



## 2014 TRIENNIAL SURVEILLANCE REVIEW—EXTERNAL STUDY—RISKS AND SPILLOVERS

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### EXECUTIVE SUMMARY

**The global financial crisis and the subsequent economic downturn, from which much of the industrialized world has not yet recovered, exposed serious fault lines in the international monetary and financial system.** It also highlighted serious failings in surveillance of risks to stability. Acknowledging its share of responsibility, the International Monetary Fund has been upgrading its surveillance efforts over recent years. This Triennial Surveillance Review, the second since the height of the crisis in 2009, therefore provides a vital moment to capture lessons that have become clearer over the past three years and to seize opportunities provided by regulatory reforms already in train.

**Our key messages revolve around the importance of stocks as well as flows;** of ‘boomerang’ effects whereby outward spillovers from a country’s policies or problems swing back to hit itself; of the illusion of relying almost entirely on models; and of the opportunity provided by the macro-prudential turn in national regimes to reset the scope of Fund analysis and recommendations. Throughout we underline the importance of the Fund being joined-up, one organization. A few words on each here do no more than scratch the surface.

**The Fund needs to institutionalize a focus on national balance sheets in assessing vulnerabilities stemming from liquidity, currency and other risk mismatches in the structure of an economy’s liabilities and assets.** Grasping the importance of gross capital flows without undertaking balance sheet analysis is like failing to finish a thought. That was a lesson from the 1990s’ Asian crises. It is a lesson from, especially, the euro area crisis. It would be a sin to neglect it for a second time.

**National policymakers are, given their interests, typically more focused on inward than outward spillovers, but that can be myopic since problems can bounce back in today’s increasingly interconnected world.** Bilateral and multilateral surveillance and recommendations must be joined-up.

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**Models provide discipline and aid explanation but cannot be a crutch.** The lack of mainstream macroeconomic models incorporating default risk and a banking sector did not, could not mean that those were not sources of macroeconomic vulnerability. Formal and informal analysis are complements, warranting mutual respect and deserving to be joined up.

**Not all remedies will be macro-prudential, but many will be.** Although tragically late, policymakers have recovered the old knowledge that the financial system is a system; that national systems are interconnected; that they matter to and are affected by broader economic conditions; and that regulatory policy simply cannot be ‘micro’, focusing on individual firms as though they floated independently of each other, of markets, of the economy. This provides the Fund with the structure to articulate recommendations for balance-sheet vulnerabilities alongside its fiscal and monetary prescriptions.

**Our recommendations come under four headings: strategy, substance, research and data development, and communications.** They are not offered on a pick & mix basis, and for that reason are not summarized here.

# CONTENTS

<b>HIGH LEVEL PRINCIPLES</b>	<b>4</b>
<b>NEW POLICY REGIMES AND INSTRUMENTS: MACRO-PRUDENTIAL</b>	<b>8</b>
<b>THE INEVITABILITY OF INCOMPLETE COMPREHENSION: MODELS PROVIDE INPUTS NOT MENTAL CRUTCHES</b>	<b>9</b>
<b>RECOMMENDATIONS FOR ACTION</b>	<b>10</b>
A. Strategy	10
B. Substance	11
C. Research and Data Development	13
D. Communications	14

## HIGH LEVEL PRINCIPLES

1. **Three principles should guide IMF work on spillovers and risks to economic stability:**
  - It should be absolutely central to the Fund’s work.
  - It is recommendations for action in its member countries that matter, as the Fund is a policy institution.
  - Bilateral surveillance and multilateral surveillance need to be joined up if assessments are to gain traction.
  
2. **Taken together, these principles drive what follows.** We therefore affirm the importance of both outward and inward spillovers, and of cross-border risks more generally, being central to the Fund’s diagnosis and prescriptions for action amongst its membership. And we underline that the Fund’s recommendations to its members are unavoidably made under uncertainty.
  
