, with Beck et al. (2005) being a major exception, as they provide information on outreach indicators across countries (branch and ATM penetration, loan and deposit accounts per capita, loan

development also inherently miss the quality aspect, which is, however, difficult to measure.[55] The same applies to the indicators capturing the extent of financial integration, as they may be distorted by policy actions, for example the *sum of total foreign assets and liabilities* also includes foreign exchange reserves, or pick up financial integration in a rather partial way, like *claims by BIS reporting banks* on emerging market economies.

At the same time, the results seem to suggest that the *character* of financial integration matters. Current account developments in emerging Europe have not been different because the region has significantly better developed financial systems or because it is financially deeper integrated in the global economy than emerging Asia. Rather, emerging Europe has been different because its financial integration *with the core* has been very different than in emerging Asia, reflecting the fact that the European integration process has been a process of "deep integration"[56], where new member states, the periphery, have been joining the core by accepting key European institutions, laws and governance practices.

This "deep" character of European integration may have facilitated financial integration within the convergence club as it mitigated or even erased – at least to a large extent – the inherent *credibility gap* between core and periphery, allowing emerging Europe to run substantial current account deficits and limit reserve accumulation compared to emerging Asia.[57] It may also explain why foreign banks from the euro area/EU-15 have entered the domestic banking sectors in the region at such a scale[58] and thus created a very special environment for *financial sector quality* in emerging Europe, facilitating other investment inflows.[59] These factors may not be captured by the standard variables of financial development and integration, possibly explaining why their economic relevance in explaining divergent current account patterns in emerging Asia and Europe has been rather marginal.

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and deposit income ratios). The results – taking simple averages for the European and the Asian sample – suggest that both regions have reached a fairly similar degree of financial sector outreach.

[55] For example, the ratio of non-performing loans to total loans is a lagging indicator for lending quality, in particular in times of rapid credit growth, and might - on a cross-country level - be misleading due to different classification requirements. Similarly, the spread between lending and deposit rates might indicate inflationary pressures or a low degree of competition as poorly governed financial institutions need larger spreads to ensure profitability (McKinnon, 1992).

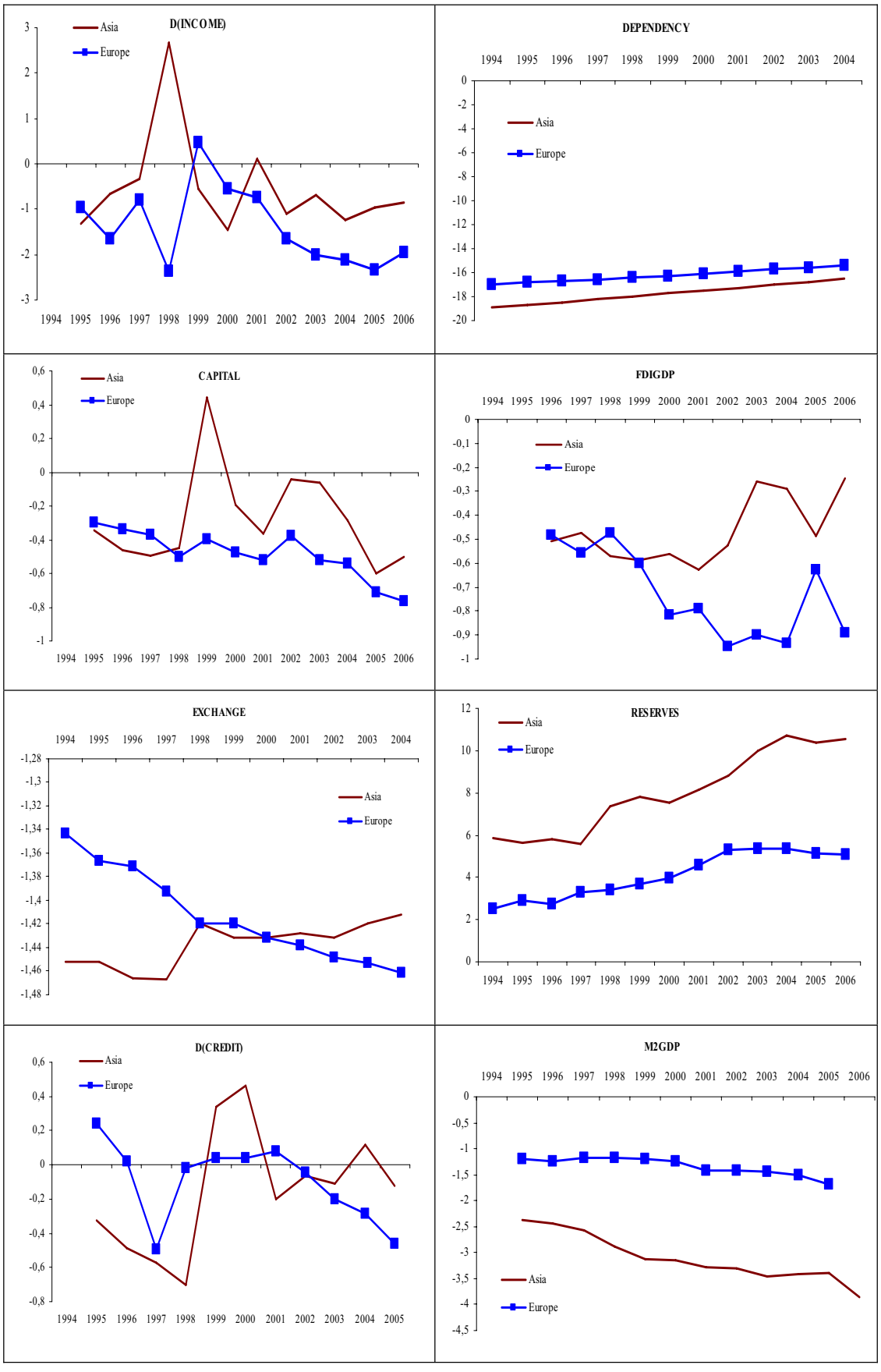
[56] Rodrik (2007) distinguishes between "deep integration" within a nation, like the United States, and the European Union, and "shallow integration" for the remaining country universe.

