

# Paradigm shift? A critique of the IMF's new approach to capital controls

Daniela Gabor

Bristol Business School

daniela.gabor@uwe.ac.uk

## ABSTRACT

*The global financial crisis forcefully highlighted the importance of developing mechanisms to curb the effects of large and volatile capital inflows on growth and financial stability in developing countries. It led the IMF to reconsider its long-standing rejection of capital controls. This paper explores the analytical framework underlying the IMF's new position, arguing that its sequencing strategy offers a formulaic solution that neglects the institutional make-up of money and currency markets, is asymmetric in its emphasis on the upturn of the liquidity cycle and sanctions capital-controls only as a last-resort solution. The new approach can have perverse impacts, increasing vulnerability where banks play an important role in the intermediation of capital inflows. The paper offers alternative policy solutions that focus on realigning bank incentives towards longer horizons and sustainable growth models, combining carefully designed central bank liquidity strategies and institutional changes in the banking sector.*

**Keywords:** IMF, capital controls, financial crisis, global liquidity, shadow banks, sterilizations, central banks.

**JEL Classification Numbers:** E58, E63, F3, G1, O11, O2.

## 1. Introduction

The global financial crisis has turned capital account management into an increasingly contested terrain. Two recent events highlight how important this policy debate is for developing countries. The post Lehman Brothers contagion called into question the optimism of the ‘decoupling hypothesis’ (Walti, 2009) and its benign portrayal of developing countries’ integration in global financial markets. Instead, it highlighted that capital flows, and no longer trade relationships, have become the ‘principal conduit for the transmission of global shocks’ (IMF, 2010:3). Furthermore, the return of risk appetite in international financial markets since April 2009, prompted by easy liquidity conditions in high income countries, has been accompanied by increasing concerns that capital flows could undermine national development strategies. For instance, China identified dollar-funded carry trades, i.e. borrowing in dollars to invest in domestic asset markets, as the most important policy challenge in 2010 (Tett and Garnham, 2010), a view shared by several emerging markets that imposed or further tightened capital controls throughout 2010 (Brazil, South Korea, Indonesia, Thailand). Thus it is argued in international currency debates that large capital inflows trigger excessive currency interventions and capital controls that effectively amount to gaining ‘unfair’ competitive advantage. High income countries in turn expressed concerns that reserve accumulation in developing countries reproduced the pre-2007 vulnerabilities by aggravating global imbalances (Obstfeld and Rogoff, 2009).

In response, the International Monetary Fund (IMF) abandoned its much criticized rejection of capital controls, instead recognizing the need to strengthen the theoretical foundations and institutional mechanisms for addressing large and volatile capital flows (IMF, 2010). A first step in the development of an institutional view came with Ostry et al.’s (2010) analytical framework that endorses temporary capital

controls once other policy options are exhausted. The sequencing strategy is expected to set the conceptual framework for a systematic discussion and reform of the IMF's policy advice on capital inflows (IMF, 2010). It is thus important to assess what benefits and challenges this new policy agenda holds for developing countries, and ask whether a radically different approach is necessary.

Eastern Europe, it will be argued, can provide interesting answers for several reasons. Like many developing countries, it has open capital accounts, further space for financial deepening and a substantial presence of global banks in domestic banking systems. Unlike its peers however, membership (ambitions) of the European Union reduce the possibilities of imposing capital controls, so that capital account management in the region reveals neatly the dilemmas raised by the IMF's vision of capital controls as a last resort measure. Thirdly, Eastern Europe, the region worst affected by the global crisis, offers a paradigmatic example of the key role that capital flows play in the transmission of global shocks. While initially weathering well the turmoil in developed financial markets, the post Lehman deleveraging suddenly faced the region with a twin crisis scenario (Kaminsky and Reinhart, 1999): a currency and banking crisis in the aftermath of a period of fast growth financed by foreign borrowing through banking sectors, accompanied by overvalued exchange rates and asset bubbles.

Indeed, the paper will argue, Eastern Europe offers an analytically rich terrain for reflecting on the link between the changing models of banking in developing countries, policy room for manoeuvre in tackling capital inflows and the growth models enabled by distinct policy choices. The paper is structured as follows. The first part explores the nuanced theoretical treatment of capital inflows in developing countries and the conceptual innovations arising from analytical focus on financial

globalization. It then draws on Eastern Europe's crisis in the context of international (particularly East Asian) experience with large capital inflows to critically assess the strength and weaknesses of the IMF's analytical framework. The paper argues that the IMF's sequencing strategies can have perverse effects where banks play multiple roles in the intermediation of capital inflows. It further asks what policy measures could realign banks' system of incentives aside from Shin's (2010) persuasive advocacy of macroprudential policies?

## **2. Capital controls: the context**

The recent financial crisis saw developing countries portray currency management and capital controls as legitimate policy choices for two related reasons: a more nuanced theoretical position towards the benefits of capital account liberalization and the increasingly complex and interconnected nature of currency markets.

Since the 1980s, free capital movements were advocated as a solution to capital-constrained countries. Capital flows, attracted by higher rates of return, would improve the allocation of resources and allow countries to tap savings surpluses elsewhere, thus enhancing welfare by intertemporal smoothing of consumption and increased investment (Fischer, 1998). The underlying theoretical framework drew on three normative assumptions: no overshooting, no reversals and no speculation. Surplus savings will flow to countries with low capital/labour ratios until profitable investment opportunities are exhausted, so that there cannot be 'excessive' inflows or fast reversals. The third assumption dovetailed with the dominant theoretical interpretation of short-run exchange rate movements, the uncovered interest parity (UIP) condition: a country's higher interest rates reflect expectations that its currency

will depreciate (Grenville, 2008). Gains from interest rate differentials would be wiped out by exchange rate movements.

Whereas the benefits of unfettered capital inflows became the cornerstone of international policy advocacy during the 1980s, developing countries' experience increasingly questioned this benign view. Contrary to predictions, East Asian countries registered inflows of a magnitude and volatility difficult to explain through standard theories. The large inflows before and the sharp decline after the 1997 crisis led to an increasingly nuanced analysis: while benefits should not be discarded, large and cyclical capital inflows could increase financial fragility (Schadler, 2008). The concept of absorptive capacity gained theoretical relevance: structural features of the economy determined a threshold beyond which capital inflows could aggravate consumption booms and/or spill over into asset bubbles (Kawai and Takagi, 2008). The idea of a 'threshold' also implied a role for policy. Yet, as Rodrik (1998) put it, every crisis with regional/global consequences only revealed that previous generations of economic models, and by implication the policy recommendations, were inadequate. Indeed, models of the 1980s debt crisis identified sovereign over-borrowing as cause and prescribed fiscal rectitude as solution to capital account difficulties. In the aftermath of the East Asian and Russian crisis, policy advice focused on corner solutions (fixed or full flexibility) for exchange rate management to address the vulnerability of soft-pegs to speculative attacks (IEO, 2007). Nevertheless, international policy advice continued to insist that the benefits of capital inflows outweighed the risks, particularly since capital controls decisions are inevitably political (Rogoff, 2002). According to this view, capital controls would encourage politicians to become more interventionist and reverse the gains made with

market-driven economic processes. As a consequence, before the 2008 crisis, few developing countries openly questioned the wisdom of liberalized capital flows.