3. **Over recent years, the IMF has put more effort into analyzing spillovers from developments in one economy or financial system to others, and into promulgating its analysis through dedicated Spillover Reports.** Those efforts, while commendable, indeed essential, have had limited effects to date—both on policymaking and on financial market analysis and pricing.
  
4. **No doubt that is partly because the global financial crisis, followed by protracted economic weakness in the west, have given Fund analysts and policymakers everywhere quite enough to be getting on with.** The silver lining in terms of the Fund’s future work is that no one can deny that financial and economic spillovers are now a first-order issue for the world economy. It is not enough to assess member countries atomistically. Nor would the Fund deliver if the world macroeconomic outlook and the global financial system were treated as separate spheres, calling for different kinds of analysis. Some progress towards integration has been achieved, but greater weight on risks, interactions and spillovers would help. Big picture, we have learnt, with varying degrees of robustness, the following about inter-linkages across the world economy:
  - Macroeconomic outturns and vulnerabilities are highly sensitive to conditions in credit markets, and banking systems in particular. Swings in appetite for risk or perceptions of risk are potent forces in global economic and financial conditions, and increasingly affect emerging markets as well as advanced economies.
  - The cross-border carry trade exists, is potent, and can transmit monetary policy across borders beyond standard Mundell-Fleming effects, sometimes generating easier local credit conditions, which can erode resilience by stretching the balance sheets of local borrowers and local lenders.
  - Gross capital flows matter, not only net capital flows.

- Therefore ‘national balance sheets’ matter, as the composition of gross flows might generate liquidity or currency mismatches or excessive default-risk transformation.
- But flows of risk are not always coterminous with flows of funds, due to derivatives and other types of insurance. So the analysis of national-balance-sheet vulnerabilities has to be rich.
- Outward spillovers from a country’s policies or problems can sometimes boomerang back, due to cross-border financial-risk exposures or macroeconomic linkages.

5. **Much of this should have been apparent, and was, from the late-1990s Asian crises.** For example, whereas Korea’s external vulnerabilities were concentrated in the banking sector, Thailand’s were across the financial sector more broadly and Indonesia’s in the non-financial corporate sector. In each case, external crisis was sufficiently grave that it exceeded any fiscal capacity to come to the rescue.

6. **Lessons from experience were not restricted to emerging-market economy vulnerabilities that had turned sour.** In different ways, Japan’s long struggle to recover from its crisis should have underlined the potency of excessive indebtedness, whether internal or external, and the vital importance of banking system—including ‘shadow banking’—stability.

7. **Nor should what we call “boomerang effects” have seemed novel.** Over 30 years ago, the western banking system was taken to the brink of collapse when the badly needed counter-inflationary turn in U.S. monetary policy caused defaults among Latin American and Eastern European governments that had borrowed heavily in dollars at floating-rates of interest from banks in the west. The lesson then was not, of course, that the Fed should have maintained “easy money.” But rather that U.S. and Western European banking authorities should have been alert to their financial systems’ large exposures to highly vulnerable sovereign borrowers.

8. **It is sobering to reflect on how much more could have been learned, through the agency of the Fund, from those episodes, although a lot of efforts have been spent in this regard.** By definition, gross capital and risk flows drive the shape of balance sheets and, therefore, an economy’s external vulnerabilities.

9. **Although budget constraints depend on net indebtedness and prospective income flows, debt-servicing capabilities also depend ex post on any crystallization of liquidity, currency or credit exposures resulting from the pattern of gross flows.** The extraordinary explosion in the scale and diversity of capital (and risk) flows during the 2000s accordingly had profound effects on the connectivity and plumbing of the international financial system. Not only did the financial sector lever-up in the U.S. and many European countries, it did so partly by borrowing short-term from abroad, including from parts of the financial system which were themselves exposed to liquidity crises. National balance sheet analysis, examining vulnerabilities in all sectors individually and in aggregate, could have made a difference to preventing the global financial crisis. A good deal could have been done—even if only ‘cobbled together’ by the Fund’s usual analytical standards—using available data. It would also have helped highlight the need for

some countries to run a tighter fiscal policy if they were to have the capacity to act as ‘economic-insurer of last resort’ to an overstretched private sector.