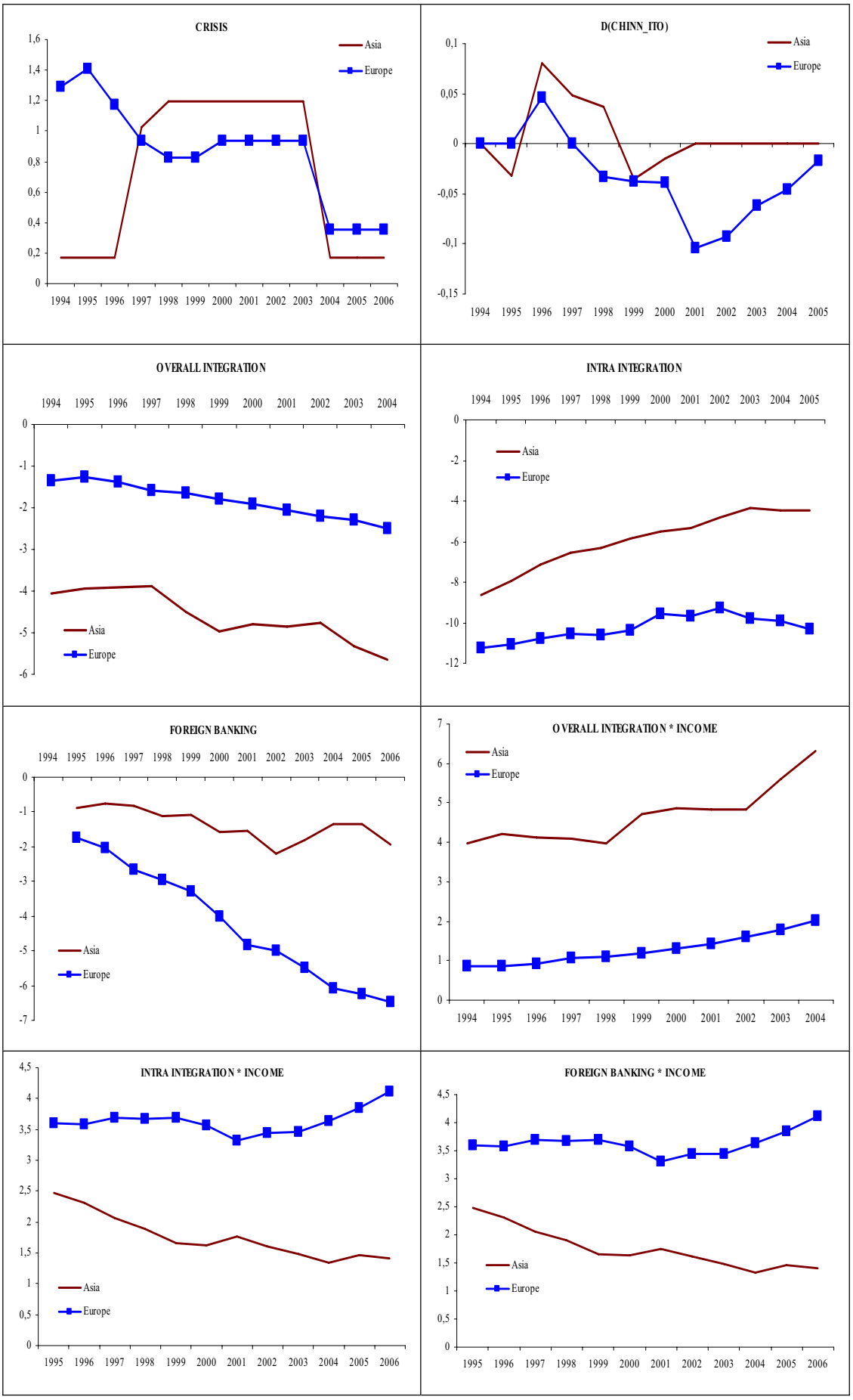
[57] In a similar vein, Luengnaruemitchai/Schadler (2007) offer confidence imparted by EU membership as one explanation for their finding that the central and eastern European Member States of the EU have been enjoying favourable risk premia, with some 50-100 bps lower than other emerging markets with similar fundamentals.

[58] Indeed, foreign-owned banks have been invited to enter the region after episodes of financial crises, revealing the weaknesses of domestic banks in terms of lending techniques and governance (Mehl, Vespro and Winkler, 2006).

