

INTERNATIONAL MONETARY FUND

The Multilateral Aspects of Policies Affecting Capital Flows

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Motivation: The crisis is prompting a reconsideration of capital flows and the policies that affect them. A breakdown in the domestic stability of a large country can spill over into stress in other countries and even to the global system as a whole. The activities of global institutions and markets—some regulated and some not—can bear on the riskiness of flows. Thus, national policies affecting capital flows can transmit multilaterally. This transmission has not been fully appreciated by national policymakers. Further, they may not have incentives to take full account of the cross-border effects of their policies. Looking ahead, the upward trend in the volume of capital flows can be expected to continue, making it ever more important to address the associated cross-border risks.

Objective and coverage: This paper aims to draw greater attention to the multilateral aspects of policies affecting capital flows. Previous work by the Fund has focused on the policies of recipient countries, mainly emerging market economies (EMEs), and addressed the circumstances in which capital flow management measures (CFMs) would be appropriate. This paper provides a complementary assessment of *regulatory and supervisory policies of advanced economies*, as well as *large advanced economy monetary policy*. Moreover, it addresses *the multilateral transmission of CFMs*.

Assessment: National policymakers should pay more attention to the multilateral transmission of their policies, especially with respect to prudential frameworks. The national and international regulatory and supervisory reforms now underway should be urgently completed and fully implemented and new macroprudential frameworks developed to mitigate cross-border risks. Monetary policy in major advanced economies has recently directly boosted capital flows into EMEs, but there could be offsetting indirect effects, suggesting that there is not a strong case for major central banks to consider them actively in their monetary policy. The weak evidence of multilateral transmission of CFMs, together with their modest unilateral effectiveness suggests that, at this juncture, they have limited implications for the overall riskiness of capital flows. However, there is a risk that CFMs, were they to proliferate, could have escalating global costs.

Proposed framework and next steps: An extension of the framework previously proposed for managing capital inflows is put forward in this paper to address the multilateral transmission of policies. A further paper is planned on capital account liberalization and capital outflows, which will propose additional elements towards the comprehensive, balanced and flexible approach for managing capital flows called for by the IMFC.

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I. INTRODUCTION¹

1. **The global crisis, in its evolving phases since 2007, has vividly demonstrated the extent to which cross border capital flows tie economies together.** From the spread of the crisis from the United States to the global economy in 2008, to the jitters caused across the world’s financial markets by recent tensions in the Euro Area, with surges of inflows into fast growing emerging markets, and more recently into “safe haven” currencies, it is clear that the world economy has a strongly interconnected financial system. The stability of this system can be considered a global public good.

2. **As with many public goods, global stability is “undersupplied.”** This is partly due to market failures that may warrant policy adjustments, but also because individual countries may not take full account of the effects of their policies on other countries and on the system as a whole. Indeed, a survey conducted by the G20 showed that the vast majority of authorities either were unaware or unable to quantify the impact on capital flows of their own policies, although several pointed to spillovers from the policies of others.

3. **This recognition has led to interest in trying to develop global understandings on the management of cross border capital flows to promote stability.** In December 2010, the IMF’s Executive Board observed that, despite the complex interdependencies and channels for policy spillovers created by capital flows, there are no universal “rules of the road” for them, in contrast to arrangements governing trade in goods and services. In this light, Directors saw merit in developing a coherent Fund view on capital flows and the policies that affect them. Such a view could help establish a framework for the purposes of the Fund’s surveillance on capital account and possibly other policies affecting capital flows. In April 2011, the Board endorsed a first building block, namely a possible framework for managing capital inflows, and noted that a comprehensive and balanced approach to capital flows is required, taking into account both capital recipients and capital originators. More recently, the IMFC identified as a priority further work on a comprehensive, flexible and balanced approach for the management of capital flows, drawing on country experiences.²

4. **This paper aims to add another building block to the work of the Fund on policies affecting capital flows, with a focus on multilateral aspects.** Previous work

¹ This paper was prepared by a team led by M. Stone and comprising H. Kang, R. Piazza, T. Saadi-Sedik, M. Singh, C. Verkoren (all MCM) and M. Qureshi (RES) under the guidance of K. Habermeier, with significant inputs from an SPR team comprising V. Chensavasdijai, M. Chivakul, A. Piris, N. Raman, and S. Sanya, led by I. Mateos y Lago under the guidance of A. Husain.

² See International Monetary Fund, 2010, “[The IMF’s Role Regarding Cross-Border Capital Flows](#),” IMF Policy Paper (Washington: International Monetary Fund), and Baqir, Reza, and others, 2011, “[Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Policy Framework](#),” IMF Policy Paper (Washington: International Monetary Fund), and Communiqué of the 24th Meeting of the IMFC, September 24, 2011.

focused on the policies of EME recipient countries. This paper focuses largely on the policies of advanced economies, especially their impact on recipient (both EME and advanced economy) countries. Two types of policies most directly linked to capital flows at the domestic level, and therefore likely to be the most relevant at the global level as well, are examined: *financial regulation and supervision of advanced economies*, and the *monetary policy of large advanced economies*. The other gap in the work of the Fund filled here is the *multilateral dimension of CFMs* adopted by recipient countries to deal with capital inflows. The findings are based on the crisis and post-crisis experience and draw on a variety of official Fund documents, original research, and on related Fund workstreams.

5. **The main message of this paper is that national policymakers should pay more attention to the multilateral effects of their policies, especially in the area of prudential policies.** Macroeconomic policies may be the main policy driver of capital flows. However, it is prudential policies that shape their riskiness. This is also the policy area most in flux and thus where the reforms of national and international frameworks—including for macroprudential policies—now underway could better take multilateral transmission into account, alongside domestic considerations. Regarding the multilateral implications of monetary policy in large advanced economies, the evidence is more textured—policy does appear to have a direct impact on flows, but that could be offset at least in part by indirect effects on global demand and growth. Thus, the case for addressing the multilateral effects through monetary policy is much less clear-cut. Similarly, recent CFMs have had mixed cross-border transmission thus far, and their unilateral effectiveness is modest, suggesting, at this juncture, that the multilateral implications are limited.

6. **This paper is organized as follows.** Section II sets the stage by reconsidering some accepted stylized facts on global capital flows in the light of the crisis. The multilateral aspects of national regulation and supervision, the monetary policy of large advanced economies, and CFMs are discussed in Sections III, IV and V, respectively. Section VI extends the possible framework previously proposed for CFMs to address the multilateral aspects of policies affecting capital flows and discusses the way forward, and issues for discussion are presented in Section VII. Two background papers report the supporting case studies and policy notes and analyze cross cutting themes in advanced economies with emerging market banking links.

II. RECONSIDERING THE STYLIZED FACTS OF CAPITAL FLOWS³

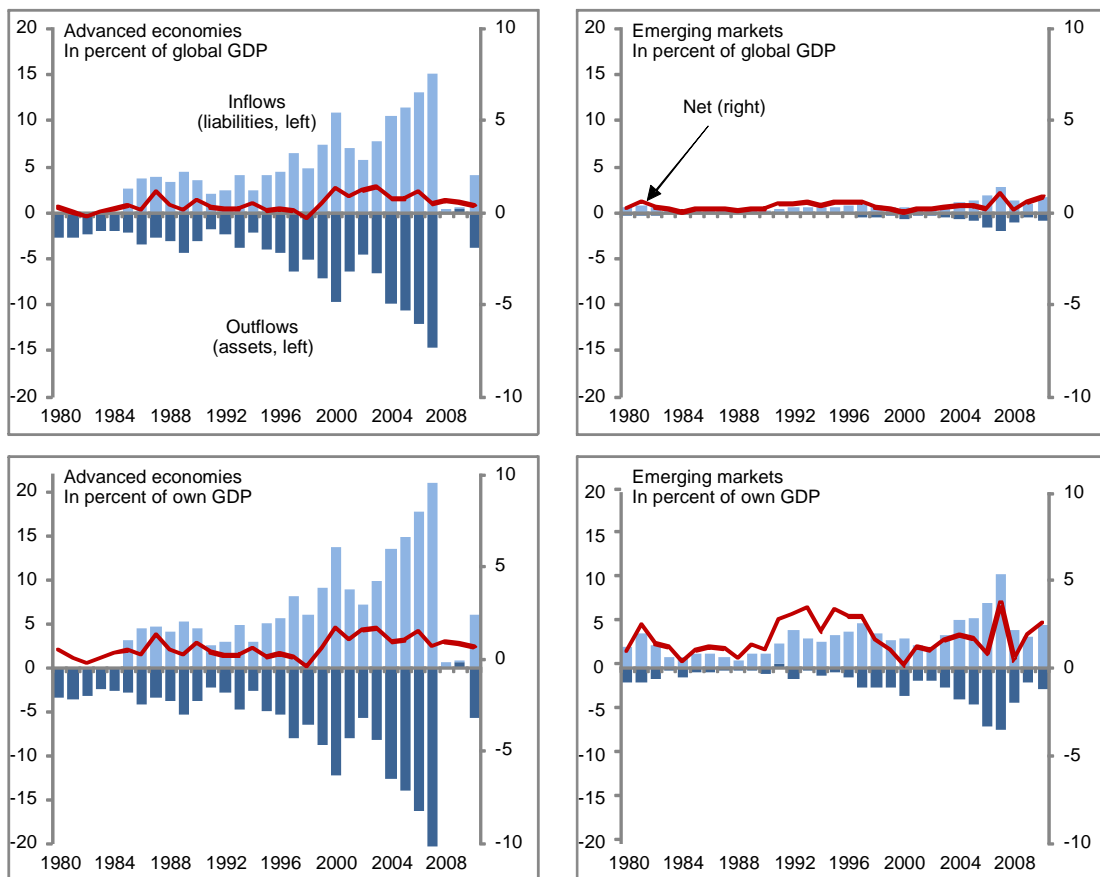
7. **The crisis is prompting a reconsideration of some of the accepted stylized facts about destabilizing capital flows and the policies that affect them.** A renewed look at the stylized facts raises questions that underscore the importance of the multilateral transmission of the policies that affect capital flows.