**10. Greater attentiveness to developments in finance theory could have made a difference to grasping the accumulating vulnerabilities.**

While the forward-premium puzzle was first identified many years ago, macroeconomic and especially monetary policy makers generally maintained a default assumption that government bond yield curves (in countries with very low solvency risk) reflected the expected path of the short-term monetary policy rate; and that the key drivers of asset prices were risk-free rates and expected cash flows. Little was done to explore the implications of the finance-literature findings that, in fact, a dominant driver of asset price fluctuations was shifts in risk premia, posing the question of what in turn drives risk-premia changes.<sup>2</sup> Recently, and perhaps later than it should have, evidence has begun to accumulate that conventional monetary policy, amongst other things, affects term premia.<sup>3</sup>

**11. Possible explanations include incentives for investors and traders to search for yield (unadjusted for risk) in a world of fixed nominal return targets or relative-performance measures.**

The cross-border carry trade extends such forces across borders, as traders borrow in low interest-rate currencies to on-lend in higher headline-return currencies. In doing so, they typically leverage up their own balance sheets, as well as putting upwards pressure in the recipient countries’ asset prices, which can lead to looser credit conditions locally and, thus, to increasing local indebtedness. The result is a cocktail of internal and external vulnerability. A prevalent, even intense, search for yield and associated compression in risk premia were widely discussed in official-sector financial stability reports in the years during which the crisis was brewed. The pervasive underpricing of risk was associated with accumulating balance-sheet vulnerabilities amongst banks, shadow banks and households, and thus contingently amongst governments.

**12. Of course these were not the only forces at work.** Many others, such as persistent global current account balances, were widely recognized and discussed, including by the Fund. The point here is that the authorities did not focus in a disciplined way on variables and issues highlighted by previous crises, the academic literature or surveillance based on anecdote or ‘informal’ analysis. Macroeconomic analysis needed to be combined with puzzles from finance theory, surveillance of the financial system, and balance-sheet assessments.

**13. Be that as it may, it is now clear that the largest economies in the world are not immune to suffering from deep structural vulnerabilities in their financial systems,** in the composition of demand, and in their national balance sheets; and that when those vulnerabilities crystallize, the effects can be devastating for innocent bystanders, and indeed for the world economy as a whole. Moreover, while common international regulatory standards serve to create a level playing field and thus can help to contain dangers from a race to the bottom in a financial

<sup>2</sup> See “Discount Rates”, J.H. Cochrane, *Journal of Finance*, 66, 2011 or “Empirical Assets Pricing: Eugene Fama, Lars Peter Hansen and Robert Schiller”, J.Y. Campbell, *Journal of Scandinavian Economics*, 2011.

<sup>3</sup> See [“Monetary Policy and Long-Term Real Rates”](#), S. G. Hanson and J. C. Stein, 2014.

variant of ‘beggar thy neighbor’, they leave the entire global financial system exposed to a crisis of confidence if they are found to be deeply flawed, as of course they were.<sup>4</sup>