[59] Comparing financial sector development in all transition countries, i.e. including emerging Europe in the definition of this paper as well as the CIS, Berglöf and Bolton (2002) use the term "great divide" to stress the different character and environment of financial sector development in transition countries caused by the fact that some countries had and still have an EU accession perspective.

Table 2. Contribution to the current account developments in Europe/Asia (in % of GDP)

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6. Conclusions

The paper analysed the significance and economic relevance of financial factors for divergent current account developments in emerging Europe and emerging Asia. In doing this, we identified emerging Europe and the euro area/EU 15 as well as emerging Asia and the US as two different convergence clubs. This allowed us to introduce indicators of financial integration *within* the convergence clubs as additional explanatory variables.

Our analysis confirms that financial market development and financial integration are important factors in determining current account balances. Better developed financial markets as well as a higher degree of financial integration are in general associated with higher current account deficits/lower current account surpluses.

However, several standard indicators of financial development and financial integration fail to account for the divergent patterns of the current account in emerging Europe and emerging Asia. Instead we find that the degree and institutional pattern of financial integration *within* the convergence clubs – together with the level of foreign exchange reserves – contribute significantly to the model's predictions of strikingly different current account patterns in emerging Europe and Asia.

These differences in financial integration point to the peculiar environment of "deep integration" between core and periphery characterising developments in the European convergence club, allowing emerging Europe to enter a growth path driven by domestic demand, in particular by investment, financed to a substantial part by foreign savings. Thus, emerging Europe has shown substantial current account deficits as predicted by standard theory. Of course, rapid financial deepening and the associated current account deficits have important macroeconomic and financial stability implications. They have been extensively reviewed in the literature (e.g. Eichengreen and Choudhry, 2005; Arcelan et al., 2007) as well as by international financial institutions and central banks (ECB 2006a-c, Banerji and Kähkönen 2007). Thus, while the example of emerging Europe illustrates the impact of financial integration for current account developments in a process of real convergence, it does not imply that this process does not involve risks.

In emerging Asia, however, where financial globalisation has not evolved under conditions of "deep integration", countries entered a growth path based on export-led growth and rising current account surpluses. This raises the question whether the example of emerging Europe indicates that a transfer of credibility, quality and institutions from the core might be a precondition for emerging markets pursuing consumption-smoothing activities in a globalised financial system. We leave this question for future research.

7. Literature

Abiad, A., Leigh, D. and Mody, A., (2007), International Finance and Income Convergence: Europe is Different, IMF Working Paper, No. 64, International Monetary Fund, Washington.

Abramovitz, M. (1986), Catching Up, Forging Ahead, and Falling Behind, *The Journal of Economic History*, 46 (2), pp. 385-406.

Acemoglu, D., Johnson, S. and Robinson, J.A. (2005), Institutions as the Fundamental Cause of Long-Run Growth, in: Aghion, P. and Durlauf, S. (eds), (2006), Handbook of Economic Growth, Amsterdam, Elsevier North-Holland.

Adam, K. et al. (2002), Study to Analyse, Compare, and Apply Alternative Indicators and Monitoring Methodologies to Measure the Evolution of Capital Market Integration in the EU, European Commission, Bruxelles.

Aizenman, J. (2007), Large Hoarding of International Reserves and the Emerging Global Economic Architecture, NBER Working Paper, No. 13277, National Bureau of Economic Research, Cambridge.

Aizenman, J. and Lee, J. (2005), International Reserves: Precautionary versus Mercantilist Views, Theory and Evidence, NBER Working Paper, No. 11366, National Bureau of Economic Research, Cambridge.

Aizenman, J. and Marion, N. (2003), The high Demand for International Reserves in the Far East: What is going on?, *Journal of the Japanese and International Economies*, No. 17, 370-400.

Aizenman, J. and Riera-Chrichton, D. (2006), Real Exchange Rate and International Reserves in the Era of Growing Financial and Trade Integration, *NBER Working Paper*, No. 12363, National Bureau of Economic Research, Cambridge.

Alfaro, L., Kalemli-Ozcan, S. and Volosovych, V. (2005), Capital Flows in a Globalized World: The Role of Policies and Institutions, NBER Working Paper, No. 11696, National Bureau of Economic Research, Cambridge.

Anderson, T.W. and Hsiao, C. (1981), Estimation of Dynamic Models with Error Components, *Journal of the American Statistical Association*, No. 76, 598-606.

Arcalean, C., Calvo-Gonzalez, O., Móré, C., van Rixtel, A., Winkler, A. and Zumer, T. (2007), The Causes and Nature of Rapid Growth of Bank Credit in the Central, Eastern, and South Eastern European Countries, in: Charles Enoch and Inci Ötker-Robe (eds.), Rapid Credit Growth in Central and Eastern Europe, Endless Boom or Early Warning? Palgrave Macmillan, New York.

Arratibel, O. et al. (2007), Determinants of Growth in the Central and Eastern European EU Member States - A Production Function Approach, ECB Occasional Paper Series, No. 61, European Central Bank, Frankfurt am Main.

Arrow, K.J. (1962), The Economic Implications of Learning by Doing, *Review of Economic Studies*, 39, pp. 155-173.

Árvai, Z. and Vincze, J. (2002), Models of Financial Crisis? Can They Explain the 'Boom' of Financial Crises in Transition?, in Winkler, A. ed., *Banking and Monetary Policy in Eastern Europe. The First Ten Years*. Palgrave Publishing, pp. 89 – 103.

