Pull, Push, Pipes
Sustainable Capital Flows
for a New World Order

Mark Carney
About the Author

Mark Carney is the Governor of the Bank of England and Chair of the Monetary Policy Committee, Financial Policy Committee and the Prudential Regulation Committee. His appointment as Governor was approved by Her Majesty the Queen on 26 November 2012. The Governor joined the Bank on 1 July 2013.

In addition to his duties as Governor of the Bank of England, he serves as First Vice-Chair of the European Systemic Risk Board, a member of the Group of Thirty and the Foundation Board of the World Economic Forum.

Mark Carney was born in Fort Smith, Northwest Territories, Canada in 1965. He received a bachelor’s degree in Economics from Harvard University in 1988. He went on to receive a master’s degree in Economics in 1993 and a doctorate in Economics in 1995, both from Oxford University.

After a thirteen-year career with Goldman Sachs in its London, Tokyo, New York and Toronto offices, Mark Carney was appointed Deputy Governor of the Bank of Canada in August 2003. In November 2004, he left the Bank of Canada to become Senior Associate Deputy Minister of Finance. He held this position until his appointment as Governor of the Bank of Canada on 1 February 2008. Mark Carney served as Governor of the Bank of Canada and Chairman of its Board of Directors until 1 June 2013.

ACKNOWLEDGMENTS

Dr. Carney is grateful to Daisy McGregor and Simon Whitaker for their assistance in preparing these remarks, and to Fernando Eguren Martin, Lukas von dem Berge, Carlos Van Hombeeck, Simon Lloyd, Ambrogio Cesa-Bianchi, Nitya Aasaavari, Delma Essel, Sameeta Thakrar and Wayne Chapman for research and analysis.

DISCLAIMER

The views expressed in this paper are those of the author and do not represent the views of the Group of Thirty, its members, or their respective institutions.


Copies of this paper are available for US$15 from:

The Group of Thirty
1701 K Street, N.W., Suite 950
Washington, D.C. 20006
Tel.: (202) 331-2472
E-mail: info@group30.org
www.group30.org
Pull, Push, Pipes: Sustainable Capital Flows for a New World Order

Mark Carney
This Occasional Paper was adapted from a speech given by Mark Carney at the Institute of International Finance Spring Membership Meeting in Tokyo on June 6, 2019. The research presented in this speech will be detailed in a forthcoming Bank of England working paper.
Pull, Push, Pipes: Sustainable Capital Flows for a New World Order

Capital flows can be an enormous force for good. For example, when my native Canada was an emerging economy, net capital inflows averaged 10% of GDP every year for around three decades.

But the recent history of capital flows is more chequered.

The Latin American debt crisis of the 1980s was the product of an initially well founded and productive—but ultimately over exuberant and destructive—recycling of petro dollars by the banking system.

That period provided painful examples both of how capital flows can support development and how capital flow volatility can undermine it.

The Asian crisis almost 15 years later underscored the risks of relying on inflows that look stable but prove ephemeral. And subsequent crises in Latin America around the turn of the millennium and in advanced economies (AEs) a decade ago reinforced the risks of taking capital flows for granted.

In theory, foreign capital inflows should support growth through greater allocative efficiency, better risk sharing and increased technology transfer.

But in reality financial openness has proven a double-edged sword. The typical emerging market economy (EME) receiving higher capital inflows will grow 0.3 percentage points faster, all else equal (Chart 1).
But the typical EME with higher capital flow volatility will grow 0.7 percentage points slower (Chart 2).\footnote{Comparison is between medians for the high and low groups of the sample shown in Chart 1 and 2, with high and low groups defined as those above and below medians of the sample.}

**CHARTS 1 AND 2: FINANCIAL OPENNESS IS A DOUBLE-EDGED SWORD**

Source: IMF.

Notes: Volatility is the coefficient of variation of gross inflows scaled by external liabilities. Real GDP growth, gross inflows to GDP and volatility are averaged over 1970 to 2017 for 38 emerging market economies.

Time and again, waves of investment into EMEs are sharply withdrawn (Chart 3). And more generally, financial openness has tended
to amplify domestic imbalances and leave EMEs more vulnerable to foreign shocks.\(^2\)

As a consequence, a fifth of all surges in capital flows to EMEs have ended in financial crises. And EMEs are at least three times more likely to experience a financial crisis after capital flow surges than in normal times.\(^3\)

**CHART 3: NET PRIVATE CAPITAL FLOWS TO EMERGING MARKET ECONOMIES AND INCIDENCES OF CRISES**

![Graph showing net private capital flows to emerging market economies and incidences of crises.](image)

Source: IMF. Notes: Excludes China.