- Thus, Asian and Latin American economies and markets were afflicted by the fallout from the Wall Street crisis and by the later euro area crisis, notwithstanding relatively modest direct exposures to U.S. subprime or European ‘peripheral’ economies. (For example, reallocation of capital by U.S. and EU banks towards home or ‘core’ markets temporarily reduced the supply of trade finance at various points.)
- Thus, the revealed incompetence of UK regulation, overseeing the world’s most international financial centre, left everyone feeling unsafe from mid-2007 for a few years, underlining that the quality of supervision in some jurisdictions is of more than local interest.
- Thus, the euro area was rendered vulnerable by its banks’ dependence on dollar funding from U.S.-domiciled money market mutual funds, which from late 2008 turned out to be ‘hot money’ due to their own (long-identified) structural liquidity fragilities.
- Thus, the U.S. authorities were seized by understandable anxiety when, from mid-2010, the fault lines in the construction of the euro area monetary union for a while threatened a financial crisis that might have dwarfed the implosion of late-2008.
- Thus, the U.S. authorities were widely criticized in 2013 for not grasping that spillovers to EMEs from the muddle over the deceleration of monetary stimulus could boomerang back to the U.S. If once the EMEs were growing fast but were small in size, now they are growing fast but are large, accounting for a substantial share of world demand.
- And thus, bringing this up to date, there is widespread unease about whether excesses in the Chinese shadow banking system, a deliberate engine of growth following the 2008 crisis in the West, will be felt only locally or will spillover to other Eastern financial centers and, from there, more widely.

14. **The examples could go on and on, and it is not necessary to replay here the volume of analysis,** some of it from the Fund, that has again brought out the interconnectivity of global finance and trade. This is not a world in which reading individual Article IVs, FSAPs or even the WEO or GFSR will suffice. And, if reading them individually won’t suffice, nor will writing them individually. If the world economy and financial system is so joined up, as it is, then so must be Fund surveillance and recommendations. Not only is the Fund well equipped to deliver, its mission puts it under a duty to do so.

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<sup>4</sup> See [‘Regulatory Reform, Stability and Central Banking’](#), P. Tucker, Brookings Paper (2011).

## NEW POLICY REGIMES AND INSTRUMENTS: MACRO-PRUDENTIAL

15. **Out of the mess of the global financial crisis is emerging a new policy world.** If it is now, again, recognized that monetary stability and financial stability are inextricably linked, policymakers have not leapt to the conclusion that monetary policy should be diverted from the task of delivering a stable path for nominal magnitudes, pre-eminently consumer-price inflation. Instead, policymakers in economies of all shapes and sizes are developing macro-prudential regimes. Crucially, these treat the financial system as just that, a system; and incorporate scope for policymakers to vary regulatory-regime parameters state-contingently.

16. **There is a debate in the policy and academic communities about whether macro-prudential policy regimes should be conceived of as aiming to maintain a desired degree of system resilience in the face of changing underlying risks** or, much more ambitiously, as managing the credit cycle in combination with macroeconomic demand-management tools. We believe that the Fund's focus should be on the former: macro-prudential policy as a means of guarding against major threats to stability, whether sourced internally or externally, rather than as a tool for trying to fine-tune the credit cycle.<sup>5</sup> This will sometimes entail 'tightening' regulatory requirements during a pronounced credit boom, but with the acid test being building resilience to absorb the prospective bust.

17. **For the Fund, this has a number of important implications.** First, and most prosaically, it creates a new domain over which the Fund will want to give policy advice in its bilateral and multilateral surveillance. Some steps have been taken towards that, but it is not yet embedded sufficiently to be offered routinely alongside monetary and fiscal policy advice.

18. **Second, it provides a means for the Fund to focus on big risks and, especially, tail risks.** Policymakers typically care much more about risks that could shift growth or the level of output and employment by a percentage point or more than they do on risks that could affect growth rates by a 0.1 percent. But, despite initiatives focused on risks, much of the effort of domestic policy institutions and the Fund still focuses on what is essentially a broadly central outlook. This leads to a mindset where, against best intentions, fine-tuning dominates real-world policy deliberations during normal times even while serious threats gather. Macro-prudential policy, which should focus on tail risks, low-ish probability high-impact risks, might help the Fund to prioritise its analysis and recommendations on the big issues. At times, serious risks will persist for a while, perhaps several years, before crystallizing. The Fund should not retreat if it believes with conviction that it is broadly