³ Capital flows here refer to the sum of foreign direct investment, portfolio, and other investment flows. Gross flows refer to either the outflow (asset) or inflows (liability) sides of these transactions.

Stylized fact 1: Intra-advanced economy gross flows embed potential systemic risks

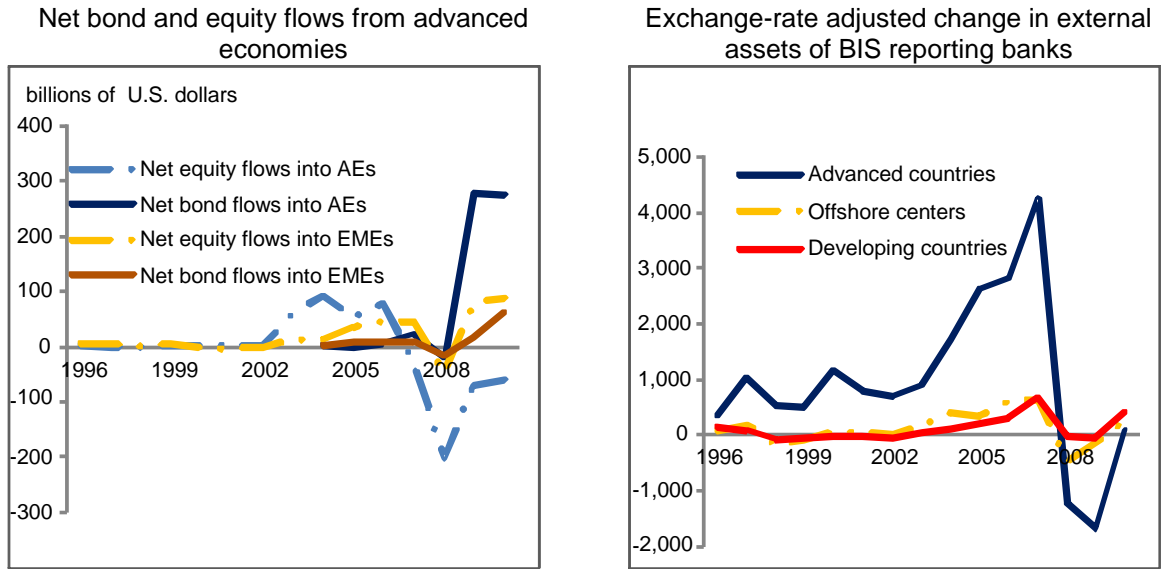
8. **Recent experience shows that gross flows between advanced economies embed risks with systemic stability implications.** Previous crises had led to a focus on *net* flows to *EMEs*, and on the composition of flows (short-term financing, exchange rate risk). These insights, drawn from analysis of EME crises such as those in East Asia and Latin America, remain mostly valid as evidenced by the recent experience of some EMEs, particularly in Europe. However, it is now apparent that *gross* flows between *advanced economies* can lead to global financial instability and thus warrant better understanding and closer scrutiny. On a gross basis, capital flows primarily originate from and flow into advanced economies, leading to small net positions but large underlying exposures (Figure 1). Further, risky gross flows can go both ways between advanced economies. For example, recent purchases of U.S. mortgage backed securities (MBSs) by European banks were a capital inflow into the U.S., while U.S. Money Market Mutual Fund (MMMF) financing of European banks was an inflow into Europe.

Figure 1. Global Capital Flows
1980–2010



Source: World Economic Outlook

Figure 2. Portfolio and Banking Flows Originating from Advanced Economies



Source: Emerging Portfolio Fund Research.
Based on reported data from ETFs and mutual funds.
No data on bond fund flows are available.

Source: Bank for International Settlements Locational Banking Statistics (Table 6A).

9. **A handful of systemic advanced economies routinely account for the bulk of gross global capital flows.** They are also the largest holders of cross-border assets and issuers of liabilities (Table 1). Moreover, they are home to many global systemically important financial institutions (G-SIFIs) and global capital markets, which makes them important sources and transmitters of global shocks.⁴

⁴ See Marston, David, and others, 2010, "[Understanding Financial Interconnectedness](#)," and "[Understanding Financial Interconnectedness - Supplementary Information](#)," IMF Policy Paper (Washington: International Monetary Fund).

Table 1. Gross Capital Flows into and from Main External Asset Holders

		2000			2010			
		Outflows	% of total	Cumulative	Outflows	% of total	Cumulative	
1	United Kingdom	699	21.0	21.0	United States	1,005	28.1	28.1
2	United States	561	16.8	37.8	Germany	516	14.4	42.5
3	Germany	337	10.1	47.9	United Kingdom	459	12.8	55.2
4	France	275	8.3	56.2	Luxembourg	257	7.2	62.4
5	Belgium	243	7.3	63.4	France	211	5.9	68.3
All countries		3,332			All countries	3,583		
<i>Memo items:</i>					<i>Memo items:</i>			
	Euro Area	1,412	42.4		Euro Area	1,005	28.0	

		2000			2010			
		Inflows	% of total	Cumulative	Inflows	% of total	Cumulative	
1	United States	1,039	27.7	27.7	United States	1,261	28.8	28.8
2	United Kingdom	740	19.8	47.5	United Kingdom	522	11.9	40.8
3	Germany	363	9.7	57.2	China	405	9.3	50.0
4	France	238	6.3	63.5	Germany	343	7.9	57.9
5	Belgium	234	6.2	69.7	Luxembourg	254	5.8	63.7
All countries		3,747			All countries	4,375		
<i>Memo items:</i>					<i>Memo items:</i>			
	Euro Area	1,431	38.2		Euro Area	989	22.6	

Source: WEO and updated and extended Milesi-Feretti (2007) dataset.

10. **Flows to EMEs originate from the same group of systemic advanced economies that dominate inter-advanced economies flows.** Funds originating in advanced economies dominate investment in the large EMEs (Table 2), with a significant portion of flows in foreign currency.⁵ Hence, economic developments and policy actions in a small number of financial centers can have a significant impact on capital flows to EMEs, and the regulatory and supervisory policies of a small number of advanced economy jurisdictions can greatly influence the volatility of these flows, and their propensity to carry financial stability risks (e.g., regulatory incentives to focus on a narrow set of assets such as short-term and liquid government securities, especially those denominated in foreign currency).

⁵ See N. Cetorelli and L. Goldberg, 2010, “Global Banks and International Shock Transmission: Evidence from the Crisis,” NBER Working Paper No. 15974, May.

Table 2. Origin of Foreign Portfolio and Other Investors in Emerging Market Economies

(In billions of U.S. dollars)

Origin of Portfolio Investors in Selected Emerging Markets 1/				Claims on all developing countries by Nationality of BIS Reporting Banks		
	In percent of				In percent of	
	US\$ bns	Total	Country assets		US\$ bns	Total
United States	723	36.3	12.1	United Kingdom	905	18.8
Luxembourg	217	10.9	8.1	United States	728	15.1
Hong Kong SAR	164	8.2	20.2	Spain	516	10.7
Mauritius 2/	158	7.9	86.8	France	483	10.0
United Kingdom	125	6.3	4.1	Germany	342	7.1
Japan	74	3.7	2.6	Japan	299	6.2
Singapore	63	3.2	18.3	Austria	272	5.6
Germany	50	2.5	2.0	Italy	229	4.7
France	48	2.4	1.7	Netherlands	187	3.9
Netherlands	45	2.3	3.2	Switzerland	155	3.2
Total value	1,991					

Source: Coordinated Portfolio Investment Survey
1/ Sample of 15 large EMEs, including most G20 members (except Argentina and Saudi Arabia)
2/ Primarily reflecting investment in India.

Source: Bank of International Settlements

Memo Item:
European banks 3,443 71.5

Stylized fact 2: Global SIFIs bear directly on the riskiness of capital flows

11. **The activities of the institutions responsible for the most volatile components of capital flows raise questions about the effectiveness of the pre-crisis regulatory framework.** The other investment and portfolio flow components—the two most volatile components—have driven the recent expansion (Figure 2 and Background Paper, Policy Note II.A). Banks account for the bulk of other investment. The volatility of bank flows raises the question as to whether national regulators were able to ensure that banks properly internalized the associated risks. The expansion in portfolio flows means that a larger share of capital flows has moved outside of the regulated banking sector, which potentially increases their overall riskiness.

12. **In particular, the crisis revealed the cross-border risks inherent in the business model employed by many G-SIFIs.** Before the crisis, G-SIFIs raised financing largely from global markets and institutions, which they then used to either accumulate foreign assets such as highly rated (U.S. dollar) securities and loans to foreigners, including in EMEs,⁶ or to derivatives to expand credit in domestic currency while managing exchange rate risks through the use of derivatives. The minimal direct exchange rate risk of these institutions led to the pre-crisis view that they were not a source of vulnerability. However, the crisis demonstrated the high leverage and dependence on short-term funding from the U.S. of key

⁶ See Marston, David, and others, 2010, “[Understanding Financial Interconnectedness](#),” IMF Policy Paper (Washington: International Monetary Fund).