**CHART 4: FINANCIAL OPENNESS**

![Graph showing external liabilities as a percentage of GDP.](image)


---

2 For a recent summary of all the literature on the factors affecting capital flows to EMEs see Keopke (2019), What drives capital flows to emerging markets? A survey of the empirical literature, Journal of Economic Surveys.

3 Ghosh et al (2016), When do capital inflows surges end in tears?, American Economic Review. Surges are defined as a net capital flow observation that lie in the top thirtieth percentile of both the country-specific and the full sample’s distribution of net capital flows, expressed in percent of GDP.
Given the uncertainty over the sustainability of capital inflows, EMEs have defensively accumulated reserves and limited the opening of their capital accounts, including by resorting to overt capital flow management in some cases. Overall, EMEs have increased their financial openness by considerably less than advanced economies (AEs) since 1980, leaving their external balance sheets only around a third the size of those in AEs, despite much faster growth in external trade (Chart 4).

These responses, while understandable, carry significant opportunity costs. Excess precautionary savings in EMEs are pushing down equilibrium interest rates, increasing the risks of a global liquidity trap. And enormous cross border flows will be required to close EME infrastructure investment gaps and to finance the essential transition to a low carbon economy.

In this paper, I want to examine what drives capital flow volatility and, in the process, sketch an agenda for sustainable capital flows in the new world order.

Specifically, what should be the priorities to increase sustainable cross border capital flows? How many are the responsibility of the receiving country? What about the advanced economies who set the tone for the global financial cycle? And to what extent does the structure of the international monetary financial system itself, including the global safety net, determine safe flows?

To begin to answer these questions, the Bank of England is developing a holistic “Capital Flows-at-Risk” framework that assesses the relative contribution of the three drivers of Capital Flows-at-Risk:  

- ‘Pull factors’—domestic conditions and institutions that affect the relative attractiveness of investing in an individual country.

- ‘Push factors’—that determine global risk appetite and financial conditions, particularly the level and prospects for US monetary policy and financial stability.

- ‘The Pipes’—the structure of the global financial system itself, particularly the degree to which it dampens or amplifies shocks.

---

CHART 5: THE DISTRIBUTION OF CAPITAL FLOWS TO EMERGING MARKET ECONOMIES

Sources: IMF and Bank of England staff calculations.
Notes: This chart shows the unconditional distribution of capital flows to EMEs over 2006-2018, and an estimated distribution conditional on a one standard deviation negative shock to pull factors. The diamonds highlight the fifth percentile, which is our preferred measure of Capital Flows-at-Risk. We estimate several quantiles of the distribution through quantile regression and then fit a skewed-t distribution; hence, the distribution can both shift and change shape in response to shocks—see Annex for further details.

The blue line in Chart 5 shows the unconditional distribution of capital flows, and the purple line shows how the distribution shifts in response to a negative shock. “Capital Flows-at-Risk” are defined as capital outflows in a severe, low-probability event (that with 5% probability or less). The left tail ‘fattens’ if bad outcomes become more likely and/or the “5% probability event” becomes more severe—shown by the shift from A (Capital Flows-at-Risk of 1.2% of GDP) to B (Capital Flows-at-Risk of 4.2% of GDP).

The Bank’s framework can be used to assess policy options and associated trade-offs, and to communicate policy decisions.

I will provide some tentative conclusions in order to spur further debate and analysis, including as part of the IMF’s work on its “Integrated Policy Framework” and the G20 discussions on the future of the financial architecture.

Our core finding is that the distribution of capital flows will shift and change shape when there is a change in any of the three drivers—pull, push or pipes.5 In an interdependent world, everyone—advanced...

5 The Capital Flows-at-Risk model presented in Chart 6 does not explicitly model ‘the pipes’. The impact of augmenting the framework with pipes is shown later on in Charts 15 and 16.
economies, emerging economies as well as the public and private sectors—is responsible for reducing capital flow volatility and increasing sustainable capital flows in order to meet the challenges of our age.