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<sup>5</sup> Fund pronouncements and papers lean towards this construction of macro-prudential policy, but are not unambiguous, referring for example to "managing the financial cycle". In our view, that is too ambitious, not just in terms of the current state of knowledge but also in terms of the State's responsibility of preserving the public good of stability. For example, it will not always be feasible to relax the application of macro-prudential tools where a 'bust' has revealed that the financial system is more chronically weak than had been thought. See '[Key Aspects of Macroprudential Policy](#)'.



right. Surveillance, and even more so the publication of reports, is not an exercise in being interesting or novel, tempting though that might understandably be for authors. But where the Fund was mistaken or a risk has receded since first identified, it should change course in its analysis and prescriptions. Structural fault lines in national financial systems or external balance sheets will, on the whole, be even more persistent than conjunctural imbalances.

19. **Third, while much macro-prudential policy will be directed at containing risks from externally generated threats, it will itself sometimes create (positive or negative) spillovers.** It would be as big a mistake to neglect this as it was for the international community to blind itself to the cross-border effects of monetary policies and foreign-exchange reserves policies. This is related to a potentially important challenge.

20. **While macro-prudential policy's currently fashionable status will no doubt ebb with time, so long as it remains flavor of the month there is a danger of the label being used as cover for the imposition of capital controls** designed to improve or resist a warranted change in an economy's terms of trade. This would amount to beggar-thy-neighbor intervention. By contrast, orthodox macro-prudential measures, employed to mitigate national-balance sheet vulnerabilities posing a material threat to stability, are the opposite of a beggar-thy-neighbor policy as they can spare neighbors the adverse spillovers from financial crisis. There is room for confusion here as capital-flow measures (CFMs) can serve a range of purposes: they are an instrument without a unique objective. Some CFMs can be macro-prudential in intent and effect, designed to build resilience against 'hot' inflows of external capital; or they can be deployed legitimately as a last-resort macroeconomic measure, as described by the Fund; or they can be abused.<sup>6</sup> Ways will have to be found, substantively and procedurally, to separate good from bad uses of the 'macro-prudential' label. For example, where a country ostensibly employs macro-prudential measures to fend off external threats, they should be expected to explain publicly which sectors' balance sheets would otherwise have been materially impaired and why that carried a risk of financial instability.

## THE INEVITABILITY OF INCOMPLETE COMPREHENSION: MODELS PROVIDE INPUTS NOT MENTAL CRUTCHES

21. **Broadly, national stability policies will need to be cast in the light of threats emanating from the international environment.** Weaknesses in the West's banking supervision principles and practices were not caused by global current account imbalances; but they were rendered more significant by the effect of those imbalances on world real interest rates and asset values (and so the

<sup>6</sup> There is some recognition of this in the Fund's guidance on capital flows. Whereas macroprudential policy is defined in terms of its objective of systemic stability, the Fund defines CFMs as measures to limit capital flows, but that leaves open their objective. Fund papers have done less to recognise that constraints placed on non-financial businesses and on households can be macro-prudential, even if applied by government rather than by financial regulators.

availability of collateral), fuelling a credit boom. Similarly, any latent vulnerabilities in EME financial systems are not caused by advanced-economy monetary policies, but they can be more toxic in the face of ‘hot’ capital inflows searching for yield; weak banks are more prone to runs, and more damaged by them, than strong banks.

22. **The uncomfortable truth is that we have insufficient knowledge about these dynamics to capture them in structural models or forecasting models.** Again, this has important implications for the Fund. On the one hand, analytical rigor, provided by economic models, is important for disciplining surveillance and policy advice, and for establishing credibility with peers. But, on the other hand, for economics to be a science, it must recognize that we are never at the frontier of knowledge. To act as though we are, by framing and constraining all surveillance and advice with formal models, saps credibility amongst national policy makers. Ways have to be found to incorporate disciplined intelligence on economic and financial developments and pathologies in Fund outputs. This is likely to be a cultural challenge for the Fund. But a widespread failure to do so, in national capitals as well as within IFIs, landed us with the global financial crisis.