G-SIFIs, especially European banks, exposing them to global dollar liquidity risk. In addition, the G-SIFIs were vulnerable to shocks to asset valuations (market risk), especially securities based on mortgage values, and their borrowers' capacity to repay (credit risk) was exposed by the funding shocks.⁷ Unable to roll over their short-term U.S. dollar liabilities, they primarily adjusted the asset side of their balance sheets and rapidly deleveraged, causing systemic distress in the global and national markets that had come to depend on their funding.

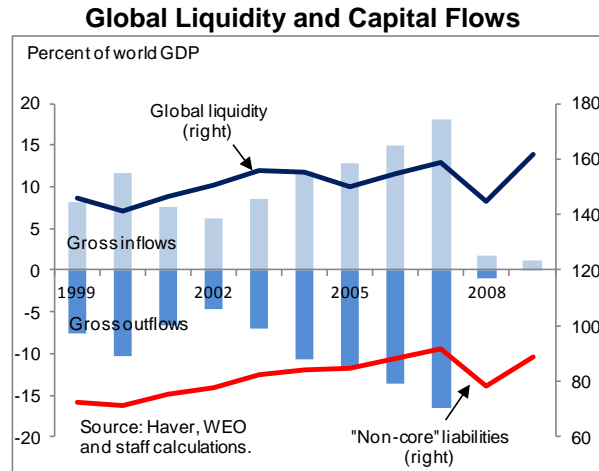
13. The G-SIFI business model helped drive an increase in shadow banking and global liquidity that corresponded to the rise in gross capital flows. Staff have developed a measure of global liquidity defined as the sum of both “core” (deposit) and “non-core” (nondeposit or shadow banking) liabilities for the Euro Area, Japan, the United Kingdom, and the United States (Box 1). The rapid pre-crisis growth of non-core liabilities appeared to have been driven by the G-SIFI business model, which entailed expansion through shadow banking entities, for example special purpose vehicles (SPVs). The rapid growth of global non-core liabilities coincided with the expansion in cross border flows, especially portfolio and other investment. Empirical analysis suggests that global liquidity impacts an array of real and financial variables worldwide—for example, higher global liquidity feeds into higher global equity prices. The relationship between global liquidity and capital flows, and the role that G-SIFIs play in driving them, suggest that these institutions play a large role in the multilateral transmission of large advanced economy monetary and prudential policies.

⁷ See Chapter II of the October 2010 GFSR; and P. McGuire and G. von Peter, “*The US Dollar Shortage in Global Banking and the International Policy Response*,” Bank for International Settlements, Working Paper 291, October 2009.

Box 1. Global Liquidity, Capital Flows, and Global Banks

Global liquidity developments, which reflect the actions of regulated institutions and markets and the expansion of the shadow banking sector, can bear importantly on the risks posed by capital flows.

A new global liquidity indicator developed by staff captures activities of both the banking (core) and shadow banking (non-core) sectors of the Euro Area, Japan, the United Kingdom, and the United States (Box figure).^{1/} While the two components of global liquidity were roughly equal at the end of the 1990s, the liabilities of the shadow banking system have gradually become more important, and correspond to the rapid increase in both global liquidity and gross cross-border flows prior to the crisis. Shadow banks were an important source of instability during the recent crisis that fell outside of the regulator perimeter. Empirical work by staff also suggests that global liquidity is correlated with a number of key macro-financial outcomes, including capital flows.



The role of global banks in the generation and distribution of global liquidity, and the linkage with capital flows, has been examined by Bruno and Shin (2011).^{2/} Global banks collect liquid funding globally (large amounts come from money market mutual funds) and lend globally (including to banks in EMEs) based on an overall global asset allocation strategy. When perceived risks are low, global banks increase their leverage, swell their balance sheets including via their related shadow banking entities and generate a global liquidity expansion. The analysis shows that the overall volume of cross-border lending is a function of banks' capital, interest rate differentials, and leverage. Moreover, leverage (and liquidity) depend on regulatory and supervisory parameters, among other things. This provides a clear, albeit partial, channel of transmission from advanced and emerging market supervision to international capital flows.

1/ S. Chen, P. Liu, A. Maechler, and S. Saksonovs, "Exploring the Dynamics of Global Liquidity," forthcoming IMF working paper.

2/ V. Bruno and H.S. Shin, "Capital Flows, Cross-Border Banking and Global Liquidity," mimeo, July 2011.

Stylized fact 3: The volume and volatility of EME capital flows are on upward trends

14. **Gross inflows into EMEs have become more volatile** (Figure 3). The more volatile components of cross-border flows have been trending up recently (Background Paper, Policy Note II.A), influenced by global monetary and financial conditions. Global (push) factors have accounted for a large share of the variation in capital flows to EMEs.⁸ New empirical analysis also indicates that lower world interest rates and higher global GDP growth are

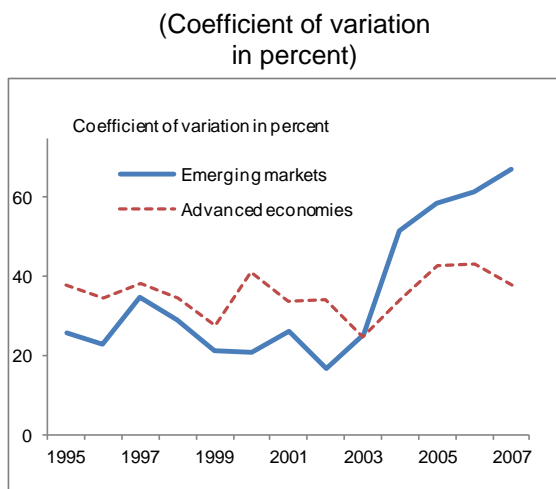
⁸ See Baqir, Reza, 2011, "[Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Policy Framework](#)," IMF Policy Paper (Washington: International Monetary Fund), and Chapter 4 of the World Economic Outlook, April 2011.

associated with a higher probability of a capital inflow surge in EMEs, whereas greater uncertainty in international markets significantly reduces this likelihood (Background Paper, Policy Note II.B). Thus, the influence of monetary policy in major advanced economies on world interest rates suggests that they may have significant effects on capital flows to EMEs. The volatility of flows to EMEs is continuing: the surge of capital inflows into EMEs since the peak of the crisis attracted by brighter growth prospects and stronger fundamentals, combined with low interest rates in advanced economies, has recently reversed.

15. **Net EME capital flows remain large relative to the size of their economies and markets** (bottom-right panel of Figure 1). Hence even a temporary halt in flows can adversely impact their macroeconomic stability. Moreover, as discussed in Box 1, global liquidity growth, appears to affect GDP, credit growth, and asset prices in EMEs. To forestall the potential effects from large inflows—including undue effects on exchange rates, asset prices and credit growth—some EMEs have again turned to CFMs to help deal with these pressures (Section V), and there is the possibility that CFMs could become more widely used.

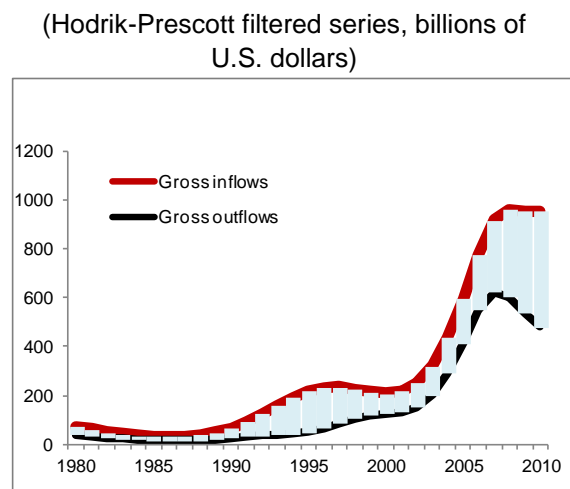
16. **Capital inflows have been trending upwards in EMEs** (Figure 4). This may reflect a permanent increase in the demand for EME assets, driven by declines in home bias and more limited growth potential in advanced economies. Limits in the absorption capacity of many EME financial sectors call into question the stability implications of this trend.⁹ A continued upward trend in flows to EMEs may generally strengthen the transmission of advanced economy policies that affect capital flows.

Figure 3. Volatility in Capital Flows



Sources: World Economic Outlook and staff calculations.

Figure 4. Trends in Gross and Net Flows



Sources: World Economic Outlook and staff calculations.

⁹ R. Goyal, C. Marsh, N. Raman, S. Wang, and S. Ahmed, *The International Monetary System and Financial Deepening*, IMF Staff Discussion Note (forthcoming), 2011.

III. ADVANCED ECONOMY REGULATION AND SUPERVISION AND GLOBAL REFORMS

17. **Financial regulation and supervision has traditionally focused on maintaining the stability of institutions and markets under each national authority's jurisdiction.** This is appropriate, as financial authorities are legally mandated to maintain domestic financial stability, and each country is best placed to first and foremost keep its own house in order. Further, regulation and supervision has traditionally taken a microprudential perspective.