Asian Development Bank (2005), Export or domestic demand-led growth in developing Asia? In: Asian Development Outlook 2005, Manila, Philippines.

Asian Development Bank (2007), Beyond the Crisis - Emerging Trends and Challenges, Asian Development Bank, Manila, Philippines.

Baltzer, M., Cappiello, L., De Santis, R. and Manganelli, S. (2007), Measuring Financial Integration in the New EU Member States, ECB Working Paper, mimeo.

Banerji, A. and Kähkönen, J. (2007), Real Convergence and the Balance of Payments, Paper presented at the ECB conference on central, eastern and south-eastern Europe, 1-2 October 2007, Frankfurt am Main.

Baumol, W. (1986), Productivity Growth, Convergence, and Welfare: What the Long-Run Data Show, *American Economic Review*, vol. 76(5), pp. 1072-85.

Beck, T., Demirguc-Kunt, A. and Martinez Peria, M.S. (2005) , "Reaching Out: Access To and Use of Banking Services Across Countries" (October 2005). World Bank Policy Research Working Paper No. 3754.

Beck, N. and Katz, J.N. (1995), What to Do (and not to Do) with Time-Series and Cross-Section Data, American Political Science Review, Vol. 89, No. 3, 634-647.

Beck, N. and Katz, J.N. (2004), Time-Series Cross-Section Issues: Dynamics, MIMEO, New York University.

Berglöf, E. and Bolton, P. (2002), The great divide and beyond. Financial architecture in transition*, Journal of Economic Perspectives,* 16 (1), 77 – 100.

Bernanke, B. S. (2005), The Global Saving Glut and the U.S. Current Account Deficit*, Speech given on March 10, 2005, at the Sandridge Lecture, Virginia Association of Economists, Richmond, Virginia*.

Blanchard, O. and Giavazzi, F. (2002), Current Account Deficits in the Euro Area: The End of the Feldstein-Horioka Puzzle?, *Brookings Papers on Economic Activity*, Vol. 2, 147-210.

Blomstroem, M., Lipsey, R.E. and Zejan, M. (1992), What Explains Developing Country Growth?, NBER Working Paper, No. 4132, National Bureau of Economic Research, Cambridge.

Bordo, M.D. and Flandreau, M. (2003), Core, Periphery, Exchange Rate Regimes and Globalization, in: Michael Bordo et al., (ed.), *Globalization in Historical Perspective,* University of Chicago Press, Chicago, pp. 373-416.

Bosworth, B.P. and Collins, S.M. (1999), Capital Flows to Developing Economies: Implications for Saving and Investment, *Brookings Papers on Economic Activity*, Vol. 1, 143-169.

Breitung, J. (2000), The Local Power of Some Unit Root Tests for Panel Data, in Baltagi, B. (ed.), *Advances in Econometrics*, Vol. 15: Non-Stationary Panels, Panel Cointegration, and Dynamic Panels, Amsterdam, JAI Press, 161-178.

Bussière, M./Fratzscher, M. and Mueller, G.J. (2004), Current Account Dynamics in OECD and EU Acceding Countries – An Intertemporal Approach, *ECB Working Paper Series*, No. 311, European Central Bank, Frankfurt a.M.

Caballero, R.J. (2006), On the macroeconomics of asset shortages, *NBER Working Paper*, No. 12753, National Bureau of Economic Research, Cambridge.

Caballero, R., Farhi, E. and Gourinchas, P. (2006), An Equilibrium Model of Global Imbalances and Low Interest Rates, *NBER Working Paper*, No. 11996, NBER, Cambridge.

Calderon, C., Chong, A. and Loayza, N.V. (2002), Determinants of Current Accounts Deficits in Developing Countries, *Contributions to Macroeconomics*, Vol. 2, Issue 1, Article 2.

Caprio, G. and Klingebiel, D. (2003), Episodes of Systemic and Borderline Financial Crises, World Bank Research Dataset, World Bank, Washington.

Caselli, F. and Feyrer, J. (2007), The Marginal Product of Capital, *Quarterly Journal of Economics*, forthcoming.

Chinn, M.D. and Ito, H. (2005), Current Account Balances, Financial Development and Institutions: Assaying the World 'Saving Glut', *NBER Working Paper*, No. 11761, National Bureau of Economic Research, Cambridge.

Chinn, M.D. and Ito, H. (2007), East Asia and Global Imbalances: Saving, Investment, and Financial Development, *NBER Working Paper*, No. 13364, National Bureau of Economic Research, Cambridge.

Chinn, M.D. and Prasad, E.S. (2000), Medium-Term Determinants of Current Accounts in Industrial and Developing Countries: An Empirical Exploration, *Journal of International Economics*, Vol. 59 (1), 47-76.

Choi, W.G., Sharma, S. and Stromqvist, M. (2006), Capital Flows, Financial Integration, and International Reserve Holdings: The Recent Experience of Emerging Markets and Advanced Economies, *IMF Working Paper*, No. 07/151, International Monetary Fund, Washington.

Clarida, R. H. (2005), Japan, China, and the U.S. Current Account Deficit, *The Cato Journal*, No. 25, 111-114.

Cooper, R.N. (2005), Living with Global imbalances: A Contrarian View, *Policy Briefs*, No. PB05-3, Institute for International Economics.