Pull factors

The conventional wisdom, prior to the financial crisis, was that the best contribution each country can do for itself and others would be to “keep its own house in order”.6

The foundations of that house are:

• **Credible inflation targeting regimes.** Credible domestic frameworks for implementing monetary policy—with an operationally independent and accountable central bank at their core—have generally delivered inflation rates that are both lower and less variable.7 This directly benefits all citizens in good times. Moreover, greater monetary policy credibility gives a central bank more scope to respond to shocks, and enables financial markets to anticipate better the path for monetary policy, thereby providing a stabilising force during bad times. During the taper tantrum, those economies with better-anchored inflation expectations were able to keep monetary policy relatively more accommodative.8

• **Flexible exchange rates.** A flexible exchange rate acts as a valuable shock absorber for an economy because domestic wages and prices are relatively “sticky” (in other words, slow to adjust). For example, suppose there is a spike in global risk aversion. As capital flows are withdrawn flexible exchange rates depreciate. In general, this boosts an economy’s competitiveness. However, where economies borrow heavily in foreign currency, and this exposure is unhedged, depreciations can be detrimental for the economy.9

---

8 See Chapter 3 of the October 2018 IMF World Economic Outlook.
9 Cesa-Bianchi et al (2015), Global Liquidity, House Prices, and the Macroeconomy: Evidence from Advanced and Emerging Economies, Journal of Money, Credit and Banking, show that for AEs flexible exchange rates dampen the impact of push shocks, whereas for EMs they can amplify the impact of push shocks via a collateral valuation effect.
• **Fiscal sustainability.** A sustainable fiscal position provides governments with more room to respond to adverse shocks to demand. Financial markets therefore reward more sustainable fiscal positions: the IMF found that declines in inflows between 2010 and 2015 were 1 percentage point of GDP larger for countries with above-average public debt ratios. Fiscal sustainability is also necessary for a credible nominal anchor.

• **An effective macroprudential policy toolkit to curtail the damaging extremes of domestic financial cycles.** Macroprudential policy can guard against rapid credit growth, which is amongst the best early warning indicators of an impending downturn. And higher domestic bank capital ratios reduce the sensitivity of capital inflows to changes in global volatility.

• **Deep domestic capital markets.** Deep domestic capital markets reduce the reliance on foreign investors and the need to issue in foreign currency, which dampens capital flow volatility (Chart 6).

---

10 See Chapter 2 of the April 2016 IMF World Economic Outlook.
CHART 6: CORRELATION OF CAPITAL FLOW VOLATILITY AND THE SHARE OF FX-DENOMINATED CORPORATE DEBT

Sources: IMF and IIF.

Notes: Measured as coefficient of variation of gross inflows scaled by external liabilities.

CHART 7: IMPROVING PULL FACTORS HAVE REDUCED CAPITAL FLOWS-AT-RISK

Sources: IMF and Bank of England staff calculations.

Notes: The grey bars on this chart show the unconditional 5th percentile of the distribution of capital flows in a panel of 13 EMEs since 1996. The purple bars build on the contribution of pull factors to the conditional 5th percentile of capital flows in the current quarter and two quarters ahead. Pull factors are proxied by domestic financial condition indices (DFCIs), which are mean-orthogonalised by a global financial conditions index (GFCI). The coefficient on the DFCIs is estimated by panel quantile regressions. The chart shows PPP-weighted averages across the 13 EMEs in our panel. See Annex for further details.
The Bank of England’s analysis finds that the conventional prescription to concentrate on putting one’s own house in order had merit: pull factors were the main drivers of capital flow instability prior to the 2008 crisis (Chart 7). Over the years, this advice has been taken to heart.\textsuperscript{13} 80\% of EMEs are now inflation-targeters, compared to none just prior to the Asian Financial Crisis. These regimes have generally been successful: inflation has been low and stable across EMEs since the mid-2000s at a median rate of 2.5\%, close to the rate in AEs. In many respects, the exceptions such as Argentina and Turkey prove the norm.

Fiscal policy is more of a mixed picture; debt ratios are lower than in advanced economies but fiscal deficits have widened materially in recent years.

In general, the resilience of emerging economy banking systems has increased with implementation of most of the FSB post-crisis reforms on track. EMEs are the most active users of macroprudential policy.

However, while there has been progress in developing domestic capital markets—the depth of EME financial markets has doubled since the turn of millennium—this has been insufficient to meet rising financing needs. As a result, the share of FX-denominated debt has increased sharply (Chart 8).

And while domestic markets have deepened, the share of foreign ownership in EME local currency bond markets has risen, up from 5\% on average pre-crisis to around 25\% today.

\textsuperscript{13} In the model pull factors are proxied by domestic financial conditions (mean-orthogonalised by global financial conditions), which encompass market views about domestic institutional frameworks.
Despite these vulnerabilities, the Bank’s analysis finds that, for EMEs as a whole, reforms to domestic institutional “pull factors” have substantially increased the sustainability of capital flows and so shifted the distribution of capital flows to the right (Chart 9), all else equal.

Sources: IMF and Bank of England staff calculations.