18. **At the same time, regulation and supervision has had a cross-border dimension, albeit not a direct focus on the riskiness of capital flows.** Financial authorities grant and coordinate on the licensing of institutions operating across borders and agree on bilateral memoranda of understanding between national supervisory agencies. Efforts in multilateral fora have focused on developing standards and guidelines to raise the quality of regulation and supervision. Capital flows are of course one of the most important aspects of cross-border financial activities, but regulation and supervision have not, for the most part, directly addressed their riskiness.

19. **The crisis showed that regulation and supervision had serious shortcomings, including not adequately addressing the risks in certain cross-border transactions that gave rise to large capital flows.** Stress experienced by the institutions and markets of a large country can induce instability in other countries and even the global system as a whole. Macroeconomic and structural factors may be the main drivers of capital flows (Background Paper, Policy Note II.B). However, there is compelling evidence, summarized in this paper, that shortcomings in regulation and supervision allowed banks and other market participants regulated by advanced economies to take excessive cross-border risks that led to macrofinancial instability in recipient countries, which, in turn, often fed back into further instability in the source countries.

20. **This section looks at the past, present and future of advanced economy regulation and supervision to assess their transmission via capital flows.** The renewed look at the stylized facts in Section II raised two broad questions for regulation and supervision: (i) did institutions and markets properly internalize the cross-border risks that they generated? and, (ii) to what extent did systemically important activities such as shadow banking fall outside of the regulatory perimeter? Thus, looking back, this section examines how shortfalls in regulation and supervision in the lead-up to the crisis may have transmitted multilaterally and fed back into domestic financial stress. Next, the importance of more effective regulation and supervision at the current juncture is discussed. Looking ahead, reforms to the global regulatory and supervisory architecture are assessed. The final subsection draws the conclusion: assigning the highest priority to upgrading national regulatory and supervision policies, developing macroprudential frameworks, and completing and fully implementing reforms to the international architecture would form a policy web that would go a long way toward improving the safety of capital flows.

The past: national advanced economy regulation and supervision during the crisis

21. **The analysis here draws from case studies of cross-border systemic stress from the recent crisis as well as other sources (Background Paper, Part I).**¹⁰ The case studies cover intra-advanced economies capital flows that generated cross-border stress [American International Group (AIG); U.S. MMMFs, and European banks; and German banks and U.S. MBSs]. They also cover advanced economy to EME flows (Swedish banks in the Baltics; Austrian banks in selected European countries; advanced economy bank flows to EMEs outside of the regulatory perimeter).

22. **The crisis revealed *specific risks associated with capital flows subject to regulation and supervision that were not fully understood or firmly addressed.*** Supervisors have traditionally dealt with direct exchange rate risk (e.g., the net open currency position of banks). However, other risks which have been the traditional concern of domestic supervision had important and underappreciated *cross-border* consequences. What follows is a taxonomy of key channels of transmission of regulatory and supervisory policies to the riskiness of capital flows based on the case studies:

- *Foreign exchange liquidity risk channel*—Before the crisis, financial (and nonfinancial) institutions around the world became dependent on short-term U.S. dollar and in some cases euro financing. The cross-border maturity transformation undertaken by the large European banks covered in the case studies exposed them to the cutoff of U.S. MMMF funding. The reliance of the Swedish and Austrian bank affiliates in the Baltics and almost all Eastern European countries on financing from their head offices transferred the global liquidity shock of late 2008 to the recipient countries.¹¹ In retrospect, exposure to the drying up of global liquidity was not adequately appreciated by national financial authorities in source (or recipient) countries. Many countries had to step in to provide emergency liquidity when the crisis hit, an outcome that perhaps better regulation and supervision *ex ante* could have avoided.
- *Cross-border counterparty risk channel*—Complex financial linkages led to cross-border counterparty risk that was not fully understood by market participants and financial authorities. In particular, the reliance of G-SIFIs on mortgage default protection purchased from AIG Financial Products (AIGFP), a subsidiary of AIG,

¹⁰ EME case studies are discussed in more depth in International Monetary Fund, 2011, “[Cross-Cutting Themes in Advanced Economies with Emerging Market Banking Links](#),” IMF Policy Paper (Washington). Conclusions from that paper, which examines the linkages between home and host countries, and draws lessons for mitigating the transmission of macro-financial turbulence, are also reflected in this paper.

¹¹ The experience of the affiliates of Spanish banks in Latin America offers a useful contrast: they rely more on local financing, and thus were relatively immune to the global funding shock. Similarly, in the Czech Republic, foreign banks financed local lending by issuing local deposits.

exposed them to counterparty risk. As the crisis unfolded, AIGFP was not able to meet its default protection obligations, threatening the G-SIFIs, and prompting large-scale official liquidity support. U.S. MMMFs, already facing domestic deposit withdrawals, indiscriminately withdrew funding from their European bank counterparties owing to concerns about their viability. In both cases, the freezing up of cross-border linkages and flows between markets and institutions—some regulated lightly or even not at all—had important systemic implications.

- *Cross-border mortgage market risk channel*—the cross-border shifts of the risks of national mortgage markets, again, were not appreciated by market participants and financial authorities. The exposure of European banks to the risks posed by derivatives based on underlying U.S. mortgages was not fully understood by European supervisors. This was in part due to the strong credit ratings of these derivatives and the use of off-balance sheet conduits to avoid regulation. Another example from the case studies is the exposure of the Swedish and Austrian parent banks to real estate risk taken on by their affiliates in the Baltics and Eastern Europe. In addition, the market risk taken on by AIG in guaranteeing the mortgage default protection provided by its AIGFP subsidiary exacerbated systemic stress.
- *Cross-border credit concentration risk channel*—The overseas loans of Swedish and Austrian foreign affiliates were concentrated in a specific region and were large relative to the size of the recipient countries and to the capital of the foreign bank groups. Large losses on these exposures led to systemic stress in many of the recipient countries and fed back into the source countries as well. Home country financial authorities may not have fully appreciated this risk.
- *Indirect exchange rate risk channel*—The business model of the Swedish and Austrian bank affiliates operating in the Baltics and eastern Europe EMEs involved raising funding in dollars or euros and lending in that currency to borrowers with earnings in local currency. This exposed them and the recipient countries to downward pressure on the local exchange rate when this funding dried up. The home supervisors of the foreign affiliates did not fully appreciate this cross-border risk.¹²

23. **These risk channels contributed to cross-country stress and undermined confidence in the global system.** The foreign exchange liquidity, counterparty and mortgage risks were tied together by market and institutional linkages. Their realization undermined domestic stability in the United States and Europe and quickly spread via cross-border linkages throughout the global financial system. The AIG crisis and European bank losses, which corresponded to the sudden contraction of global shadow banking, froze funding

¹² Again, the experience of the Spanish banks in Latin America—who undertook limited local lending denominated in foreign exchange—offers a contrast. Czech Republic and Slovakia offer additional examples.

markets in advanced economies. The real economy repercussions for these countries and for the world economy more generally extended well beyond the real estate origins of the bubble, setting off a downward spiral in late 2008 and early 2009. Most of the Baltic and several other European EMEs experienced large sudden stops of foreign bank inflows as well as loan losses that in some cases contributed to very large GDP contractions. These are examples where the financial authorities of a large source country may not take full account of the impact of their policies on small recipient countries. Uncertainty arising from the lack of information on the cross-border and financial linkages—information that supervisors are now striving to collect and understand—contributed to the loss of confidence worldwide.

24. **In many cases, supervisors were not able to fully grasp the risks that fell outside of the *regulatory perimeter* especially those related to shadow banking.** AIGFP as an institution was essentially not regulated at all. The derivatives that led to its downfall traded “over the counter” and thus were not subject to regulation. The off-balance sheet conduits set up by banks in Europe and the U.S. that were financed in wholesale markets (including by U.S. MMMFs) and invested in securitized assets such as those backed by U.S. mortgages were established specifically to avoid regulation. Foreign banks in European source countries circumvented banking regulations in several EME recipient countries by having the parent bank lend directly to corporations or by setting up unregulated affiliates in host countries (Background Paper, Case Study I. F.).

25. **A macroprudential perspective would also have helped authorities understand and address the cross-border risks.** It is now widely recognized that in the run-up to the recent crisis, a key missing ingredient was an overarching policy framework for assessing systemic financial risks and stability. Neither national macroeconomic policymakers nor prudential regulators were in charge of ensuring the stability of the financial system as a whole. This gap was even wider for cross-border linkages because they were an extra order of magnitude more complex than domestic systems and were in many respects outside the policy purview.

26. **A key conclusion is that policies that safeguard domestic stability also help mitigate cross-border risks.** While regulation and supervision is only one driver of capital flows, the experience of the crisis suggests that more effective advanced economy regulation and supervision—consistent with international standards—would not only have better supported domestic stability, but would also have helped make capital flows safer. Cross-border effects are better taken into account by national policies that give market participants incentives to internalize the consequences of their decisions for domestic stability. Policy recommendations for national authorities (from Fund documents) that have cross-border benefits are discussed in Box 2. Bilateral and multilateral Fund surveillance can ensure that reforms of national regulatory and supervisory frameworks reap the collateral benefit of enhancing multilaterally stability. However, as practical matter, the policies of a large source country cannot always take account of the specific impact on small recipient countries. In these cases, more international coordination may be warranted, as discussed below.