23. **Three points might be made about the deployment of models themselves, and in particular model-based forecasts.** First, it is important to tell stories about forecasts, to explain them. Black-box forecasts are not worth much in what is unavoidably, and rightly, a dialogue with Fund members. Second, point forecasts of the central (or expected) outlook are generally a lot less useful than probabilistic forecasts. Bluntly, it is hard to tell compelling stories explaining a point forecast, when the probability of it being realized is vanishingly close to zero. Third, it will often be best to bring a range of models to a particular task, in the interests of robustness and tractability, and to exercise judgment in drawing conclusions.

24. **The Fund has not been sitting still on this.** It is integrating asset-price puzzles into modelling of global macroeconomic scenarios, through simulations with calibrations from event studies or other empirical methods. In addition, the Fund might usefully experiment further with some purely data-driven models, if only to gain insights into tools widely employed in many financial firms.

## RECOMMENDATIONS FOR ACTION

25. **Our recommendations come under a number of headings: strategy, substance, research and data development, and communications.** The aim throughout is to articulate a package of practical actions that can make a reality of the three high-level principles with which we began. In that sense, this is not a ‘pick & mix’ menu, but a package.

### A. Strategy

26. **The Fund should retain its Spillover Report as a disciplining device designed to make it focus more on risks and spillovers.** Arguments are advanced for reducing the number of Fund “products.” But any course that included dropping the Spillover Report would give a very adverse signal. Internal debate on this, however informal, should be brought to a close.

27. **Recommendations for national action, conveyed in Article IV and FSAP reports, should cascade down from multilateral surveillance outputs, notably the WEO, GFSR, and Spillover Reports.** For a policy institution, there is little point in the multilateral reports unless they affect policy on the ground. Bilateral surveillance and recommendations need to key off the ‘global general equilibrium’ analysis and findings. But this is a two-way street. Bilateral surveillance will often be closer to the vulnerabilities and pathologies that give rise to international spillover risks and problems. This gives the Fund’s Area Departments a stake in the organization’s multilateral surveillance. Outputs of both kinds belong to the Fund as one body, not to individual departments.

28. **The Fund should routinely make recommendations on macro-prudential policy, as it does on monetary and fiscal policies.** This is probably a crucial area for addressing tail risks and spillovers. It should be centre stage, ranking alongside surveillance of fiscal, monetary and structural policies. In some respects, that has implicitly been an aim of the Fund for some time through its work on capital markets, etc. The advent of macro-prudential regimes can give the Fund a more concrete focus than hitherto.

29. **The Fund should ensure that its bilateral surveillance covers outward spillover risks, as well as inward spillovers. Focusing on ‘boomerang’ or ‘spillback’ risks might help this.** We suspect that it can be challenging for bilateral surveillance reports to cover outward-spillover risks. At one level, those cultural and relationship challenges simply have to be overcome for the Fund to come close to fulfilling its mission. Perhaps more constructively, we believe that the increasing prevalence of boomerang effects as EMEs in aggregate grow larger may make this more palatable and useful for individual member countries. Bilateral surveillance should give this greater priority and prominence.

## B. Substance

30. **As well as maintaining its recent focus on gross capital flows, the Fund should make national-balance-sheet analysis a priority. No Article IV or FSAP report should be approved if it does not contain such an analysis.** The Integrated Surveillance Decision (ISD) which has embedded outward spillovers in Article IVs does not mention national-balance-sheet (NBS) analysis. That, frankly, was a mistake, and a strange one after the euro area crisis had underlined lessons from the 1990s Asian crises in this area.<sup>7</sup> But the spirit of the ISD plainly calls for NBS analysis, as it is essential to evaluate the stock positions that result from gross capital flows and revaluations. In approaching this task, Fund staff should not let the best be the enemy of the good. Of course more and better data is needed, but much could, and must, be done with what is already available. At the very least, using published reports to put questions to national authorities drawing on a synthesis of incomplete data and softer anecdotal information would have a useful incentive effect.