However, structural changes in currency markets set the stage for a more contested approach. As the Bank for International Settlements (BIS) Triennial Survey of Foreign exchange and Derivatives Market Activity (2007, 2010) documented the rapid expansion in currency trading, the theoretical and policy importance of cross-currency investment strategies (known as carry trades) became increasingly recognized. A carry-trade position involves leveraged borrowing in low-yielding currencies to fund placements in high yielding currencies (Galati et al., 2007). In theoretical terms, carry-trade activity involves a direct violation of the dominant explanation for short-term currency movements, the UIP condition commonly used in open economy models (Bursnide et al., 2007; Brunnermeier et al., 2008). In policy terms, pervasive carry trade activity has drawn theoretical attention to the following issues:

- a) **Global liquidity** - whereas early research approached carry trades as foreign exchange transactions, it is increasingly recognized that carry trades should be set in the context of global liquidity conditions (Hattori and Shin, 2009) and that capital flows cycles are global in nature (IMF, 2010). As discussions of how to define and measure global liquidity gather pace, the IMF (2010) links it to policy choices in key financial centers: low interest rates and abundant liquidity in high income countries play a global ‘push’ role for capital flows. In turn developing countries with open capital account policies are typically targets of carry flows.
- b) **Destabilizing potential** - the profitability of carry trade activity rests on two conditions: that interest rate differentials remain attractive, and that exchange rates do not move to offset yield advantage. The ability to rapidly close positions in

response to changing conditions is essential, so that volatility is a salient characteristic of carry trade activity. Carry trades can unwind quickly and trigger currency crashes, either because of funding constraints (Brunnermeier et al., 2008) or changes in expectations of exchange rate movements. Unlike Friedman's (1953) scenario where speculative activity is inherently stabilizing because speculators trigger faster adjustments to fundamentals, carry trade activity can be destabilizing, particularly if accompanied by strategic complementarity between carry trade players that expands the size of carry trade positions (Plantin and Shin, 2011).

- c) **Actors and strategies of implementation** - the two main strategies in developing countries, according to Galati et al. (2007), involve either exchanging borrowed funds in the spot (target) currency market or entering derivative contracts. The target currency is placed in liquid, short-term assets: sovereign debt instruments, equities, bank deposits. The key actors are global financial institutions, either banks or institutions in the shadow banking sector with access to wholesale funding (Pozsar et al., 2010). In target markets (of developing countries), banks can act as direct carry trade players through proprietary trading desks or indirectly as counterparts in spot or derivative segments of currency markets (typically to provide domestic liquidity). Banking activity thus moves away from the traditional intermediation of surplus funds to multilayered models and strategies.
- d) **Interconnectedness and vulnerability** - the strategies and actors involved in cross-border capital flows suggest that the changing nature of banking activity is crucial for developing countries. It links exposure to global liquidity shocks to the presence of global banks in domestic banking systems and non-resident investors in domestic asset markets. It thus re-draws the boundaries of the relationship

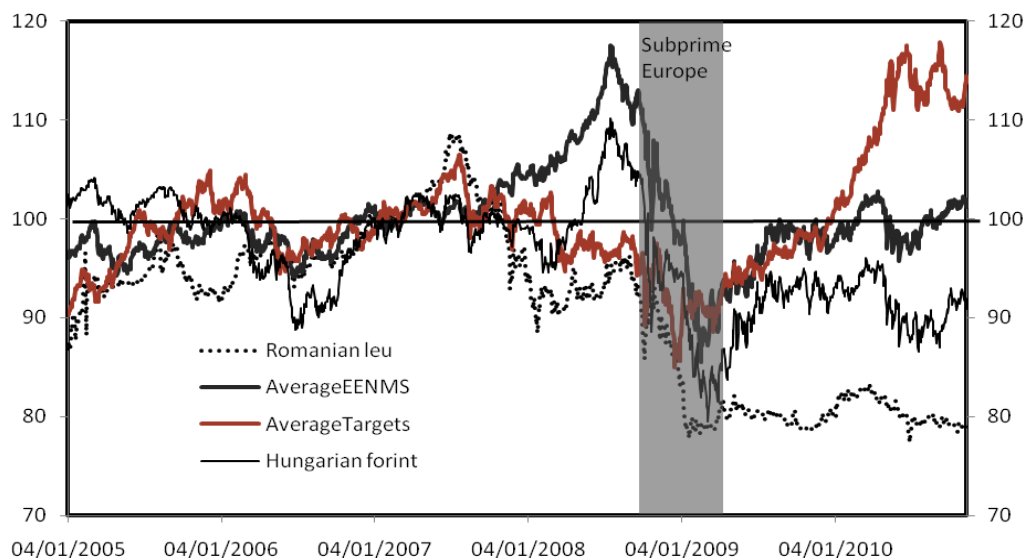
between policy autonomy in target countries, financial intermediaries and interest rate decisions in funding currency countries.

For these reasons macroeconomic trends in developing countries can no longer be considered in isolation from global capital cycles. Kohler (2009) provides a powerful example in answering the question of what, if anything, distinguishes this crisis from previous crisis with global consequences (the 1997 Asian and 1998 Russian crisis)? The crucial difference lays in exchange rate trends. The Lehman collapse produced contagion effects that did not discriminate according to underlying macroeconomic conditions: global deleveraging triggered sharp depreciations across developing countries. Unlike in previous episodes, these were followed by sharp reversals, which Kohler (2009) interprets as evidence of the increasing importance of interest rate differentials when unconventional monetary policy in high income countries restored global liquidity after April 2009.

Indeed, even Eastern Europe has seen currency trends tracking closely non European carry-trade targets such as the Brazilian Real or the Thai Baht (see Figure 1), a trend somewhat muted by strains in European sovereign debt markets during 2010. Romania alone in Eastern Europe failed to follow this trend of currency strengthening. The region's success in overcoming its subprime moment (September 2008 to April 2009) has been explained differently, from the IMF's massive presence in the region that restored policy credibility (IMF, 2009), to increasing risk appetite accompanying accommodative monetary policies in high income countries (Gabor, 2010) or high levels of foreign ownership in the banking sector that secured Western banks' commitment to maintain cross-border loans (Andersen, 2009; Herrmann and Mihaljek, 2010).



**Figure 1 Nominal exchange rate trends, 2007=100, Eastern Europe (EENMS) vs. non European carry trade targets (against EUR)**



Source: data from the European Central Bank. For Eastern Europe: Romanian leu, Hungarian forint, Polish zloty, Czech koruna. For non-European targets: Brazilian real, New Zealand dollar, Australian dollar, Singapore dollar, Thai baht.

Such exchange rate trends have underpinned increasingly diverse and contentious policy responses in developing countries, lending weight to calls for the IMF to develop an institutional view that can guide policy decisions without becoming a ‘blueprint’ that neglects country circumstances.

### **3. The IMF’s view of capital account management**

The changes in the IMF’s position signal the end of a long-standing reluctance to endorse capital controls (see Ostry et al., 2010; IMF, 2010). According to this framework, where policy makers:

- 1) consider that there is no room for additional exchange rate appreciation,
- 2) cannot implement further monetary easing,

- 3) have little prudential concerns to justify the continuous accumulation of foreign reserves and
- 4) no more room for further sterilizations
- 5) or fiscal tightening
- 6) then capital controls become a legitimate response (capital controls are also justified once prudential regulation to contain credit booms becomes inefficient). However, the IMF (2010) warns, restrictions on capital inflows or outflows, particularly targeting short-term capital inflows, can produce ambiguous outcomes: shifts in the maturity structure towards longer-term inflows but no sizeable reduction in inflows. A careful design would be required to strengthen enforcement capacity and address financial markets' ability to innovate and circumvent regulations.

### **3.1 Step 1:** *Allow exchange rate to appreciate to levels consistent with fundamentals*

The first policy question to consider in addressing large capital inflows is whether, and by how much, exchange rates deviate from fundamental values. The IMF's recommendation is straightforward: undervaluation requires no policy action, since capital inflows ensure realignment to equilibrium. Policy actions are warranted where exchange rate rise above equilibrium levels. Yet in policy practice this first step is far more complex for methodological and theoretical reasons. Reliable estimations of misalignment are difficult to produce, while the analytical frameworks typically deployed cannot account for the complexity of factors associated with currency trading (global liquidity, actors and strategies, interconnectedness).