Box 2. Specific Policy Recommendations on Regulation and Supervision

Fund documents, as detailed in the background paper case studies, have recommended reforms to enhance source country regulation and supervision. Many of these recommendations also mitigate the riskiness of capital flows and thus help preserve cross-country and global stability:¹

- Regulatory perimeter—Extending the perimeter to cover any institution, market, or product that is systemically important—especially those involved in shadow banking—reduces cross-country regulatory arbitrage.
- Information gaps—Collecting and monitoring data, such as risk exposures of major G-SIFIs including banks and shadow banking entities (SPVs, MMMFs, MBS issuers), their inter-linkages across borders and markets, and concentration in OTC derivatives markets helps assess the riskiness of flows.
- Regulation of OTC derivative markets—More reporting of derivative transactions and trading positions, registration of OTC derivative dealers, prudential requirements for risk exposures arising from OTC derivative trading, clearing of standardized contracts through CCPs, and trading in organized platforms or exchanges, can prevent market disruptions that lead to cross-border stress.
- Macroprudential policies of source countries—The development of new macroprudential frameworks can limit pro-cyclicality, thus mitigating sudden surges and stops of capital flows.
- Micro-prudential policies—Measures to limit the risks embedded in capital flows include limits on large exposures and limits on direct and indirect exposure to foreign exchange risk.
- Cross-border supervisor coordination— Better communication and coordination, such as joint inspections of consolidated financial groups and nonconsolidated subsidiaries, reduces regulatory arbitrage opportunities and destabilizing cross-border shifts of risks.
- Supervisory capacity—Enhanced resources would allow supervisors to deal with the complexities of cross-border linkages.
- Cross-border resolution and burden sharing arrangements—These are essential to helping stabilize market expectations on how failures will be handled and to dealing with the aftermath of serious stress.

¹ See Viñals, José, and others, 2010, "[The Making of Good Supervision: Learning to Say 'No'.](#)" IMF SPN/10/08 (Washington: International Monetary Fund); Carvajal, Ana, and others, 2009, "[The Perimeter of Financial Regulation.](#)" IMF SPN/09/07 (Washington: International Monetary Fund); and Viñals, José, and others, 2010, "[Shaping the New Financial System.](#)" IMF SPN/10/15 (Washington: International Monetary Fund).

27. **Financial innovation by nature is constantly generating new products and thus new cross-border risks.** National regulators and supervisors must strive on an ongoing basis to understand and address these shifting risks, just as they have always done with domestic risks.

The present: regulatory and supervisory policies at the current juncture

28. **The crisis left many advanced economies with financial systems facing ongoing strains in a challenging macroeconomic setting.** Overall, global growth is being slowed by the high public and private debt and leverage left in the wake of the crisis. This results in a pressing need for credible fiscal consolidation timetables that take country circumstances into account, and, in some cases, a lack of fiscal space for additional expansionary policies (Fiscal Monitor, September 2011). Further, orderly private balance sheet deleveraging is needed in many countries (WEO, September 2011). Meanwhile, banks in a number of advanced economies still need to build adequate capital buffers in a context of higher sovereign risk and slow growth (GFSR, September 2011). In view of these uncertainties and their impact on the value of financial assets, financial spreads have widened and leverage has increased. The Euro Area crisis has contributed to sharply lower bank equity while signs of stress in money markets have led to a resumption or expansion of liquidity support by major central banks.

29. **Low interest rates seem to be leading to riskier behavior via the search for yield.** Large advanced economy central banks, as discussed in the next section, are maintaining policy interest rates at historically low levels and are injecting large amounts of liquidity. The continued dependence of many large European banks on short-term financing from U.S. MMMFs exposes them to yet another liquidity squeeze. There are also signs that shadow banking may be expanding once again.

30. **In this fragile setting, a ratcheting up of financial sector stress could lead to destabilizing capital flows.** Continued low growth and risky behavior in individual advanced economies or regions could ultimately lead to a renewal of systemic financial stress. This scenario could lead to destabilizing capital flows, such as further withdrawal of funding of banks by U.S. MMMFs, or a sudden stop of flows to EMEs. These developments would at the least slow the global recovery, and possibly even lead to another round of cross-border contagion. Indeed, developments in recent months likely reflected such contagion.

31. **More effective regulatory and supervisory policies would help limit the risks, including those transmitted via capital flows.** Of course, adjustments to structural and fiscal policies are required to address the root macroeconomic problems. But stronger regulation and supervision are also needed to limit financial stability risks. In the current setting, regulatory and supervisory reforms take on a special urgency.

Looking ahead: the importance of international collaboration

32. **The reforms to the international regulatory and supervisory architecture now underway will influence the riskiness of capital flows.** These reforms are aimed at

addressing shortcomings in national policies revealed by the crisis, while ensuring globally consistent rules and a level playing field. While the reforms are of most immediate interest to advanced economies, which need to strengthen and extend regulation and supervision in the wake of the crisis, their outcome will also have important consequences for EMEs and for global stability including the risks posed by capital flows. So far, substantial progress has been made on addressing systemic stability risks posed by G-SIFIs, but progress in other areas has been uneven (Background Paper, Policy Note II.C).

33. **Slow progress with the global reform agenda may generate regulatory arbitrage opportunities and undermine global stability.** The linkages between European banks and U.S. markets that generated the systemic risks during the crisis can be explained to a large degree by regulatory arbitrage opportunities combined with strong competitive pressures and uneven market development.¹³ Care must be taken so that the reforms now underway do not generate unwanted new regulatory arbitrage opportunities across national jurisdictions (Box 3). These would have the potential to trigger unanticipated and undesirable shifts in capital flows and risk across borders. For example, divergences between the U.S. and Europe in the interpretation and scope of commitments to OTC derivatives market reforms, including exemptions, may create regulatory arbitrage and circumvention opportunities. Another example is the flexibility of national regulators in granting discretion to banks in the determination of asset risk weights: differences in them could lead to a significant understating of risks in some jurisdictions. Market participants have expressed concerns about regulatory arbitrage (Box 4) and the U.S. and U.K. Spillover Reports highlighted the undesirable consequences.

Box 3. A Closer Look at Regulatory Arbitrage Opportunities

Inconsistent implementation of the current financial sector reform agenda within key jurisdictions raises the possibility of regulatory arbitrage (Background Paper, Policy Note II. C). Such arbitrage opportunities could lead to cross-border shifts in capital motivated primarily by sidestepping regulations intended to reduce systemic risk, thus limiting their effectiveness. Although regulatory arbitrage opportunities are generally difficult to quantify, key examples are as follows:

Capital and liquidity requirements

- **Basel III**—The draft legislation recently presented by the European Commission that aims to translate the Basel III framework into binding rules for EU banks, nonbank lenders, and most investment firms (also known as CRD4) is in certain areas less prescriptive/ambitious than the Basel III framework. This could trigger a “race to the bottom” in Basel III implementation, or else risky activities could shift to less well-regulated jurisdictions.
- **Risk weighted assets (RWAs)**—Recent publications from financial analysts and rating agencies have drawn attention to considerable variations in risk weights applied by banks, with a particular concern over extremely low levels for mortgages in some jurisdictions. Material discretion granted to banks by national regulators in

¹³ See Background Paper, Part I; and Bayoumi, Tamimi and Trung Bui, 2011, “[Apocalypse Then: The Evolution of the North Atlantic Economy and the Global Crisis](#),” IMF Working Paper 11/212 (Washington: International Monetary Fund).

the determination of RWA may lead to a significant understating of risks, thus inflating capital adequacy ratios and creating competitive distortions across jurisdictions.

- Liquidity requirements—Basel III is working to finalize new liquidity standards including a short-term liquidity coverage ratio (LCR) and a long term net stable funding ratio (NSFR). Substantially diverse implementation across jurisdictions could interact adversely with varying starting liquidity positions and the national availability of a sufficient stock of liquid assets, leading to widely differing vulnerabilities to global liquidity shocks.
- Deferred tax assets (DTAs)—DTAs are treated more generously under CRD4 in Europe compared to in the United States. This means that European institutions could carry a larger balance sheet for a given level of capital (excluding DTAs).

Carving out of risky bank activities

- Separation of derivatives in the United States.—The Dodd-Frank Act (Section 716) requires large U.S. banks to separate their less risky derivatives books (such as interest rate swaps, foreign exchange, investment grade CDOs) from the riskier derivatives (such as equity, commodity, below investment grade CDOs). This will result in U.S. banks having two derivative books that will result in a loss of netting, and thus likely higher collateral requirements relative to other banks, and potentially lower rates of return for a given capital base.

Financial markets

- Uncleared OTC derivatives— The proposed U.S. margin requirements for uncleared OTC derivatives are more stringent than those proposed in other jurisdictions. The same may hold for forthcoming European Commission margin requirements under the European Market Infrastructure Regulation (EMIR). Concerns have been raised that this could result in derivatives activity shifting to jurisdictions that do not require margins on uncleared trades.
- Exemption of official entities from OTC clearing—EMIR exempts official entities (sovereigns, debt management offices, municipalities, sovereign wealth funds, international financial institutions) from full collateral and margin requirements, while U.S. regulations do not.
- Legal differences between master agreements—International Swaps and Derivatives Association (ISDA) master agreements are governed by either New York or English law. There will be some incentive to book under English law to avoid the Dodd-Frank Act.
- Central counterparty clearing (CCP) capital requirement—The Commodity Futures Trading Commission (CFTC) and Securities Exchange Commission (SEC) of the United States allow CCPs to operate with a minimum capital of only US\$50 million, raising the possibility of a larger-than-optimal number of CCPs. The European minimum capital criterion is still under discussion and is expected to be much higher. Lower capital requirements may allow U.S. CCPs to attract business, but may also make them more vulnerable to shocks.
- CFTC commodity limits—The CFTC is considering limits on speculation in physical commodity markets, including energy and metals. The limits could shift business away from the United States while not reducing global risks from these activities.