<sup>7</sup> See [‘Report of the Working Group on Capital Flows.’](#) It was produced by a group chaired by Mario Draghi.

31. **The Fund should distinguish between those potential outward spillovers that could realistically “boomerang” back and those which are likely to be a cost only to the rest of the world.** The rapid growth of EMEs, to become a significant part of the world economy, makes this more pressing. But the interconnectedness of the U.S. and European financial and economic systems made it necessary in any case.

32. **The Fund should promulgate criteria for evaluating the adequacy of member countries’ macro-prudential regimes and institutions.** Practice across countries in this area varies enormously at present. As a new area, there is some virtue in that. But it may mask serious shortcomings in the macro-prudential regimes and capabilities of some jurisdictions. For example, it is not clear which national regimes have the capability to take decisive action, where warranted, to mitigate material threats to stability, from *activities* outside *de jure* banks. Where that is the case, countries have little incentive to highlight the architectural flaws in their regimes so soon after a period of reform. The Fund has included some material on this in papers to its Board, but it needs more thought and work to support judgments on regimes. That is pressing as meanwhile the international financial system will adapt to the micro-regulatory reforms.

33. **The Fund should sustain its work to develop criteria for evaluating and making recommendations on macro-prudential policies, encouraging broad public debate.** In particular, it should develop means to discriminate between, on the one hand, macro-prudential policies that, by focusing on resilience, are broadly benign for neighbors and, on the other hand, policies designed to protect an economy’s terms of trade and/or forestall warranted macroeconomic adjustment.

34. **In its analysis and recommendations, the Fund should try to distinguish between (a) purely macroeconomic spillover channels (without major shifts in risk premia or gross financial flows) and (b) purely financial system-vulnerability spillover channels, and those that materially involve both.** This is because the two areas, while overlapping, typically map into different sets of policy instruments. This will not be easy. And, it cannot be an excuse for silo-ed analysis. The point is about surveillance outputs not inputs. For a particular country, is the key step in protecting the world for it to fix its banking system, other parts of its financial system, its fiscal policy, monetary regime, or a combination, and why?

35. **The Fund should distinguish between those risks and spillover threats that lie in the tails of the distribution from those that are relevant to the central tendency.** This requires a probabilistic framework. Scenario analysis can be valuable, but subjective probabilities need to be ascribed. For tail risks, impact-weighting is vital if the analysis is to get any kind of traction. By definition, most tail risks, being low probability, will not crystallize. So it is important to convey where, in the Fund’s view, the probability of serious disruption is creeping up. For credit booms, the probability and adverse impact of a bust will often rise together. Building resilience against gathering risks will sometimes dampen the risks themselves. Separately, it must be recognized that financial-sector vulnerabilities can sometimes make what would otherwise seem implausible risks quite likely in fact. The woefully thin capitalization of much of the West’s banking (and shadow banking) system a decade ago meant that not much had to go wrong macroeconomically for a full-

scale crisis to pull the world economy down. In identifying tail risks that could undermine world economic stability, the Fund must strike a balance between, on the one hand, focus and, on the other hand, breadth. At any time, there is a host of implausible scenarios that could prove fatal: the Fund must avoid a shopping-list-like approach if it is to gain traction for its recommendations. But equally the Fund should not hold back where it considers a longer-than-usual list is warranted. The test, following from our second high-level principle, should be whether or not the Fund wants its members to prioritise mitigating action.

### C. Research and Data Development

36. **The Fund should continue to prioritize research on the risk channel(s) of monetary policy and the role of risk premia in macroeconomic fluctuations.** This was, of course, a relatively neglected area. There is much to be understood.

37. **Related to that, the Fund should sustain its research on cross-border capital flows, and on whether some types are systematically flighty or ‘hot.’** This has a read across to domestic macro-prudential policy. For example, in a number of countries municipals/provincial governments are prone to herding, for reputational reasons. Recent work by Anil Kashyap and Hyun Shin has documented that unlevered investment funds can be herd-like.<sup>8</sup> U.S. money market funds are widely regarded as a flighty source of funding. Should countries place limits on the extent to which their banks/shadow banks can be funded from such sources?