Traditionally, misalignment was measured through the Purchasing Power Parity approach: a long-run equilibrium value based on equal prices in a common

currency. Yet PPP's static equilibrium assumptions and empirical evidence of short-term volatility (Rogoff, 1996) saw theoretical innovations that allowed equilibrium exchange rates to change with fundamentals. An increasingly popular set of models, used by the IMF for exchange rate surveillance, describes equilibrium through a macroeconomic balance (Cline and Williamson, 2010). Fundamentals include an 'underlying' capital account (presuming a sustainable long-run level), full-employment variables and, where appropriate, productivity growth differentials (the Balassa-Samuelson effect<sup>1</sup>). However, this class of models offers no analytical lenses to investigate the possibility and impact of carry trade activity. Interest rates are assumed to remain at long-run equilibrium level, while substantial variation in short-term fundamentals is assumed away (IEO, 2007).

A related set of models, most notably the Behavioural Equilibrium Exchange rate (BEER), distinguishes between short-run dynamics and long-term fundamentals. Yet possible policy concerns with drivers of short-term currency trading cannot be analytically integrated because short-term exchange rate dynamics are modelled through the UIP (appended with a risk premium), which carry trade activity directly violates. Furthermore, BEER crucially require exchange rates to remain 'in equilibrium over the period of estimation' (on average), an assumption with little empirical support (Cline and Williamson, 2010:2). Thus, empirical estimations of misalignment are subject to considerable uncertainty, as different methodological choices yield widely ranging and at times opposite measures of misalignment (IEO, 2007) particularly in developing countries with rapidly changing underlying conditions (Dunaway and Li, 2005).

In other words, advances in the theoretical explanations of equilibrium exchange rates cannot capture the increasing complexity of currency trading in

developing countries. The importance of this omission cannot be understated, as the BIS Triennial surveys of broad regional patterns suggests (see Table 1). Before the crisis (the April 2007 survey), currency trading in Eastern Europe concentrated on the derivative segment, in contrast to other emerging markets dominated by spot transactions (with larger shares for Brazil and China). Across the region, derivative trading overwhelmingly involved non-resident players, typically non-resident banks. In contrast, local players dominated the derivative segment in Brazil, South Korea and China (due to regulatory restrictions). The distinction also holds for maturity profiles: in Eastern Europe, the dominance of short-term instruments suggests that derivatives funded short-term currency positions rather than hedge export activity. The crisis and then the return of risk appetite triggered important changes, indicating that currency trading in emerging markets is converging towards the profile of Eastern Europe's countries. Whereas the effects of deleveraging can be traced in currency markets of Eastern European countries, with contractions (Hungary, Poland, Russia) or sluggish growth (Czech Republic, Romania), high yielding currencies in Latin America or Asia attracted far higher interest. The currency market in Brazil tripled in volume within three years and more than quadrupled in Turkey, driven by a fast growth in derivatives and non-resident short-term positions. Such dynamics set into context Brazil's concerns with currency appreciation, and Turkey's decision to cut interest rates despite clear signs of an overheating economy at the end of 2010.

**Table 1 Profile of currency markets, selected developing countries**

Country/ variable	Volume (daily average, million USD)		Derivatives (share of total trading)				<i>Instruments with maturity &lt;7days</i>	
	2007	2010	2007	2010	<i>of which non- residents</i>		2007	2010
<b>Brazil</b>	5,456	<b>14,094</b>	7%	<b>38%</b>	33%	<b>66%</b>	27%	<b>39%</b>
<b>China</b>	9,288	<b>19,774</b>	10%	<b>56%</b>	0%	<b>10%</b>	49%	<b>64%</b>
<b>Korea</b>	33,396	<b>43,842</b>	48%	<b>58%</b>	15%	<b>31%</b>	34%	<b>47%</b>
<b>Turkey</b>	3,362	<b>16,817</b>	77%	<b>67%</b>	89%	<b>88%</b>	58%	<b>65%</b>
<b>Bulgaria</b>	532	<b>866</b>	35%	<b>31%</b>	82%	<b>82%</b>	83%	<b>71%</b>
<b>Cz. Republic</b>	4,947	<b>5,110</b>	72%	<b>79%</b>	83%	<b>78%</b>	78%	<b>84%</b>
<b>Estonia</b>	1,251	<b>1,059</b>	85%	<b>92%</b>	98%	<b>98%</b>	84%	<b>94%</b>
<b>Hungary</b>	6,715	<b>4,196</b>	67%	<b>82%</b>	87%	<b>66%</b>	78%	<b>65%</b>
<b>Latvia</b>	2,589	<b>2,226</b>	68%	<b>65%</b>	82%	<b>88%</b>	95%	<b>95%</b>
<b>Lithuania</b>	963	<b>1,154</b>	31%	<b>77%</b>	89%	<b>93%</b>	60%	<b>95%</b>
<b>Poland</b>	8,813	<b>7,847</b>	73%	<b>75%</b>	83%	<b>75%</b>	77%	<b>82%</b>
<b>Romania</b>	2510	<b>3,169</b>	60%	<b>61%</b>	90%	<b>85%</b>	81%	<b>79%</b>
<b>Russia</b>	50,173	<b>41,658</b>	32%	<b>46%</b>	60%	<b>54%</b>	97%	<b>97%</b>

Source: own computation from BIS (2007, 2010)

Given such trends, how significant is the theoretical omission or carry-trade activity? What are the dangers of failing to recognize overvalued levels? The development approach to currency management suggests that exchange rates play an important role in the nature and sustainability of growth regimes (Williamson, 2003). Undervalued currencies enable investment-led growth models (Gala, 2008), contributing to the development of the tradable sector (Rodrik, 2008). East Asian countries are the typical example cited in the literature for such a developmental approach to currency management (Fabrizio et al, 2009). In turn, overvalued currencies underpin episodes of consumption-led growth and growing current account deficits, financed by short-term debt. The associated volatility of capital inflows has further negative effects on fixed capital formation of private firms (Demir, 2009).

Historically, Latin American countries in the 1990s (Brazil, Argentina, Mexico), East Asian countries for several years before 1997 and Eastern Europe

before 2008 (Romania, the Baltic States, Hungary) followed this growth model, with the associated vulnerabilities to balance of payment crisis (Fabrizio et al, 2009).

Indeed, Eastern Europe's short-term foreign borrowing highlights the dangerous nexus of overvalued exchange rates, credit booms and currency mismatches (Gabor, 2010). Similar to high income countries, overextended households played an important role in deepening exposure (Claessens et al, 2010). By September 2008, most banking systems in the region (Latvia, Estonia, Lithuania, Hungary, and Romania) had over half of outstanding housing and consumption loans denominated in foreign currency, typically Euros or Swiss Francs. Rosenberg and Tirpak (2008) found that the interest rate differential between local and foreign currency loans was an important driver of foreign currency borrowing in Eastern Europe. Foreign-owned banks raised wholesale liquidity in short-term international money markets and addressed the maturity mismatches involved in this form of carry trade by transferring exchange rate risks to households. Households accepted the risks for reasons similar to subprime borrowers in the US mortgage market: a historical trend of exchange rate appreciation grounded expectations that exchange rates would continue to strengthen (Gabor, 2010). The range of regulatory measures to address the building credit bubbles remained narrow in the run-up to the 2008 crisis. With no ceiling on banks' currency exposure and in the absence of other capital controls, Rosenberg and Tirpak (2008) concluded, Eastern Europe suggests that regulatory measures will be 'largely ineffective', more so if borrowing switches to non-resident financial institutions.

In sum, with large capital inflows fuelling credit booms and ineffective microprudential regulation, Ostry et al (2010) identify two policy avenues: monetary easing or direct interventions in currency markets.