Notes: Chart shows the contribution of pull factors to capital flows to EMEs during the Asian Financial Crisis (purple), and since 2008 (blue). In both distributions push factors are held at their sample average, so only pull factors are changing. See Chart 5 and Annex for further details.
Push factors

Unfortunately for EMEs, all else has not been equal. The importance of “push factors” has increased over time as monetary policy and financial stability shocks in advanced economies have become both more prevalent and more potent.

And push factors are arguably becoming more important as the fundamental asymmetry at the heart of the global economy deepens. Forty years ago, EMEs made up a little more than 1/3 of global GDP. Since the last Fed tightening cycle, their share of global activity has risen from around 45% to 60%. By 2030, it is projected to rise to around three quarters.

But while the real global economy is being reordered, the international monetary financial system has barely begun its transition. The dollar represents the currency of choice for at least half of international trade invoices, two-thirds of global securities issuance, it denominates two-thirds of EME foreign currency external debt and acts as the monetary anchor in countries accounting for 70% of global GDP.14

In fact, the dollar is as dominant today as it was during the Bretton Woods era, and is likely to remain so for some time, as its roles in international payments, as a reserve asset and a funding currency are mutually reinforcing.15

---

This means developments in the US have disproportionate influence on global economic and financial conditions. Indeed, our research suggests that the influence of US financial conditions on foreign GDP has increased by a third relative to its average from 1990 to 2005, despite the US’s rapidly declining share of global GDP.

### Chart 10: Capital-Flows-at-Risks in Emerging Market Economies Are Growing Again

Sources: IMF and Bank of England staff calculations.

Notes: See Chart 7 for notes. Push factors are proxied by the Bank of England’s global financial conditions index.

When the Fed responds to domestic developments (such as a loosening in fiscal policy) global financial conditions and activity react strongly. This was the case during both the 2013 ‘taper tantrum’ and over the past year, as Fed communications significantly shifted expectations for US monetary policy. During both periods, Capital Flows-at-Risk in EMEs spiked (Chart 10).

Financial (in)stability in advanced economies has also influenced the sustainability of capital flows to EMEs. During the 2008 global financial crisis, severely undercapitalised and liquidity-constrained banks in advanced economies severely contracted lending to emerging markets, global risk appetite deteriorated, investors everywhere retreated out of EMEs into ‘safe haven’ economies, and Capital Flows-at-Risk spiked sharply. Similar channels operated again three years later during the 2011 euro crisis (Chart 10).

In total, push factors from AEs have weighed more heavily over the past decade, which has offset some of the improvement in ‘pull factors’,
and shifted the distribution of capital flows back to the left (Chart 11). Keeping one’s own house in order is necessary but not sufficient for sustainable capital flows in the new world order.16

### CHART 11: PUSH SHOCKS HAVE BEEN INCREASING CAPITAL FLOWS-AT-RISK

Sources: IMF and Bank of England staff calculations.

Notes: This chart shows conditional distributions of capital flows to EMEs post-the 2008 crisis (blue), and conditioning on a one standard deviation negative “push shock” (red), as proxied by our global financial conditions index. See Chart 5 and Annex for further details.

---

**Pipes**

This underscores the importance of the third driver of Capital Flows-at-Risk, the Pipes, or the structure of the global financial system itself.

Since the crisis, “the pipes” have changed Capital Flows-at-Risk in at least three ways.

First, over the past decade G20 reforms have made the core safer, simpler and fairer, which has reduced Capital Flows-at-Risk.

---

16 Some recent papers have proposed that the existence of a Global Financial Cycle has transformed the well-known international finance trilemma into a ‘dilemma’, according to which independent monetary policies are possible if and only if the capital account is managed, directly or indirectly (see Rey, H (2013), Dilemma not trilemma: the global financial cycle and monetary policy independence, in Global dimensions of unconventional monetary policy, proceedings of the Federal Reserve Bank of Kansas City Jackson Hole symposium, 2013, pp 285–333). Other papers suggest the trilemma is still alive, but the process of trade and financial globalisation has worsened the trade-offs that domestic central banks face, raising the marginal value of macroprudential tools (see Obstfeld, M (2015), Trilemmas and Tradeoffs: Living with Financial Globalization,” Central Banking, Analysis, and Economic Policies Book Series, in: Claudio Raddatz & Diego Saravia & Jaume Ventura (ed.), Global Liquidity, Spillovers to Emerging Markets and Policy Responses, edition 1, volume 20, chapter 2, pages 013–078 Central Bank of Chile).
Large global banks’ common equity requirements and buffers are ten times higher than the pre-crisis standard. In keeping with new global liquidity standards, banks have changed their funding models and their liquid assets—relative to their liabilities that can readily run—are tenfold higher now than before the crisis.