38. **The Fund should research the extent to which cross-border flows of risk, via derivatives and other types of insurance, can threaten stability without an associated flow of funds.** This will determine whether more and new types of data are needed in this area. The Fund may need to work on this with the Bank for International Settlements.

39. **The Fund should research the conditions under which macro-prudential policy, properly directed to building financial system resilience, has positive effects for neighbors,** because it makes crisis less likely, and whether there are any conditions under which it could have negative spillover effects, with a view to articulating and applying criteria for identifying misuse of the ‘macro-prudential’ label to camouflage capital controls designed to protect or improve an economy’s terms of trade. (At present, there is analysis, but at best only the bare bones of a policy-evaluation framework.)

40. **The Fund should initiate research on boomerang processes and effects.** Case studies might help this effort, both substantively and in broadening appreciation amongst policymakers and analysts of its significance. The work should distinguish between shorter-run and longer-run channels and effects.

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<sup>8</sup> See “Market Tantrums and Monetary Policy” M. Feroli, A. Kashyap, K. L. Schoenholtz, and H. S. Shin, *U.S. Monetary Policy Forum Report No.8*, Initiative on Global Markets, University of Chicago Booth School of Business, 2014.

41. **The Fund should take care to document apparent properties of the financial and economic world that do not find a place in extant mainstream structural models or where the econometric evidence is ambiguous.** This might not be regarded as ‘research’ in the narrow sense, but is no less important for the Fund’s analytical and deliberative apparatus. A tragedy of the current crisis is that there were plenty of warnings based on anecdote, descriptions of market practices or basic regressions of credit trends. Epistemological bias should not be present in policy institutions. The challenge is to incorporate informal knowledge into surveillance and recommendations. Other policy institutions must surmount the same hurdle, but it is especially important that the Fund does so.

42. **The Fund should ensure all significant countries have rich flow-of-funds data, and should develop timetabled programmes to improve balance-sheet data.** There is striking variability in the breadth and depth of flow-of-funds data across countries. It will not be possible to get far in assessing internal and external risks without countries at least catching up with the USA. But that is only a stepping stone to broader national balance-sheet data, enabling analysts to observe the extent to which particular sectors or an economy as a whole has a liability-asset structure leaving it materially vulnerable to liquidity, currency or default shocks. For example, the Fund should make efforts to strengthen the collection of financial data of non-financial corporations, which can be important sectors to monitor for macroprudential and spillover analysis. The Fund should continue to coordinate closely with the G20 data gap initiatives on this and other data issues. But we repeat that much could be done in the meantime by pulling together data from a mixture of private and public sources.

## D. Communications

43. **Top Fund officials should help, via speeches and interviews, to give prominence to the Fund’s work on spillovers, including the Spillover Reports.** We suspect that this would have a powerful signaling effect externally and internally.

44. **The Fund should be more relaxed about covering in its published Spillover Reports and other publications those tail events which participants in international financial markets and commentators are already talking about.** To date the published treatment of risks in the Spillover Reports rarely gets in to tail events, even when that’s the main topic of public debate. We suspect that extreme tail risks are covered in the private Early Warning Exercise work, conducted jointly with the BIS and reported to the IMFC. While it may well be perverse to reveal tail risks that the private markets have not identified or focused on, we suspect that there is some room for glasnost around the treatment of risks that are obvious or otherwise widely discussed. Greater transparency, including stressing probabilities, might be a useful disciplining and accountability device. Moreover, where advanced economies are the source of first-round spillovers, the Fund’s analysis is more likely to make a difference if it can compellingly identify potential boomerang effects. In summary, reports on spillovers that do not engage with the biggest risks are unlikely to gain traction.