Supervisory perimeter

- Volcker Rule—In the United States, the “Volcker Rule” (Section 619 of the Dodd-Frank Act) will require the large U.S. banks to offload their proprietary trading and hedge fund business. This should reduce the relatively risky activities of banks but also may shift some of them outside the regulatory perimeter, including to other jurisdictions with weaker regulations.

Box 4. Market Participant Views on Policies Affecting Capital Flows

This box summarizes the views of market participants on policies affecting capital flows covered in this paper. As background, investing in EME assets is viewed as a structural trend—one that has accelerated following the crisis. This trend is supported by low returns and higher risks now evident in advanced economies, as well as a high degree of liquidity in some large EME markets. The sources of this box are interviews with market participants and market reports.

Regulation and supervision

Market participants see significant regulatory arbitrage in several areas. These include the Volcker Rule, EU compensation rules, and the separation of derivatives for banks in the United States. Regarding OTC derivatives, differences in the timing of rule implementation between the United States and the EU could also create opportunities for regulatory arbitrage. A key element cited that could make global markets more unstable was the lack of regulatory harmonization and continued disappointing progress despite the promising start a few years ago.

Monetary Policy in Advanced Economies

The low interest rate and easy liquidity environment is widely viewed as pushing investors to invest in more risky assets. Pension funds and insurance companies with fixed liabilities are the most under pressure, as many are underfunded and cannot earn enough without taking on more risky assets. A surprising number of pension funds, public ones in particular, have high fixed target returns (7.5 percent to 10 percent) that may be unsustainable in the current low interest rate environment. This is forcing them to hold more equities and alternative assets than better funded pension funds. The effects of the Federal Reserve's Quantitative Easing (QE) on investments in Asia are seen as mixed. Some participants, mainly in Asia, consider that QE had considerable effects on significant capital inflows to (relatively) high yielding Asian countries such as Korea, Indonesia, India, and the Philippines. Many market participants are skeptical as to the effectiveness of QE in supporting growth.

Capital Flow Management Measures

Market participants report that, in general, capital controls are of secondary importance and did not express views about the multilateral transmission of CFMs from one country to another. The dominant view was that capital controls and macroprudential measures have not induced lasting depreciation pressures, but have affected arbitrage spreads and the composition of flows. CFMs are disadvantageous to investors in terms of reduced arbitrage and higher funding costs. A few participants raised concerns about the less visible CFMs, such as classifications of industries for which foreign investment is prohibited, which could increase the costs and risks of investing significantly. Some even argued that the announcement of capital controls may be a good opportunity for real-money investors with a longer-term view if the announcement effect depressed the local markets and currencies. Many participants noted that CFMs can be circumvented, especially by real-money investors.

34. The possibility of regulatory arbitrage and the uncertain outcome of ongoing reform discussions could lead to an adverse dynamic and thus must be avoided.

Potential regulatory arbitrage opportunities often reflect core differences across countries in policy objectives (for example, developing a financial center versus shrinking the size of the banking system), social policy frameworks, financial system structures, political legacy of the crisis, and the influence of vested interests. These differences can lead financial authorities to either not press for sufficiently strong regulatory standards, or lead to weak

implementation of regulations arising from inappropriately excessive discretion in their application.¹⁴ Further, the complexities of the international architecture and of the issues under discussion make it difficult for policymakers to be held accountable. The one-off nature of this “game” increases the possibility of a bad outcome. The worst case scenario is a “beggar-thy-neighbor” outcome and a relatively weak post-crisis framework. It is thus essential that the regulatory reform process avoids such an outcome, as it would not be supportive of global financial stability.

The policy message

35. Macroeconomic policies may be the main policy driver of capital flows, but it is prudential policies that influence their riskiness. There is strong evidence that in the run up to the crisis and in its early stages shortcomings in regulation and supervision allowed banks and other market participants regulated by advanced economies to take excessive cross-border risks that led to macrofinancial instability in recipient countries. Today, more effective regulatory and supervisory policies would help limit the signs of systemic stress that are again appearing, including those transmitted via capital flows.

36. Completing and implementing national regulatory and supervisory reform agendas will enhance national and global stability and is thus especially urgent. The same national regulatory and supervisory policies that foster domestic stability also support stable capital flows. Upgrading national regulation and supervision frameworks to international standards would naturally provide incentives to market participants that would limit cross-border risks.¹⁵ Bilateral and multilateral Fund surveillance, together with the Financial Stability Board (FSB) and other international bodies, can help ensure that national reforms are in keeping with international standards.

37. Effective national macroprudential policy frameworks can complement and reinforce microprudential regulatory and supervisory policies. Macroprudential policies are aimed at systemic financial stability and can play an important role in shaping the incentives of markets and institutions and in identifying systemically important institutions outside of the regulatory perimeter. The new macroprudential institutional arrangements should be completed and instruments further developed.¹⁶ Close coordination between

¹⁴ The small literature on the coordination of international supervisory policies suggests both cooperative and noncooperative outcomes are possible (Background Paper, Policy Note II.D).

¹⁵ Stronger and more coordinated financial sector regulation by the large advanced economies core to the global financial system was a main lesson of “[Consolidated Spillover Report Implications from the Analysis of the Systemic -5](#),” IMF Policy Paper 2011, (Washington: International Monetary Fund) and, in particular, the U.S. and U.K. spillover reports.

¹⁶ The Fund is playing a leading international role in developing new macroprudential policies. In April 2011, the Board discussed “[Macroprudential Policy: An Organizing Framework](#)”, IMF Policy Paper 2011 (Washington: International Monetary Fund), followed by “*Towards Operationalizing Macroprudential Policies: When to Act?*” (Chapter 3, *Global Financial Stability Report*, September 2011), “*Towards Effective*

macroprudential and microprudential authorities, such as sharing information and analysis on cross-border institutions and markets, would enhance policy effectiveness. Section V on CFMs discusses macroprudential policies to address systemic risks posed by capital inflows. Macroprudential policies could also be employed by source countries if risks arising from capital outflows bear on domestic stability.

38. **Improved national prudential frameworks are “win-win.”** More effective supervision and the development of macroprudential policies benefit both source and recipient countries and the global system as a whole.¹⁷

39. **Full reform of *the international architecture* would establish an overarching framework, with the benefit of less risky capital flows.** Significant progress has been made in developing an approach to deal with G-SIFIs. More progress is needed in reforming other areas, such as defining bank capital and setting up new liquidity rules. For the new architecture to fully support financial stability, reforms will have to be effectively implemented at the national and international levels. The Fund together with the FSB are working to help ensure that the reforms and implementation of the new architecture proceed in a way that mitigates cross-border risks. Again, these reforms should be of the highest priority for national policymakers.

40. **Cross-border coordination, including of macroprudential policies, and cross-border resolution of G-SIFIs, would help mitigate the riskiness of capital flows.** The cross-country “jurisdictional reciprocity” of the Basel III counter-cyclical capital cushions is a positive step. Such coordination is helpful, but its effectiveness in mitigating the risks associated with capital flows can be limited by the institution or market focus, as well as impediments to sharing information and analysis. Macroprudential policies seem better suited for coordination to deal with capital flows, including when national authorities may not have the incentive to fully internalize the potential cross-border transmission of their policies. Reciprocity could be extended to the use of macroprudential tools to, for example, limit capital flows aimed at circumventing domestic measures.¹⁸ Developing cross-border coordination may take time, as national frameworks are in many cases still in early stages of development, and differences in frameworks, objectives, and tools across jurisdictions will

Macroprudential Policy Frameworks: An Assessment of Stylized Institutional Models and Macroprudential Policy,” (Staff Discussion Note and Working Paper, forthcoming), and “*Macroprudential Policy: What Instruments and How to Use Them? Lessons from Country Experiences,*” (Working Paper, forthcoming). The next steps will address the identification and monitoring of systemic risk and developing the policy toolkit.

¹⁷ The post-crisis regulatory and supervisory reform agenda is addressed in Viñals, José, and others, 2010, “[Shaping the New Financial System](#),” IMF SPN/10/15 (Washington: International Monetary Fund); and Viñals, José, and others, 2010, “[The Making of Good Supervision: Learning to Say ‘No’](#),” IMF SPN/10/08 (Washington: International Monetary Fund).

¹⁸ The European Systemic Risk Board has recommended that home country supervisors reciprocate macroprudential measures taken by host country supervisors.

take time to mesh. Ensuring adequate cooperation on resolution of G-SIFIs is also paramount to avoid stress that could also be transmitted through capital flows. International coordination can help mitigate cross-border risks when the financial authorities of a large source country may not take full account of the impact of their policies on small recipient countries. The Fund could facilitate an ongoing dialogue among macroprudential authorities aimed at identifying and mitigating cross-border risks.

41. **National regulatory and supervisory reforms, together with a new international architecture, would form a financial policy web that would enhance global stability and reduce the riskiness of capital flows.** The upgrading of domestic frameworks serves both national and multilateral ends. The completion and full implementation of reforms to the international architecture would further mitigate the riskiness of capital flows by fostering consistent and well-coordinated policies across jurisdictions. The experience of the crisis, as well as recent developments, add extra urgency to additional reforms in these areas.