### **3.2 Step 2: *Pre-empting capital inflows through monetary policy***

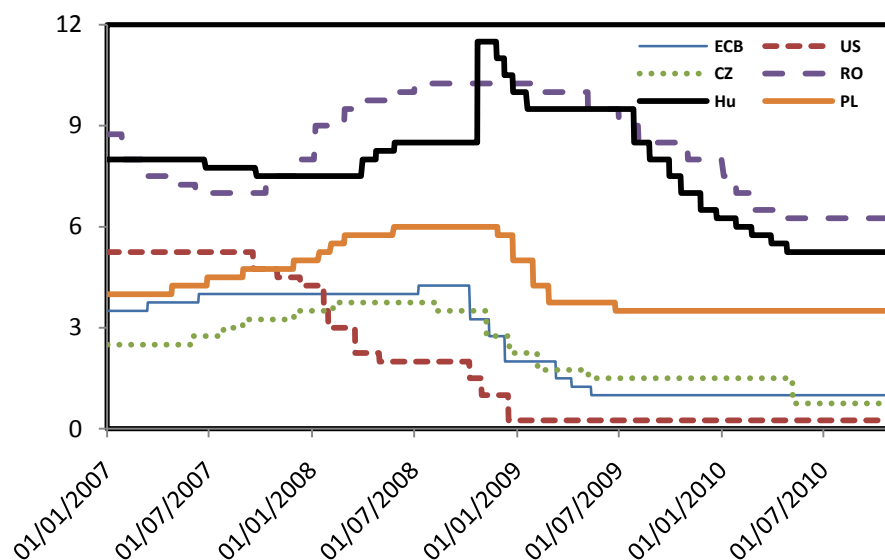
The developmental approach to exchange rates stands in opposition to the prevailing view of how to conduct macroeconomic policy in both high income and developing countries. According to this New Consensus, economic stability is best achieved where developing countries target price stability within the framework of an inflation targeting regime and allow markets to set exchange rates: the credibility of a well-performing inflation targeting regime would avoid swings in investor sentiment (Taylor, 2000). Thus, the literature on optimal monetary policy models exchange rate movements through the UIP condition (Clarida et al, 2001). In contrast, the literature on capital account management increasingly accepts that carry trade activity is one key constraint to monetary policy in developing countries with open capital markets (Shin, 2010).

Thus, the one instrument (interest rate)/one objective (price stability) framework underlying New Consensus models confronts central banks with a conundrum: how to cool an economy overheated by large capital inflows? The inflation targeting rule recommends interest rate increases to rein in demand pressures, yet larger yield differentials stimulate greater carry trade inflows, exchange rate strengthening and looser domestic financial conditions (Shin, 2010). For example, the turn to tightening in Eastern Europe before September 2008 (see Figure 2) that sought to curb overheating instead triggered further exchange rate appreciations and perversely encouraged foreign currency borrowing.

Lehman's collapse further exposed the opposite dilemma: the responses to downturns in global liquidity cycles. Concerned with currency crisis and the impact on banks' heavily Euroized balance sheets (and thus a banking crisis), central banks in countries with high exposure to carry trade activity (Romania, Hungary, Latvia)

hesitated to ease financing conditions as peers in high income countries did. In the trade-off between economic growth and financial stability, central banks prioritized the latter, tying interest rate decisions into exchange rate stability. The IMF's conditionality endorsed this approach (Cordero, 2009). Instead of nominal devaluations, the usual method for addressing balance of payment crisis, the Fund advised adjustment in factor prices (wage contractions), monetary and fiscal tightening. The IMF crisis policies thus retained historical asymmetries, forcing the burden of adjustment on borrowing countries.

**Figure 2 Central bank policy rates, 2007-2010**



Source: data from central bank websites

Thus, despite pervasive deflationary forces, Eastern European central banks only set to gradually ease monetary policy when risk appetite returned in international financial markets after April 2009. This reaction adds a political economy dimension to what Plantin and Shin (2011) termed the perverse interaction between carry trade inflows and monetary policy: crisis makes the distributional consequences of



monetary policy decisions more apparent and thus politically contentious (Goodhart, 2010). For instance, since June 2010 Hungary has experienced an open conflict between government and central bank over interest rate decisions. The Hungarian government portrayed the central bank's refusal to lower interest rates further as a decisive intervention in the distribution of wealth, obstructing growth and employment creation in order to protect banking sector profits.

Given such pervasive constraints to the deployment of the central bank's interest rate, the alternative is direct interventions on currency markets. Indeed, Levy-Yeyati and Sturzenegger (2006) contrasted the growing preference for inflation targeting with a pervasive 'fear of floating' across developing countries before the 2008 crisis. In other words, central banks intervened in currency markets on a more sustained basis than the de jure classification of exchange rate regimes suggested. The 2008 global deleveraging and then the upturn in the capital flows cycle further reinforced this tendency.

### **3.3 Step 3:** *Interventions in currency markets - when is reserve accumulation desirable?*

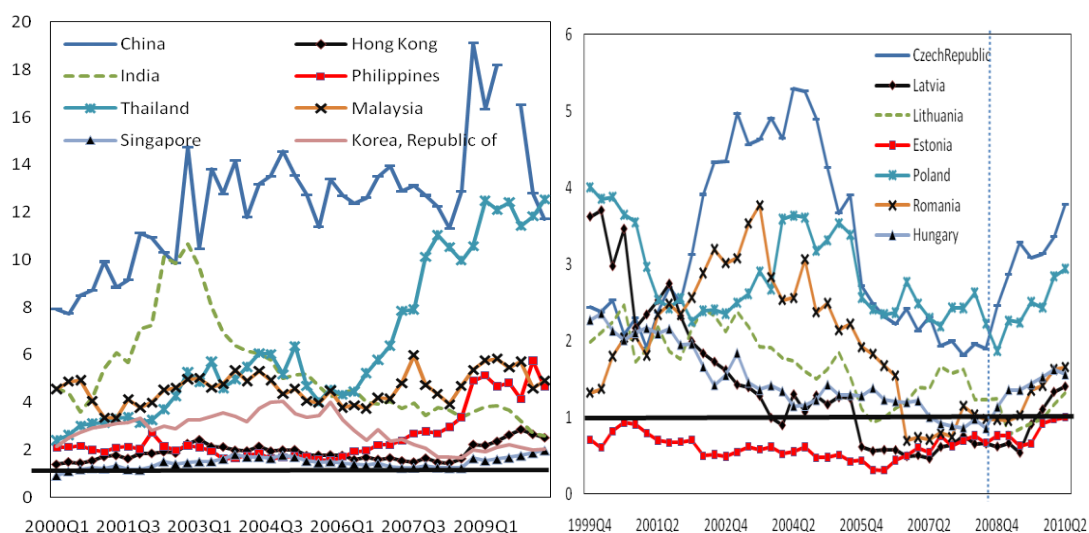
The IMF's sequencing strategy suggests that reserve accumulation is desirable for precautionary purposes and less so if driven by mercantilist concerns with competitiveness. For policy purposes however, a neat separation between the two crucially depends on assumptions about optimal reserves levels. For instance, Aizenman and Lee (2007) interpreted Asian countries' rapid growth in reserves after 1997 as evidence of policy learning about exposure to overheating rather than competitive currency manipulation.

Because holding reserves is costly in both economic and social terms (Rodrik, 2006), the policy question that arises is how much reserves to accumulate or to what level are precautionary concerns justified? Traditionally, the adequacy of reserve levels was assessed in relationship to current account dynamics, with a rule of thumb that reserves should cover at least 3 months of imports. However, Rodrik (2006) noted, the liberalization of capital flows changed the metric to financial magnitudes, triggering a secular growth in reserve holdings reflecting the increased frequency of sudden stops associated with financial globalization (Cline and Williamson, 2010) and the post-Asian crisis reluctance to rely on IMF resources. The threat of sudden stops instated the Guidotti-Greenspan rule of thumb: a ratio of reserves to short-term external debt that indicates ability to finance all debt due throughout the year. Yet there is little consensus on how much is too much. Some interpret Guidotti-Greenspan ratios comfortably exceeding unity as evidence of ‘excessive’ reserves driven by mercantilist intentions, as in the case of most East Asian countries (Park and Estrada, 2009). A more nuanced position suggested combining rules of thumbs and econometric assessments with analytical foundations that take into account economic fundamentals, the composition of short-term debt and exchange rate regimes (Jeanne and Ranciere, 2006). Nevertheless, these estimations suffer from the conceptual and methodological difficulties described earlier for equilibrium exchange rate calculations, so that the prescriptive claims have been treated with caution.