Crafts, N. (1999), East Asian Growth Before and After the Crisis, IMF Staff Paper, Vol. 46, No. 2, International Monetary Fund, Washington.

Debelle, G. and Faruqee, H. (1996), What Determines the Current Account? A Cross-Sectional and Panel Approach, *IMF Working Paper*, No. 58, International Monetary Fund, Washington.

Dooley, M.P. (1997), A Model of Crisis in Emerging Markets, *NBER Working Paper*, No. 6300, National Bureau of Economic Research, Cambridge.

Dooley, M.P., Folkerts-Landau, D. and Garber, P.M. (2003), An Essay on the Revived Bretton Woods System, *NBER Working Paper*, No. 9971, National Bureau of Economic Research, Cambridge.

Dooley, M.P., Folkerts-Landau, D. and Garber, P.M. (2004), The US Current Account Deficit and economic development: Collateral for a Total return Swap, *NBER Working Paper*, No. 10727, National Bureau of Economic Research, Cambridge.

Dooley, M.P., Folkerts-Landau, D. and Garber, P.M. (2007), The Two Crises of International Economics, *NBER Working Paper*, No. 13197, National Bureau of Economic Research, Cambridge.

Dowrick, S. and DeLong, J.B. (2003), Globalisation and Convergence, in: Michael Bordo et al., (ed.), *Globalization in Historical Perspective,* University of Chicago Press, Chicago, pp. 191-226.

Durda, C.B., Mendoza, E.G. and Terrones, M.E. (2007), Precautionary Demand for Foreign Assets in Sudden Stop Economies: An Assessment of the New Mercantilism, *IMF Working Paper*, No. 146, International Monetary Fund, Washington.

Edwards, S. (2001), Dollarization: Myths and Realities, *Journal of Policy Modeling*, Vol 23, No. 3, 249-65.

Edwards, S. (1995), Why are Saving Rates so Different across Countries, *NBER Working Paper*, No. 5097, National Bureau of Economic Research, Cambridge.

Eichengreen, B. (2004), Global Imbalances and the Lessons of Bretton Woods, *NBER Working Paper*, No. 10497, National Bureau of Economic Research, Cambridge.

Eichengreen, B. (2006), The Blind Men and the Elephant, *Issues in Economic Policy*, No. 1 Brookings Institution, Washington.

Eichengreen, B. and Choudhry, O. (2005), Managing Capital Flows: Eastern Europe in an Asian Mirror, University of California, Berkeley (*unpublished paper*).

European Central Bank (2006a), Financial Development in Central, Eastern and South-Eastern Europe, Monthly Bulletin, November, 93-104.

European Central Bank (2006b), EU Banking Sector Stability, Frankfurt a.M.

European Central Bank (2006c), Financial Stability Review, December 2006, Frankfurt a.M.

European Central Bank (2007), Review of the International Role of the Euro, Frankfurt a.M.

Felipe, J., Kintanar, K. and Lim, J.A. (2006), Asia's Current Account Surplus: Saving Glut or Investment Drought?, *Asian Development Review*, Vol. 23, 16-54.

Galor, O. (2007), Multiple Growth Regimes – Insights from Unified Growth Theory, CEPR Discussion Paper, No. 6427, CEPR London.

Greenspan, A. (2003), Remarks at the 21st Annual Monetary Conference, Cosponsored by the Cato Institute and *The Economist*, Washington, D.C. November 20, 2003, http://www.federalreserve.gov/boarddocs/Speeches/2003/20031120/default.htm

Grossman, G.M. and Helpman, E. (1991), Innovation and Growth in the Global Economy, Cambridge.

Gruber, J.W. and Kamin, S.B. (2005), Explaining the Global Pattern of Current Account Imbalances, International Finance Discussion Papers, No. 846, Board of Governors of the Federal Reserve System, Washington.

Gosh, A.R. and Ostry, J.D. (1992), Macroeconomic Uncertainty, Precautionary Savings and the Current Account, IMF Working Paper, No. 72, International Monetary Fund, Washington.

Gourinchas, P. and Jeanne, O. (2007), Capital Flows to Developing Countries: The Allocation Puzzle, forthcoming.

Hermann, S. and Jochem, A. (2005), Determinants of Current Account Developments in the Central and East European EU Member States – Consequences for the Enlargement of the Euro Area, *Discussion Paper Series*, No. 32, Deutsche Bundesbank, Frankfurt.

IMF (2006a), Private Consumption in Emerging Asia, *Asia and Pacific Regional Economic Outlook*, September 2006, International Monetary Fund, Washington.

IMF (2006b), *Annual Report on Exchange Arrangements and Exchange Restrictions*., International Monetary Fund, Washington.

IMF (2006c), *Asia Rising: Patterns of Economic Development and Growth*, in: World Economic Outlook, September, Chapter 3, Washington.

Im, K.S., Pesaran, M.H. and Shin, Y. (2003), Testing for Unit Roots in Heterogeneous Panels, *Journal of Econometrics*, No. 115, 53-74.

Ju, J. and Wei, S.-J. (2006), A Solution to two Paradoxes of International Capital Flows, NBER Working Paper, No. 12668, National Bureau of Economic Research, Cambridge.

Ju, J. and Wei, S.-J. (2007), Domestic Institutions and the Bypass Effect of International Capital Flows, *NBER Working Paper*, No. 13148, National Bureau of Economic Research, Cambridge.