IV. THE IMPACT OF ADVANCED ECONOMY MONETARY POLICY ON CAPITAL FLOWS

42. **Monetary policy decisions in the major advanced economies can also exert a powerful influence on cross-border capital flows.** By changing the differential between domestic and foreign interest rates, monetary policy in major advanced economies directly affects the attractiveness of domestic versus foreign assets and, thereby, capital flows. At the same time, monetary policy also affects domestic demand, and the resulting indirect impact on capital flows may partially offset the direct effect. In addition, monetary policy in large advanced economies shapes conditions in their deep asset and money markets, which, in turn, generate and channel liquidity globally (Box 1). The large global financial institutions and especially deep financial markets of the United States make its monetary policy particularly important for global stability, especially in the post-crisis period that is the subject of this paper. Thus, U.S. monetary policy is the main focus here, although the monetary policy stance of other large reserve currency issuers matters as well.

43. **Empirical evidence generally suggests that monetary policy in major advanced economies has had a strong impact on capital flows into EMEs** (Background Paper, Policy Note II.B). Among global (push) factors, U.S. interest rates explain a sizable share of the variation in flows to EMEs, particularly bond flows (“[Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Policy Framework](#)”). Not surprisingly, economies that have greater financial exposure to the United States are more sensitive to changes in U.S. interest rates (WEO, April 2011, Chapter 4). However, analysis of equity and bond portfolio flows of real money investors—which comprise only one component of overall capital flows—found that they are driven by growth prospects and country and global risk, while interest rate differentials do not play a significant role for these investors (September 2011 GFSR).

44. **QE by major central banks since 2009 also appears to have impacted capital flows to EMEs.** After bringing policy interest rates to their lower bounds, major central banks—especially the Federal Reserve—shifted to purchasing long-term public bonds, or

QE. Event study analysis suggests that the effect of the first and second rounds of QE (QE1 and QE2, respectively) were associated with declines in foreign bond yields, though the effect was notably larger for QE1.¹⁹ Moreover, QE announcements were associated with higher capital inflows to EME bond and equity funds (U.S. Spillover Report). Investors appear to have stepped up capital flows by shifting from lower yielding public bonds to EME securities. Indeed, market participants see the easy liquidity environment as pushing investors to invest in more risky assets (Box 4). By contrast, however, the GFSR (April, 2011) found little evidence that cross-border flows surged owing to QE in the large advanced economies, although it may have prompted asset reallocation into the most liquid EME financial markets.

45. **An overall assessment of the transmission of U.S. monetary policy to EME capital flows must account for more than the interest rate and QE channels.** Indeed, macro-model simulations suggest that monetary policy tightening in large advanced economies that stabilizes domestic output reduces what would otherwise be negative demand transmission to the rest of the world (WEO, April 2011, Chapter 1). Several VAR and large macro-model studies suggest that QE boosted U.S. growth, which likely narrowed growth differentials and *slowed* inflows to EMEs.²⁰ Further, analysis undertaken for the Euro Area Spillover Report indicates that exceptional liquidity provision by the European Central Bank (ECB) helped contain spillovers that might have taken place in its absence via increased bank deleveraging in response to higher funding costs. Finally, in the absence of QE, the world may have slipped into a more severe downturn with an investor rush to safe haven securities, possibly triggering a prolonged reversal of flows to EMEs.

46. **The complicated transmission of the multilateral effects weakens the case for major central banks to consider them actively in their monetary policy.** Of course, to the extent that transmission to other economies—through financial and trade interlinkages—carry feedback effects to domestic macroeconomic and financial stability, incorporating such multilateral effects in policy decisions would be fully consistent with giving primacy to domestic objectives, as central banks are mandated to do. But using monetary policy to try to achieve a domestic objective and at the same time offset any negative cross-border impact, while helpful from a global perspective, might in practice be extremely difficult. The Fund will continue to periodically assess (via both its bilateral and multilateral surveillance) the multilateral effects of large advanced economy monetary policy.

47. **Prudential policies and tools should be used, when possible, to offset any negative cross-border effects of major advanced economy monetary policy.** Advanced

¹⁹ See also Krishnamurthy, Arvind, and Annette Vissing-Jorgensen, 2011, “*The Effects of Quantitative Easing on Interest Rates*,” Brookings Papers on Economic Activity.

²⁰ The literature is reviewed in Stone, Mark, Kenji Fujita, and Kotaro Ishi, 2011, “[Should Unconventional Balance Sheet Policies be Added to the Central Bank Toolkit? A Review of the Experience So Far.](#)” IMF Working Paper 11/145 (Washington: International Monetary Fund).

economy monetary policy is one of the prime drivers for capital flows, but the lack of a case for taking multilateral implications into account shifts attention to other policy options. As noted, fully effective regulatory and supervisory frameworks of large advanced economies—for example with respect to G-SIFIs—could help mitigate any increase of the riskiness of capital flows associated with expansionary monetary policy. Multilateral surveillance, including through the Fund’s traditional multilateral products as well as the new Spillover Reports, is well suited to facilitate cross-border policy assessments.

V. CAPITAL FLOW MANAGEMENT MEASURES

48. **Renewed interest in CFMs suggests that their multilateral implications warrant greater attention.**²¹ The recurrent surges in flows to EMEs puts upward pressure on inflation and exchange rates and raises concerns about sudden stops. In response, many EMEs have recently introduced new CFMs in an effort to alter capital inflows that are deemed to be undermining domestic stability (Figure 5). The Fund has acknowledged that CFMs can be an appropriate measure available to policymakers to manage inflows in a package of policy actions, while cautioning about potential adverse effects domestically if overused or used in inappropriate circumstances.²² This section complements previous work by considering the multilateral impact of CFMs.

49. **CFMs could transmit multilaterally by increasing or decreasing capital flows to countries with similar characteristics.** A CFM, since it is designed to curb inflows, can be expected to reduce asset prices and inflows in the home country, and have the opposite effects on other countries in the region by diverting flows from the home country to those countries. Conversely, asset prices and flows could *decline* in neighboring countries if markets anticipate the use of CFMs to spread to them.

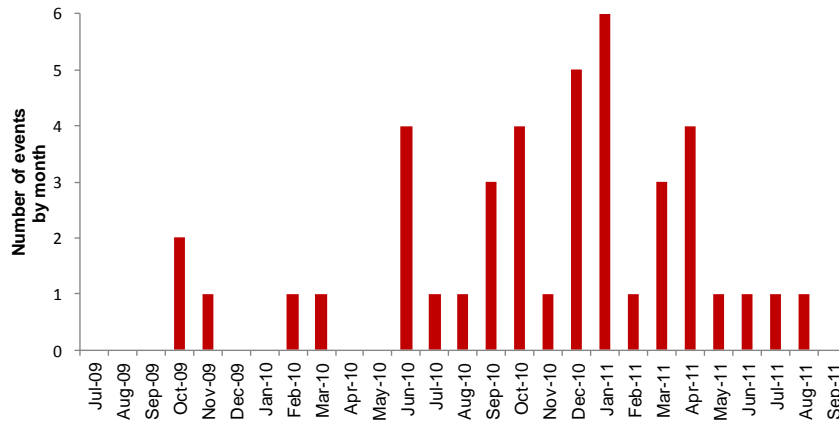
50. **Empirical evidence on the magnitude and direction of multilateral effects of CFMs is inconclusive thus far.** New event studies were estimated of the short-term transmission of recent CFMs to the equity returns and flows of other countries in the same region, taking into account domestic and global conditions (Box 5 and Background Paper, Policy Note II.E). The results indicate that CFMs can increase or decrease flows to neighboring countries. In several instances, the results suggest that CFMs did divert flows to other countries, while in other cases the evidence is consistent with investor perception that

²¹ CFMs encompass a broad range of administrative, tax, and prudential measures that are designed to influence (some or all) capital flows. They comprise: (i) residency-based measures, affecting cross-border financial activity that discriminate on the basis of residency—these are often referred to as capital controls; and (ii) other measures that do not discriminate on the basis of residency, but are nonetheless designed to influence flows, including some macroprudential measures.

²² Baqir, Reza, and others, 2011, “[Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Policy Framework](#),” IMF Policy Paper (Washington: International Monetary Fund).

CFMs could be adopted more widely, reflected in a reduction in flows and equity prices even in neighboring countries.

Figure 5. Capital Flows Management Measures and Related Measures^{1/}



1/ The table includes CFMs and related measures used by a sample of countries to cope with capital inflows since 2009:Q4 based on an updated version of Table 4 of "[Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Policy Framework](#)." A measure of a set of measures taken by a country in a particular month is counted as one event.

Source: IMF Country Desks

Box 5. Event Studies of the Multilateral Effects of Capital Flows Management Measures

Event study analysis of one-day market reactions to recent CFMs suggest that they have both decreased and increased equity prices and flow quantities in other countries in the same region (Table 3). The analysis is based on both daily changes in equity returns and equity fund flows, controlling for other factors (see Background Paper, Policy Note II.E).

- CFMs in Brazil during 2009-11 appear to have coincided with a decline in domestic stock prices and depreciation of the *real* the day after each event date. After controlling for other factors, equity returns in Mexico moved in the opposite direction on those dates, suggesting that there may have been some diversion of flows from Brazil to Mexico.
- Other cases where there could have been a diversion of flows are from Colombia's URR in 2007 to Chile, and from Thailand's URR in 2006 to Indonesia, Korea, Malaysia, and the Philippines. The estimated impact of Colombia's CFMs on Brazil, Mexico, and Peru suggests possible investor concern that similar measures could be adopted in those countries. In the case of Korea, the measures in June and November 2010 were associated with an increase in equity prices and appreciation of the won, consistent with an increase rather than a reduction in inflows in response to the announcement. Hence, its estimated multilateral effects are difficult to interpret.