Eastern Europe’s experience offers an interesting picture. First, current account dynamics in Eastern Europe before 2008 construct a picture of vulnerability similar to East Asia before its 1997 crisis, combining real exchange rate appreciations with increasingly large current account deficits (Grenville, 2008). Furthermore, the distinguishing feature of the pre-Lehman era is linked to the internationalization of

banking activity. A bank-based Guidotti-Greenspan ratio, capturing the relationship between foreign reserves and short-term foreign liabilities to BIS banks, presents a stark contrast between emerging Asian and Eastern Europe (see Figure 3). Whereas emerging Asia shows comfortable levels, in Eastern Europe's case, the bank-based Guidotti-Greenspan ratio neatly reveals the increased exposure to cross-border, short-term bank borrowing. Three of the four countries with the ratio below unity in the run-up to Lehman bankruptcy (Romania, Hungary and Latvia) were forced to require IMF assistance during the region's subprime moment. The improvement since 2009 reflects the contraction in short-term liabilities triggered by the post-Lehman deleveraging.

**Figure 3 Bank-based Guidotti-Greenspan ratios**

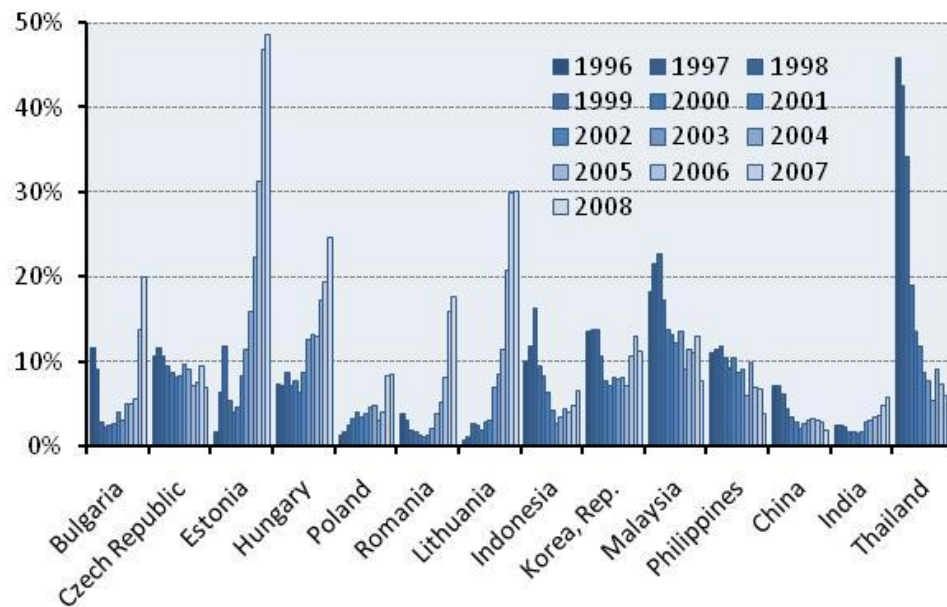


Source: data from Joint BIS-IMF-OECD-WB External Debt Hub

The deterioration of bank-based Guidotti-Greenspan ratios in Eastern Europe has two interpretations. On the one hand, it could signal greater confidence among central banks that the strategy of embracing financial globalization would guarantee access to

international capital markets. Yet the pattern of reserve accumulation suggests that central banks retained precautionary concerns: Romania, Bulgaria or Latvia increased their reserves by an average of 5 per cent of GDP between 2004 and 2007 (while running current account deficits above 10 per cent of GDP). A second interpretation is then that reserve accumulation could not keep pace with the fast increase in cross-border loans to banking sector. As Figure 4 suggests, cross border loans to banking sectors in the region increased rapidly<sup>2</sup>, in contrast to East Asian countries where regulatory measures aimed to restrict the bulk of bank-intermediated capital inflows to funding corporate hedging against US dollar volatility<sup>3</sup> (McCauley, 2008). The large share of foreign ownership allowed emerging Europe's banking sector to tap either mother banks (Aydin, 2008) or increasingly liquid repo markets in Western Europe (Gabor, 2010), shedding the constraints of domestic deposit activity. The short-term nature of such sources of financing shifted the maturity structure of external debt towards shorter maturities. This picture fits well with Shin's (2010) observation that excessive bank asset growth during boom periods goes hand in hand with increasing reliance on volatile sources of funding (in this case wholesale funding from abroad) and with the policy lessons of the 1997 Asian crisis: private sector exposure to foreign-currency loans financed by cross-border borrowing increases vulnerability to reversals in liquidity cycles (McCauley, 2008).

**Figure 4 Cross-border loans to the banking sector, % of GDP**



Source: data from Joint BIS-IMF-OECD-WB External Debt Hub

Furthermore, reserves accumulation triggers changes in the liquidity conditions on domestic money markets, facing central banks with an additional challenge: how to rein in domestic liquidity and to what extent could policy responses stimulate additional capital inflows?

### 3.4 Step 4: *How much to sterilize?*

Ostry et al. (2010) list three limits to sterilization: depth of fixed-income markets, fiscal costs for the central bank and the potential for perpetuating capital inflows. This last consideration is important because it points to unintended policy outcomes: sterilizations can perversely increase vulnerability to global liquidity cycles (Calvo, 1991). An apparently successful sterilization might raise domestic interest rates and stimulate even greater capital inflows of shorter maturity, for some the story of the 1997 East Asian crisis (Montiel and Reinhart, 1999).

Sterilizations became a common response to capital inflows during the 1980s and 1990s dominance of money supply targeting strategies (Caballero and Krishnamurthy, 2001). In this policy framework, currency interventions increase money market liquidity and thus the reserves commercial banks can use for lending. While central banks offer an automatic mechanism for disposing of these excess reserves – the overnight deposit facility – in practice this allows commercial banks discretion over how much to hold in reserves and impairs policy control of money supply. Sterilizations (direct interventions on money markets) in turn offer central banks an active instrument for influencing commercial bank reserves, so that money supply control can be achieved independently of exchange rate strategies. Similarly, under inflation targeting regimes, the transmission mechanism of monetary policy depends on the central bank's ability to influence short-term money market interest rates by closely reining in money market liquidity. In both monetarist and inflation targeting narratives, excess liquidity hampers central bank's ability to contain overheating by slowing credit growth and thus endangers its price stability objective. Both accounts thus conceptualize the banking sector in its traditional financial intermediation role. Yet once banks' activities in money and currency markets are considered, it becomes clear that the effects of sterilizations are not entirely *reducible* to the credit market. The relevance for capital account management can be traced by considering the interactions between strategies of sterilization, money market liquidity and short-term capital inflows.

*Before the crisis: carry trades and domestic liquidity*

Before the 2008 crisis, central banks in Eastern Europe implemented strategies common to developing countries, ranging from open market operations with

government bonds, issuing central bank debt, direct borrowing from the money market or currency swaps (Mohanty and Turner, 2005; Gabor, 2010). The choice of strategy typically depends on the scale of sovereign bond markets (McCauley, 2008). Where sterilization volumes outpaced existing sovereign debt instruments, as in most emerging Asia (Turner, 2008), central banks issued own debt<sup>4</sup> (Hungary, Poland) or resorted to taking deposits from commercial banks (Romania), overwhelmingly short-term<sup>5</sup>. The effectiveness of sterilizations operations was partial, leaving a structural excess of liquidity across money markets in the region (Balogh, 2009).

The choice of instruments and maturities has consequences for capital account dynamics. Ooi (2008) used Malaysia's experience to argue that the most effective strategy is to issue long-term paper to the non-banking sector, in other words to circumvent the typical counterparties to sterilization operations, commercial banks. The focus on maturity and counterparty highlights the changing role of commercial banks, no longer passive respondents to central bank operations but active intermediaries of capital inflows. Indeed, commercial banks in Eastern Europe used sterilizations as carry trade vehicles (Christensen, 2004; Gabor, 2010), exchanging foreign currency borrowed in international wholesale markets for domestic liquidity and placing that liquidity in sterilization instruments. Given these considerations, what explains central banks' preference for short-term instruments, in Eastern Europe and across most developing countries (Hawkins, 2004)?