Lane, P.R. and Milesi-Ferretti, G.M. (2006), The External Wealth of Nations Mark II: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970-2004, *IMF Working Paper*, No. 69, International Monetary Fund, Washington.

Levin, A., Lin, C.F. and Chu, C. (2002), Unit Root Tests in Panel Data: Asymptotic and Finite-Sample Properties, *Journal of Econometrics,* No. 108, 1-24.

Lucas, R. (1988), On the Mechanics of Economic Development, Journal of Monetary Economics, 22, pp. 3-42.

Lucas, R. (1990), Why doesn´t Capital Flow from Rich to Poor Countries? *American Economic Review*, Vol. 80, 93-96.

Llewellyn, D. T. (2002). "An Analysis of the Causes of Recent Banking Crises," European Journal of Finance, Vol. 8 (2), 152-175.

Luengnaruemitchai, P. and Schadler, S. (2007), Do Economists' and Financial Markets' Perspectives on the New Members of the EU differ?, *IMF Working Paper*, No. 07/65, International Monetary Fund, Washington DC.

Maddala, G.S. and Wu, S. (1999), A Comparative Study of Unit Root Tests with Panel Data and a New Simple Test, Oxford Bulletin of Economics and Statistics, No. 61, 631-652.

Mankiw, N.G. (1995), The Growth of Nations, *Brookings Papers on Economic Activity*, 25, pp. 275-310.

Mann, C. (2004), Managing Exchange Rates: Achievement of Global Re-balancing or Evidence of Global Co-Dependency?, *Business Economics*, July, pp. 20-29.

Masson, P., Bayoumi, T. and Samiei, H. (1998), International Evidence on the Determinants of Private Saving, *The World Bank Economic Review*, Vol. 12, No. 3, 483-501.

McKinnon, R.I. (1973), *Money and Capital in Economic Development*, Washington, D.C.

McKinnon, R.I. (1992), *The Order of Economic Liberalization*, Financial Control in the Transition to a Market Economy, Baltimore and London.

McKinnon, R.I. and Pill, H. (1996), Credible Economic Liberalizations and Overborrowing, *American Economic Review*, Vol. 87, No. 2, Papers and Proceedings of the Hundred and Fourth Annual Meeting of the American Economic Association, 189-193.

Mehl, A., C. Vespro and Winkler, A. (2006), Financial Sector Development in South-Eastern Europe: Quality Matters, in: Liebscher, K.; Christl, J.; Mosslechner, P. and D. Ritzberger-Grünwald (eds.), Financial Development, Integration and Stability – Evidence from Central, Eastern and South-Eastern Europe, Cheltenham, UK, 2006, 186–203.

Mendoza, E.G., Quadrini, V. and Rios-Rull, J.-V. (2006), Financial Integration, Financial Deepness and Global Imbalances, Paper presented at the 7th Jacques Polak Annual Research Conference, International Monetary Fund, November 9-10, Washington.

Mileva, E. (2007), The Impact of Capital Flows on Domestic Investment in Transition Economies, University of Fordham, mimeo.

Mishkin, F.S. (2005), Is Financial Globalization Beneficial?, *NBER Working Paper*, No. 11891, National Bureau of Economic Research, Cambridge.

Mody, A. and Murshid, A.P. (2002), Growing Up with Capital Flows, *Journal of international economics*, No. 65, 249-266.

Obstfeld, M. and Rogoff, K. (1996), The Intertemporal Approach to the Current Account," NBER Working Papers, No. 4893, National Bureau of Economic Research, Cambridge.

Prasad, E., Rajan, R. and Subramanian, A. (2007), The Paradox of Capital , *Finance and Development*, Vol. 44, No. 1, International Monetary Fund, Washington.

Pritchett, L. (1997), Divergence, Big Time, *Journal of Economic Perspectives*, 11(3), Summer 1997, pp. 3-17.

Quah, D. T. (1996), Twin Peaks: Growth and Convergence in Models of Distribution Dynamics, *The Economic Journal*, 106(437), pp. 1045-1055.

Radelet, S. and Sachs, J. (2000), Lessons from the Asian Financial Crisis, in: Gosh, B.N., ed., *Global Financial Crisis and Reforms: Cases and Caveats*, Routledge Press, London, 295-315.

Rodrik, D. (2007), "How to save globalization from its cheerleaders", mimeo, Harvard University, September 2007.

Romer, P. (1986), Increasing Returns and Long Run Growth, Journal of Political Economy, 94, pp. 1002 – 1037.

Sala-i-Martin, X. (1997), "I Just Ran Two Million Regressions," *American Economic Review, Papers and Proceedings*, 87, 178-83.

Schadler, Susan et. al (2006), Growth in the Central and Eastern European Countries of the EU: A Regional View, International Monetary Fund, Washington.

Shaw, E.S. (1973), *Financial Deepening in Economic Development*, Oxford University Press, New York.

Stulz, R. (2005), The Limits of Financial Globalization, *Journal of Finance*, 60 (4), 1595-1638.

Tang, H., Zoli, E. and I. Klytchnikova (2000), Banking Crises in Transition Economies: Fiscal Costs and Related Issues, *World Bank Policy Research Working Paper*, No. 2484, World Bank, Washington.