Similar analysis using daily equity fund flow data (instead of equity returns) indicates some evidence of diversion of flows from Brazil to Mexico and Peru. For Chile, on the other hand, Brazil's CFM announcements were associated with lower flows, after controlling for other factors. These results are not entirely consistent with the findings based on equity returns. It may be noted, though, that the data on flows to equity funds are available for a much shorter time period and represent a small portion of total equity flows.

Table 3. Summary of Event Study Findings

Event	Domestic Impact			Cross-Border Impact Relative to Country Imposing CFMs 1/		
	Stock Market Index (percent change)	Currency (+ denotes depreciation)	Flows to Equity Funds		Equity Returns	Flows to Equity Funds 2/
Brazil	-	+	Decline	Chile	Negative	Positive**
				Colombia	Positive	Negative
				Mexico	Negative***	Negative
				Peru	Positive*	Negative***
Colombia	-	+	...	Chile	Negative***	...
				Brazil	Positive***	...
				Mexico	Positive***	...
				Peru	Positive**	...
Korea	+	-	...	Indonesia	Negative	...
				Malaysia	Positive***	...
				Philippines	Negative	...
				Thailand	Positive***	...
Thailand	-	+	...	Indonesia	Negative***	...
				Malaysia	Negative***	...
				Philippines	Negative***	...
				Korea	Negative***	...

Source: IMF staff estimates.

1/ A positive (negative) impact implies that equity returns and flows to equity funds of impacted countries move in the same (opposite) direction as those in the country imposing CFMs.

2/ Daily flows to equity funds are available only from 2008. Impact of Korea's events not considered due to "perverse" domestic market reaction. * represents significance at the 10 percent level, ** at the 5 percent level, and *** at the 1 percent level.

The evidence on multilateral effects is by no means conclusive, given that they are very difficult to measure. For example, while market reactions usually occur on the day of policy announcements or when measures actually become effective, the diversion of capital flows, if any, is more likely to spread out over some time horizon. In addition, the intensity of the effects—and even the direction over a given time period—could depend on whether the policy announcements are a surprise, largely anticipated, or made in steps. Investors' reaction would also be affected by the type and severity of the measure as well as the degree of uncertainty about its details. In some cases, investors may not react immediately to policy announcements, but may respond once they understand the precise nature of the measure and its implications. There may also be other idiosyncratic factors that the empirical model cannot capture.

51. On balance, the mixed multilateral transmission of CFMs, together with their modest unilateral effectiveness, suggests that they have limited implications for the overall riskiness of capital flows and global stability. If the adverse multilateral effects are small in relation to the unilateral benefits, CFMs could be beneficial both for the home country and, on balance, also for the global economy. In principle, recipient countries could employ CFMs to counter destabilizing “bad” flows while realizing the benefits of the “good” flows. However, the evidence for their unilateral effectiveness is not definitive: empirical work suggests that capital controls have little effect on overall flows and currency appreciation, although they may change the composition of flows for some time, and that macroprudential measures may address financial stability concerns but not stem appreciation and slow inflows.²³ Market participants generally do not view CFMs as effective (Box 4).

²³ Habermeier, Karl, Annamaria Kokenyne, and Chikako Baba, 2011, “[The Effectiveness of Capital Controls and Prudential Policies in Managing Large Inflows](#),” IMF SDN/11/14 (Washington: International Monetary Fund).

There is also a downside risk that CFMs could keep out a broad range of flows, including those that are desirable. The lack of empirical and market support for the lasting effectiveness of CFMs as a policy tool for limiting the riskiness of capital inflows may reflect the policy challenges of identifying, as well as targeting, destabilizing flows. Moreover, macroeconomic push and pull factors, as estimated in Background Paper, Policy Note II.B, probably dominate the behavior of capital flows.²⁴

52. **However, there is a risk that CFMs, if they proliferate, would have escalating global costs.** For example, insufficient reforms of regulatory and supervisory frameworks could lead to a world with permanently riskier capital flows. In response, recipient countries could begin to adopt gradually more restrictive capital controls.²⁵ Further, political pressures could lead to the adoption by CFMs across a number of countries including via imitation effects, even if their unilateral effectiveness is limited. Foreign investors may pull back. If enough countries respond this way, the costs from lower and less profitable capital flows could exceed any benefits for domestic or global financial stability. Therefore it would be useful for the Fund to keep track of global recourse to CFMs and its impact on global capital flows, and possibly advise on the use of globally superior alternatives, such as well-designed policies affecting capital flows from source countries.

VI. CONCLUSIONS AND EXTENSION OF THE PROPOSED FRAMEWORK

53. **National policies have the potential to influence the riskiness of capital flows in a way that can contribute to instability in other countries, or even the global economy.** The crisis showed that even direct feedback loops from overseas risk buildup to domestic instability (as between Europe and the United States, or between home countries of foreign banks and EME recipient countries) were not always internalized by policymakers. National authorities may have limited understanding of the multilateral transmission of their policies, or lack incentives to fully internalize their cross-border effects.

54. **A key conclusion of this paper is that national policymakers should pay more attention to the multilateral transmission of their policies, especially with respect to prudential frameworks.** Analysis of the multilateral transmission of policies affecting capital flows is especially challenging, although there is ample evidence that macroeconomic policies are the main policy driver. There is also substantial evidence that both source and

²⁴ In theory, global welfare could be improved by a coordinated policy combination of expansionary advanced economy monetary policy coupled with the *collective* adoption of CFMs by EMEs to counter destabilizing inflows. However, there are a number of practical considerations that may preclude this scenario, in addition to the policy challenges discussed above, including differences in the effectiveness of CFMs across EMEs, relevant constraints for OECD members from its Code of Liberalization of Capital Movements and for members of the EU subject to the Treaty on the Functioning of the European Union, and resistance by vested interests to unwinding CFMs when advanced economy monetary policy tightens.

²⁵ This could be accompanied by the rise of financial protectionism, for instance prohibitions of foreign ownership of domestic assets or firms may increase, which would limit the benefits of financial globalization.

recipient countries policies play a role in reaping the benefits of capital flows while limiting their risks. In particular, assigning the highest priority to completing and fully implementing the national and international regulatory and supervisory reforms now underway and developing new macroprudential frameworks incorporating cross-border reciprocity elements would mitigate cross-border risks and thus enhance global stability.

55. **The previously proposed framework for policies affecting capital flows thus needs to be extended to encompass the multilateral aspects.** The possible framework proposed in Box 1 of *Recent Experiences in Managing Capital Inflows—Cross Cutting Themes and Possible Policy Framework* ([Recent Experiences in Managing Capital Inflows—Cross-Cutting Themes and Possible Policy Framework](#)) mainly addresses the domestic implications of the CFMs of recipient countries. Including the multilateral dimension would provide a clearer basis for international policy collaboration to enhance global stability. The framework could promote the understanding of the cross-border effects of policies among national authorities (especially when they transmit adversely), and help identify the circumstances in which more collaboration is warranted (Box 6).

56. **While much more work and experience will be needed to understand in detail the multilateral effects at play, a framework may already be agreeable.** The Fund has the mandate and the tools to help better understand the global drivers of capital flows and the impact of national policies on them, whether in source, recipient, or third countries, and it should continue to do so both in bilateral and multilateral surveillance, including by facilitating policy coordination. Based on this analysis, and in consultation as needed with others such as the FSB, it may be possible over time to develop more specific policy advice for the management of capital flows. In the meantime, there is a case for putting forth new elements of the proposed framework to cover policies that affect capital flows. These new elements would also underpin the provision of consistent and evenhanded policy advice by the Fund in both bilateral and multilateral contexts.

Box 6. Possible Framework for Policies Affecting Capital Flows—Additional Elements Covering Multilateral Aspects

- National policymakers of both source and recipient countries should take into account how their policies affect others.
- National authorities should share information multilaterally on the objectives and implementation of their policies affecting capital flows.
- National prudential authorities should be mindful of the risks associated with the cross border activities of the markets and institutions in their jurisdictions and be prepared to take measures to address them:
 - The effects of capital flows on financial stability should be considered in macroprudential policy frameworks.
 - The capacity to identify and mitigate risks associated with capital flows— through regulated and non-regulated financial institutions—should be enhanced and the responsiveness of cross border activities to policies should be monitored.
 - Agreement on “reciprocity” in the application of macroprudential policies should be sought.
- National authorities should complete and fully implement reforms of the international regulatory and supervisory architecture expeditiously and actively minimize the scope for regulatory arbitrage.

VII. ISSUES FOR DISCUSSION

- Do Directors agree that policies in countries that are at the source of capital flows may have an impact on the volume and riskiness of flows, and on macroeconomic and financial stability in countries receiving the flows?
- Do Directors agree that global stability is a public good, and that better taking into account the multilateral transmission of policies affecting capital flows would help all countries reap the benefits of flows while reducing the risks?
- Do Directors agree that completing and fully implementing the national and international regulatory and supervisory reforms now underway and developing new macroprudential frameworks would enhance national and global stability by taking better account of the implications of capital flows?
- Do Directors support the extension of the proposed framework to address the multilateral aspects of policies affecting capital flows as an additional building block towards a possible comprehensive, flexible and balanced multilateral approach to the management of capital flows?