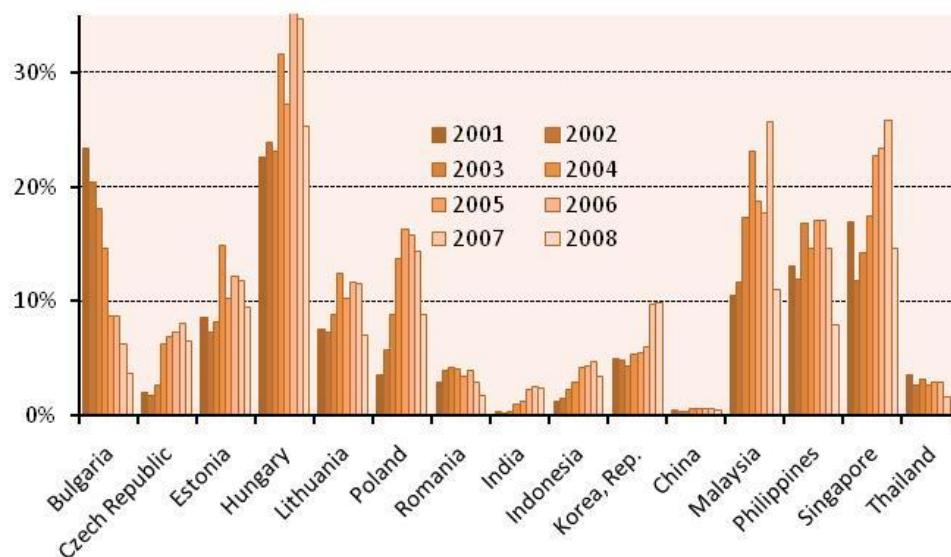
There are two possible answers to this question. The explanation preferred by central banks stresses institutional improvements: efforts to align liquidity management with New Consensus theoretical foundations and practices of central banks in high income countries required the use of short-term instruments. However, a second explanation points to the importance of capital flows in assisting central

banks with the price stability objective. If the credit channel is impaired (credit is not predictably responsive to central bank's interest rate decisions) the disinflation strategy relies on exchange rate appreciations, and sterilizations become a vehicle for indirect currency manipulation. In other words, short-term, partial sterilizations before the 2008 crisis reflected an explicit policy choice, allowing central banks to vary the volume of liquidity sterilized depending on its projections for inflation and the exchange rates path consistent with the target. Thus sterilizations have consequences for currency movements both through banks' direct participation in sterilization operations and through dynamics on the non-resident segment. Indeed, commercial banks' liquidity is important for non-resident carry trade activities: banks provide loans in funding currency and deposits in target currency or act as counterparts in derivative operations (Galati et al, 2007). Thus, the increasing importance of non-resident short-term derivative trading in emerging markets, documented earlier, is intimately linked to central banks' management of domestic money market liquidity.

Theoretically, non-resident interest signals improved confidence, providing additional investment funding and/or enabling governments to reduce exposure to currency mismatches by borrowing in domestic currency. In practice however, non-resident interest tends to focus on sovereign debt markets (Pomerleano, 2010). Indeed, non-resident holdings of sovereign debt increased in both Eastern Europe and Asia before the crisis, and then reverted rapidly with deleveraging pressures in 2008 (figure 5). The features of domestic debt markets and regulatory space (very limited in EE) accounted for intra-region variations. The rapid rise in Hungary reflected a fast growing public debt, while a low interest rates environment in the Czech Republic translated into a relatively subdued carry-trade interest. In contrast, Romania's low levels of public debt contributed to relatively small non-resident holdings.



**Figure 5 Debt securities held by non-residents, as % of GDP**



source: data from Joint BIS-IMF-OECD-WB External Debt Hub

In comparison, growth in Asian countries reflected a broader set of regulatory attitudes towards non-resident participation in fixed income segments. Singapore's high share reflected concerted efforts to grow liquid bond markets and repo markets that would offer direct access to funding rather than through bank intermediation (Lian, 2002), again a signal of policy control with the role of banks in intermediating capital inflows. In contrast, Thailand's policies sought to curb non-resident participation. Throughout 2006, while non-resident investment in fixed-income, short-term instruments strengthened the Baht, the central bank first sought to reduce the domestic financial institutions' involvement with non-residents in very short-term operations through moral suasion and then imposed unremunerated reserve requirements on inflows into the bond market, lifted in 2008 (Thaicharoen and Ananchotikul, 2008). Indonesia similarly considered extending the withholding tax on government securities to central bank sterilization instruments (McCauley, 2008). In

2010, concerns with the rapid increase in non-resident holding of sovereign debt instruments prompted Thailand to impose a 15 per cent withholding tax on these instruments.

Yet a withholding tax might not be very effective. Controls on direct purchases can be circumvented by leveraged positions through over-the-counter derivatives such as currency and interest rate swaps, markets that have seen a strong growth in Asia (see Table 1). Taxation or liquidity constraints might shift investors' preferences from outright purchases of local currency debt instruments to derivatives (McCauley, 2008). Where non-resident investors do not have direct access to domestic money markets or secondary bond markets are illiquid, derivative positions can be funded by rolling over loans in domestic currency. In these instances, domestic banks willingness to provide counterparty liquidity (depending on central banks' liquidity management decisions) plays an important role in the magnitude of non-resident's positions.

Thus, the capital controls adopted in Asia to contain inflows in fixed income markets reflected precisely the vulnerabilities produced by the relationship between banks and non-resident carry at play in Eastern Europe. In Eastern Europe, central banks' limited effectiveness to rein in domestic liquidity also implied limited effectiveness to contain commercial banks' intermediation of non-resident inflows.

The consequences of limited policy control over banks' involvement on money markets come into sharper focus during downturns in global capital cycles. In an optimistic interpretation, banks' liquidity cushions could act as a buffer against funding uncertainties, increasing banks' resilience to liquidity shocks (Turner, 2008). A more concerning scenario is where large liquidity reserves allow commercial banks to fund speculative attack on currency markets (Cotarelli et al., 2003). October 2008

provided the context for exploring the implications of banks' hybrid activities, to which the paper turns next in a comparative analysis of Romania and Hungary.

*During the crisis: coping in the subprime region*

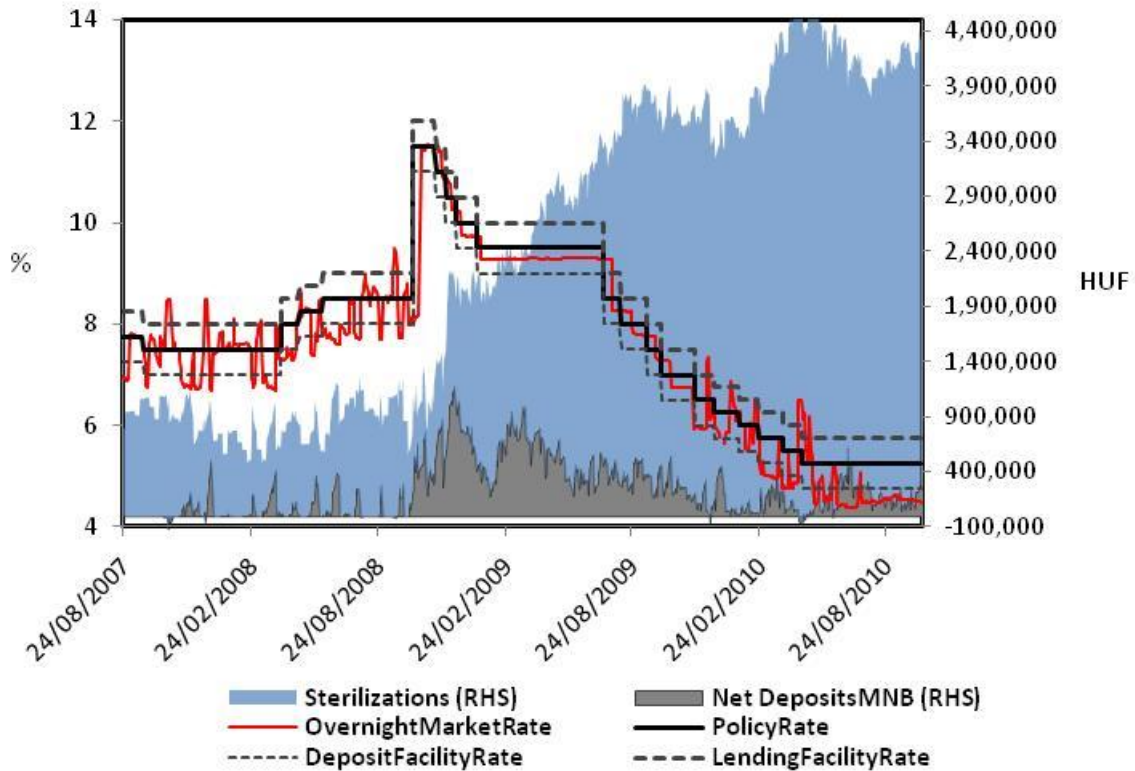
Before 2008, liquidity management strategies were similar in Romania and Hungary. Central banks' operations focused on mopping money market liquidity, through central bank instruments in Hungary and deposit taking operations in Romania, at similar, short-term maturities (one week). Overnight money market rates often fell below the deposit facility rate, indicating a structural excess of liquidity (see Figures 6 and 7). The initial effects of the September 2008 crisis were also similar: unwinding non-resident carry positions produced severe pressures in currency markets and increased tensions in interbank markets. However, central banks interpreted differently the rise in money market rates, a difference of interpretation that triggered divergent policy responses.