Urata, S./Yue, C.S. and Kimura, F. (2006), *Multinationals and Economic Growth in East Asia*, Routledge, New York.

Wolff, G.B. (2007), Foreign Direct Investment in the Enlarged EU: Do Taxes Matter and to what Extent?, *Open Economies Review*, No. 18, 327-346.

8. Data Appendix

We provide below a listing of mnemonics, sources and descriptions for all the variables included in the empirical investigation. Additionally, we supply a listing of all countries belonging to the Asian and European sample. Unless otherwise noted, data were available from 1994 through 2006.

Mnemonic	**Source***	V**ariable description**
CAGDP	WEO	current account to GDP ratio
CAPITAL	IFS	gross capital flows (as % of GDP)
CHINN_ITO	CI	capital account openness index
CREDIT	FSD	private credit by deposit money banks to GDP ratio
CRISIS	CK	Systemic banking crisis index
DEPENDENCY	IFS	dependency ratio (dependents to working-age population)
EXCHANGE	BIS	logarithm of the real effective exchange
EXTERNPOSITION	IFS	foreign assets minus foreign liabilities to GDP ratio
FDIGDP	IFS	FDI as % of GDP
FOREIGN BANKING	WB	foreign-owned banking assets (in % of the total banking sector assets in the periphery country)
GOVERNMENTBALANCE	WEO	general government balance to GDP ratio
INCOME	WEO	country's GDP per capita (PPP terms) to Euro area average / US GDP per capita (PPP terms)
INTERESTSPREAD	IFS	lending rate minus deposit rate
INTRA INTEGRATION	BIS	consolidated foreign claims of euro area/US banks on the respective emerging country as a percentage of GDP of the recipient country
M2GDP	IFS	M2 to GDP ratio
NPL	GFSR	non performing loans to total loans
OVERALL INTEGRATION	IFS	foreign assets plus liabilities to GDP ratio
RESERVES	WEO	stock of foreign exchange reserves at year-end to GDP ratio
RIR	WDI	real interest rates in %
TOT	WEO	terms of trade, goods and services
TRADE	WEO	trade openness (world exports/imports in % of GDP)
STOCKMARKET	WEO	stock market turnover (shares traded/GDP)
GDPGROWTH	WEO	real GDP growth rate to Euro area average/US

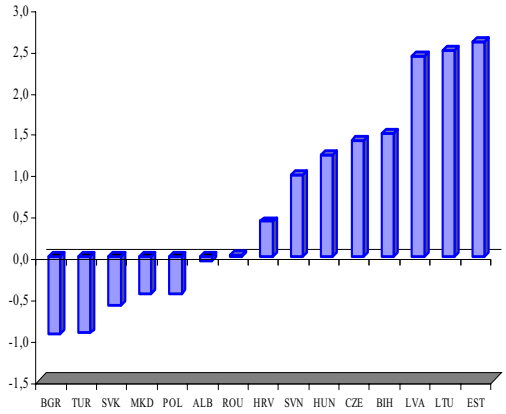
*BIS: Bank for International Settlements, CI: Chinn/Ito (2007); CK: Caprio/Klingebiel (2003); FSD: World Bank Financial Structure Dataset; GFSR: IMF Global Financial Stability Report; IFS: IMF International Financial Statistics; WB: World Bank (Claessens, Stijn, Neeltje van Horen, Tugba Gurcanlar and Joaquin Mercado (2007), "Foreign Bank Presence in Developing Countries 1995-2006: Data and Trends"; WDI: World Bank World Development Indicator; WEO: IMF World Economic Outlook.

Emerging Asian Countries: China (CHN), Hong Kong (HKG), India (IND), Indonesia (IDN), Korea (KOR), Malaysia (MYS), Philippines (PHL), Singapore (SGP), Taiwan (TWN), Thailand (THA), Vietnam (VNM)

Emerging European Countries: Albania (ALB), Bosnia and Herzegovina (BIH), Bulgaria (BGR), Croatia (HRV), Czech Republic (CZE), Estonia (EST), Hungary (HUN), Latvia (LVA), Lithuania (LTU), Macedonia (MKD), Poland (POL), Romania (ROM), Serbia (CS), Slovak Republic (SVK), Slovenia (SVN), Turkey (TUR)

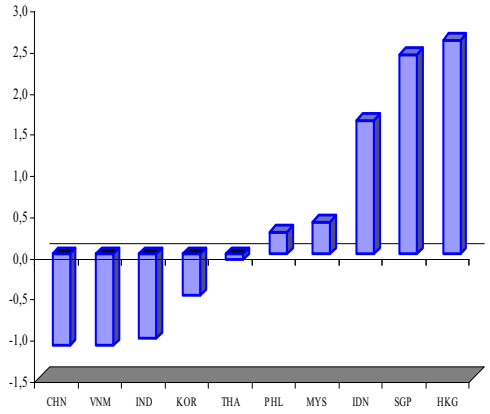
Annex 1: Indicators of financial integration in emerging Europe and emerging Asia

Figure A1a: Chinn-Ito-Index in emerging Europe
(averages, 1994-2005)



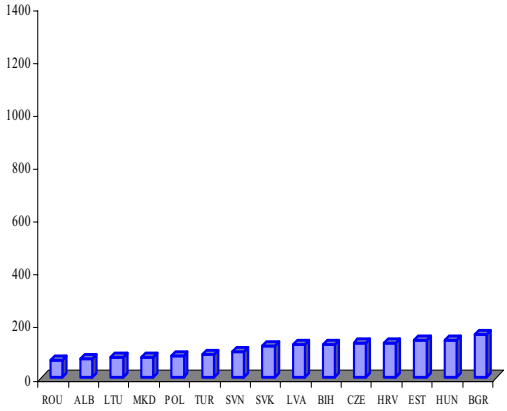
Source: Chinn/Ito (2005).

Figure A1b: Chinn-Ito-Index in emerging Asia
(averages, 1994-2005)



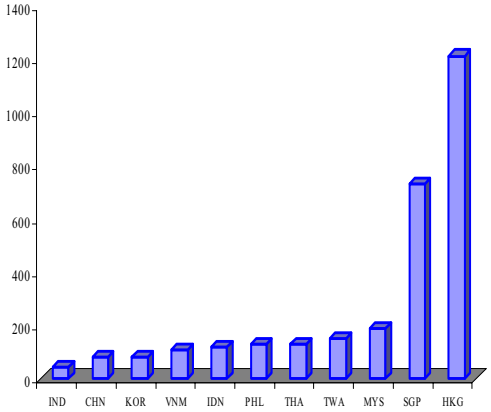
Source: Chinn/Ito (2005).

Figure A2a: Sum of foreign assets and liabilities in emerging Europe
(as a percentage of GDP, averages, 1994-2005)



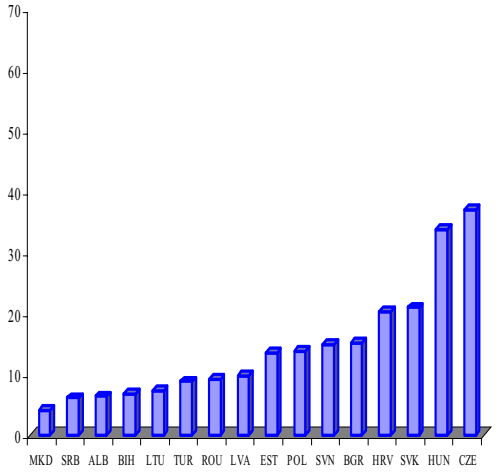
Source: IFS, Milesi/Ferretti and authors calculations

Figure A2b: Sum of foreign assets and liabilities in emerging Asia
(as a percentage of GDP, averages, 1994-2005)



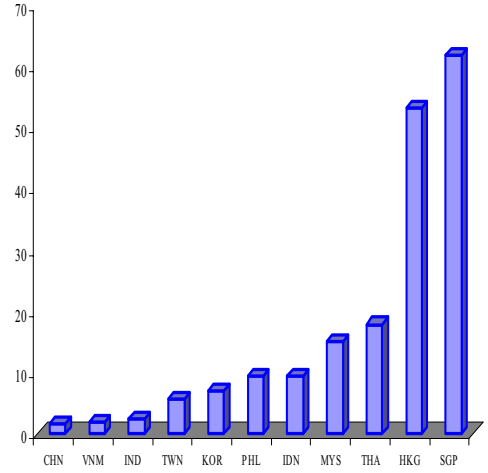
Source: IFS, Milesi/Ferretti and authors calculations

Figure A3a: Consolidated euro area bank claims in emerging Europe
(as a percentage of GDP, averages, 1994-2005)



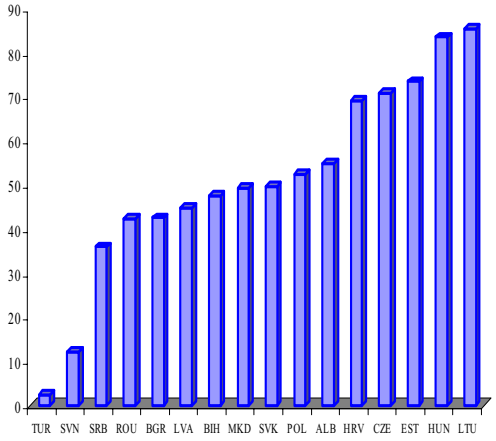
Source: BIS, IMF and authors calculations.

Figure A3b: Consolidated US bank claims in emerging Asia
(as a percentage of GDP, averages, 1994-2005)



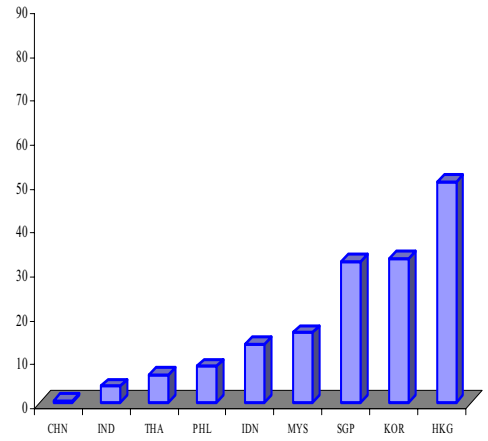
Source: BIS, IMF and authors calculations.

Figure A4a: Foreign banking assets in emerging Europe
(as a percentage of GDP, averages, 1994-2006)



Source: World Bank, authors calculations.

Figure A4b: Foreign banking assets in emerging Asia
(as a percentage of GDP, averages, 1994-2006)



Source: World Bank, authors calculations.

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