In Hungary, the central bank viewed domestic tensions as a manifestation of the extreme stress in international financial markets. The stress translated into uncertainties about counterparty risk, prompting banks to park excess reserves with the central bank rather than lend on money markets. Its immediate response echoed measures taken in high income countries: large liquidity injections through repo operations or purchases of government debt (quantitative easing) and overnight swap facilities to calm market pressures (Balogh, 2009). In contrast, the Romanian central bank interpreted shortages in the interbank market as evidence that banks were hoarding liquidity with the intention of speculating directly or supporting non-resident short positions in currency markets (Gabor, 2010). Financial press reports confirmed

that several central banks in the region (Ukraine, Russia, Poland, Bulgaria, Czech Republic) took a similar view at some point throughout that period (Kaminska, 2009).

After the initial shock, the international crisis created opportunities for central banks to reconsider their strategies of liquidity management in relationship to capital flows. The Hungarian central bank chose *continuity*: it returned to accumulating foreign reserves (initially by exchanging government's foreign loans) and a threefold increase in the magnitude of sterilization operations by 2011. Commercial banks switched from the deposit facility, resuming direct carry trades and counterparty activity with non-residents (Balogh, 2009). Thus interest rate cuts were accompanied by increased non-resident demand for HUF-denominated assets (IMF, 2009). Looser domestic financial conditions further improved financing conditions for the government, driving sovereign yields across the maturity spectrum below the policy rate. This also helped overcome the stress in money markets produced by the Eurozone sovereign debt pressures and the uncertainty associated with governmental elections in May 2010. By the end of 2010, money markets were flushed with liquidity: interbank rates trailed below the level at which commercial banks could deposit excess reserves at the central bank (the deposit facility).

Figure 6 Liquidity management instruments and money market interest rates, Hungary, 2007-2010



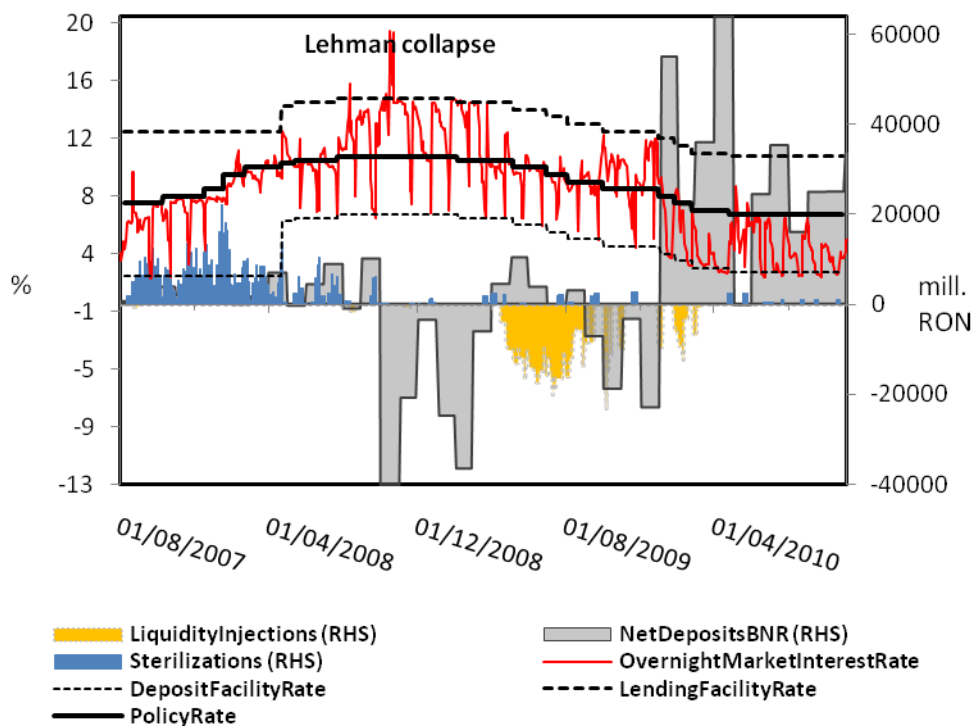
Source: data from National Bank of Hungary

In contrast, the Romanian central bank chose *radical change*. Throughout 2009, it sought to increase policy control over money markets by severing the link between capital inflows and money market liquidity.

In money markets, the uncertainty triggered by moments of crisis typically translates into a high liquidity preference. This is why the central bank's commitment to provide emergency liquidity restores a normal functioning and minimizes counterparty risk. Instead, the Romanian central bank cemented uncertainty further by suspending active money market interventions. Before April 2009, all new liquidity on money markets came from either currency swaps (central bank would temporarily provide domestic liquidity in exchange for foreign currencies) or through the central bank lending facility. This functioned as an implicit signal for commercial banks with

excess liquidity to maintain ‘safety cushions’. It further forced banks with liquidity shortages to borrow directly from the central bank, at high interest rates and against collateral. Recourse to the lending facility rose dramatically (see figure 7). Commercial banks borrowed around EUR 10bn in both January and February 2009, at above 15% interest rate. Such expensive domestic liquidity effectively curtailed the scope for commercial banks to engage with non-residents carry trade activity. However, it posed severe difficulties for sovereign debt management. Uncertainty on money markets produced shorter time horizons on bond markets. Without central bank support, the government found it increasingly difficult to finance its operations: by March 2009 only 35 per cent of new debt was contracted at maturities longer than three months. With little access to foreign borrowing, it turned to the IMF.

**Figure 7 Liquidity management strategies, Romania, 2007-2010**



Source: data from National Bank of Romania

The combination of IMF's endorsement of crisis policies, restored global liquidity and the signing of the Vienna agreement committing Western Europe's commercial banks to roll-over credit to Eastern subsidiaries modified the central bank's perceptions of speculative pressures. After April 2009, it returned to money markets with small scale sterilization operations at varying maturities and liquidity injections (an indirect form of quantitative easing, offering commercial banks liquidity to purchase government debt). Access to the lending facility reduced considerably. Yet crucially, even if these measures were successful in reducing money market volatility, the central bank maintained its reluctance to allow capital inflows to influence domestic liquidity conditions, triggering commercial bank complaints that it was tightening money market liquidity to limit currency trading (Gabor, 2010). Furthermore, attempts to rein in money market liquidity reinforced government's difficulties on bond markets. While Hungary's success in harnessing the improved international risk appetite translated in a bond rally throughout October 2009, the Romanian government was rejecting bids because the yields demanded exceeded the central bank's policy rate.

This strategy towards capital account management changed in January 2010. The central bank reinstated the link between domestic liquidity and capital inflows, when, as Hungary in 2009, it injected large volumes of liquidity by acting as the official exchange agent for government's foreign loans. Money market liquidity increased dramatically, a signal of increased flows into currency markets and non-resident activity: by April 2010 (incidentally the month of the BIS Triennial Survey), commercial banks deposited around EUR 20 bn at the discount facility. Sterilizations increased in both magnitude and frequency (although nowhere near Hungary's

expansion), and interest rates on money markets realigned to patterns prevalent in Hungary.

What explains the Romanian central bank's decision to return to the old rules of the game (as in Hungary) after a year of experimenting with measures to rein in domestic liquidity? Two possible explanations arise. The first relates to how central banks form expectations of speculative threats. As Demir (2009) argued, diversified portfolios in international money markets increase the marginal cost of acquiring country specific information. If investors have more incentives to react to news rather than to fundamentals, political turmoil can quickly translated into adverse currency positions, leading central banks, as in Romania, to channel policy efforts into preventing speculative pressures. The increasing stabilization of national politics after the September 2010 elections thus allowed the central bank to return to 'normalized' policy making. A second explanation points the changes in international political economy triggered by sovereign debt concerns in European countries. In this environment, a strategy of fine-tuning capital account management could rapidly backfire for countries in Europe's periphery.

### **3.5 Step 5: *Fiscal tightening***

Such a complex picture further calls into question the wisdom of relying on fiscal rectitude to address destabilizing capital inflows. The politics of spending complicates implementation: a fiscal solution to overheating depends on the nature of the relationship between governments and central banks (Schadler, 2008), while the East Asian accumulation of large saving surpluses post-1997 questions the effectiveness of fiscal tightening (Grenville, 2008). Furthermore, unless the relationship between sovereign debt markets and investors (domestic banks and non-resident players) is



mediated by a carefully designed coordination between monetary and fiscal policy, fiscal tightening alone will have limited effectiveness in altering banks' incentives. The highly discretionary approach to liquidity management in Romania effectively replaced one source of short-term returns (central bank sterilization) with another (sovereign debt). Instead, the recent experience with unconventional monetary policies in high income countries shows that central banks have effective tools to increase the time horizons on bond markets, as Arestis and Sawyer (2004) have long argued.

#### **4. The policy implications: Eastern European lessons**

The Romanian central bank's shifts in strategy testify to challenges raised by short-term capital inflows, particularly where banks intermediate these. Policy efforts throughout 2009 effectively amounted to a market-based attempt to select 'desirable' capital inflows. However, the central bank's refusal to play the 'carry trade game' through manipulating money market liquidity had limited effectiveness in selecting non-resident investors with longer-term horizons, leaving governments dependent on domestic sources of financing (commercial banks). For this reason, the central bank's strategy was ultimately ineffective in realigning commercial banks' system of incentives towards longer time horizons.

The Romanian experiment offers policy lessons to countries where financial innovation quickly develops methods to circumvent capital controls. Sterilizations at long-term maturities are necessary to position the central bank as a net creditor on the overnight money market, and thus allow it to influence domestic liquidity. However, changes in tactics of sterilizations alone will not suffice. For such policies to be successful in tackling global liquidity cycles, the question is how to realign the

incentives of banking systems away from short-term pursuit of yield. Measures can range from macroprudential policies such as Shin's (2010) levy on banks' non-core liabilities (i.e. wholesale funding) to more radical ideas such as Grenville's (2008) advocacy of *narrow banks* whose remit would be limited to holding government securities as assets and would take domestic deposits as liabilities. Narrow banks would contain the scope for yield pursuit in domestic bond markets, and instead refocus the rest of the banking sector on providing long-term finance to production.

Thus a combination of carefully design central bank liquidity strategies and institutional changes in the banking sector would provide developing countries with a set of powerful tools to rethink development strategies away from what Grabel (1995) aptly termed speculation-led economic development. The IMF's search for a coherent view on capital account management will succeed if it acknowledges the desirability of shifting to investment-led growth models and a cautious attitude towards financial globalisation, a position forcefully articulated by UNCTAD (2009).

## **5. Conclusion**

This paper raised several questions related to policy room for manoeuvre in countries that do not influence, but are heavily exposed to global liquidity cycles. It argued that this is an important issue for developing countries because financial globalization has redefined policy challenges: capital flows, and no longer trade relationships, have become the key conduit for the transmission of global shocks. To understand policy options for developing countries, it is necessary to introduce in policy debates conceptual domains previously confined to finance and macroeconomics. Understanding what central banks do, their relationship with currency and money markets becomes crucial for developing policy alternatives that reduce vulnerability

to capital flows. The changing nature of financial intermediation requires further theoretical and policy reflection on how global liquidity, actors and strategies of currency trading interact and contribute to the creation of global vulnerabilities. The paper argued that Eastern Europe offers developing countries a fertile terrain for such reflection because of an increasing convergence in patterns of currency trading across emerging markets.

The shifting mood towards large capital inflows, well captured by the IMF's recent endorsement of capital controls, recognizes the demise of the old conceptual apparatus that posits the optimality of free capital flows and is dominated by the uncovered interest parity to explain away the possibility of sustained speculative returns. Yet the advances are timid: the IMF's steps-approach to addressing large capital inflows offers a formulaic solution that neglects the institutional make-up of money and currency markets, is asymmetric in its emphasis on the upturn of the liquidity cycle and sanctions capital-controls only as a last-resort solution. The Eastern European experience with fully liberalized capital accounts suggests that the advocated method of prioritizing policy responses during the upturn can have perverse impacts, worsening exposure particularly where yield differentials are substantial and banking activity is increasingly hybrid, from counterparties to carry trade activity to arbitraging differentials between local and foreign currency loans through wholesale funding abroad. The loss of policy autonomy questions the effectiveness of inflation targeting regimes, with or without asset prices incorporated in the policy rule, to contain foreign-financed asset bubbles or indeed demand pressures.

Regional responses to global liquidity cycles offered an interesting experiment with market-based forms of selecting desirable inflows. The Romanian central bank

attempted to tighten the grip on money markets by severing the link between capital inflows and domestic liquidity, contrary to the IMF's recommended strategy. This strategy failed because it did not go far enough in seeking to reorient banking activity towards supporting an investment-led growth model. It thus revealed that the success of strategies towards capital inflows crucially depends on a holistic view of economic management that seeks to coordinate central bank liquidity strategies with institutional changes in banking and well-defined, investment led growth strategies.

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## Notes

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<sup>1</sup> This theoretical perspective has been used to explain what Fabrizio et al. (2009) described as emerging Europe's benign tolerance towards the sustained real appreciation before 2008: policy makers across different exchange rate regimes identified currency strengthening as part of the equilibrium process driven by fast productivity gains in the run-up and after EU membership.

<sup>2</sup> The only exception, the Czech Republic, was partly explained by the availability of cheap liquidity on the domestic interbank market and low yield differentials.

<sup>3</sup> China sought to contain the growth of dollar-denominated asset markets by extending to foreign banks the prohibition of cross-border funding in dollars in 2008. Korea similarly imposed restrictions on foreign banks' cross-border financing in April 2007

<sup>4</sup> Turner (2008) describes a similar experience in East Asian countries since 2002. Bank of Thailand sterilization bonds saw a sevenfold increase between 2003 and 2007, whereas Bank of Korea's monetary stabilization bonds saw a three fold increase.

<sup>5</sup>The Polish central bank (NBP) used one-week NBP bills to absorb liquidity, similar to Hungary's two-week central bank (MNB) bills. The Czech Republic deployed repo tenders with a two week maturity, and occasional shorter-maturity repo tenders depending on the forecasted liquidity positions. The Romanian central bank preferred direct loans from the money markets (deposit taking operations with maturities varying from one month to seven days) complemented with occasional reverse repos and issuance of certificate of deposits.