Regulation has also made banks less complex and more focused. Trading assets have been cut in half, and interbank lending is down by one-third.

Second, the growth in assets under management, from around $50 trillion a decade ago to over $80 trillion today, is bringing welcome diversity to the financial system, but is also increasing the risks of sudden stops and sharp capital reversals.

For EMEs, market-based finance has accounted for all the increase in foreign lending since the crisis, as bank lending has declined and FDI has stayed fairly constant (Chart 12).

Within market-based finance, investment funds are growing, accounting for the bulk of the growth in asset management over the last decade.

In parallel, investment fund flows to EMEs now account for around one third of total portfolio flows, compared to around one tenth pre-crisis.
These flows are particularly flighty (Chart 13), reflecting the fact that more than $30 trillion of global assets are held in investment funds that promise daily liquidity to investors despite investing in potentially illiquid underlying assets, such as EME debt.17 We have recently seen analogous situations in the UK within some niche managers and smaller markets, such as open-ended property funds investing in commercial real estate. The complications would be much greater if a major asset class like EME debt were to freeze up.

This structural mismatch means that these funds can behave particularly pro-cyclically. Bank of England work finds that redemptions by EME bond funds (those with larger structural mismatches) in response to price falls are five times those for EME equity funds (those with less structural mismatch). In turn, EME equity funds are twice as responsive as AE equity funds.

While the shift to market-based finance has increased global capital flows to EMEs, it also amplifies spikes in Capital Flows-at-Risk. Moreover, market-based finance flows are particularly sensitive to push shocks, especially in extreme scenarios (Chart 13). The recent global growth in assets under management has not yet been fully tested in an extreme scenario, such as a global downturn.

**CHART 13: THE SENSITIVITY OF CAPITAL FLOW-AT-RISK TO PUSH FACTORS, BY SOURCE OF CAPITAL FLOW**

Sources: IMF, EPFR, Bank calculations.

Notes: Chart shows the sensitivity of different capital flows to a negative “push” shock. Coefficients are standardised by each component’s share of total flows e.g. the red MBF bar shows how total Capital Flows-at-Risk would respond to a one standard deviation tightening in global financial conditions if all capital flows were accounted for by MBF.

17 Estimates are based on the FSB’s measure of ‘collective investment vehicles with features that make them susceptible to runs’, see FSB Global Monitoring Report on Non-Bank Financial Intermediation 2018.
The third aspect of the pipes is the global financial safety net (GFSN). Developments in this regard have arguably further increased Capital Flows-at-Risk. The GFSN has become more fragmented over the past two decades and its core—IMF resources—has shrunk relative to the size of the global financial system (Chart 14). As a result, individual countries have chosen to self-insure at high cost to both themselves and the rest of the world.

While the IMF’s nominal resources have more than tripled over the past decade, they still only represent around 1% of global gross external liabilities and have been on a downward trend from 2.5% in 1980. Other multilateral arrangements, such as Regional Financing Arrangements (RFAs) and swap lines, are only partial substitutes. RFAs are largely untested and swap lines may only be used in very specific situations between specific countries.

There is no evidence the formal GFSN deters countries from holding reserves.\(^\text{18}\) The extra reserves that EMEs have accumulated over the past two decades have reduced the sensitivity of Capital Flows-at-Risk to Push factors by almost 50%. But this extra insurance has come at a domestic high cost, both to finance and because reserves can crowd out domestic investment.\(^\text{19}\) And it has global externalities, with the vast accumulation of safe assets distorting yields, building global imbalances and increasing the risks of a global liquidity trap.\(^\text{20}\)

---


\(^{19}\) To limit the impact of FX reserve accumulation on the domestic money supply, most central banks sterilise their intervention through the issuance of bonds. The fiscal cost of FX reserve accumulation can be calculated as the difference between the interest paid on the sterilisation instrument and the interest received on FX reserve assets, which are typically low-yielding, low-risk foreign government bonds. The IMF estimated this wedge to be around 200 bps on average. It can crowd out domestic investment as central bank sterilisation bonds compete for domestic savings.

\(^{20}\) The increased demand for safe assets driven by this desire for safety—which Ben Bernanke christened a ‘savings glut’—helped drive down the equilibrium interest rate, the interest rate central banks must deliver in order to balance demand with supply and so achieve stable inflation.
Impact of the increasing role of investment funds
Impact of the shift to market-based finance
Impact of higher share of FX-denominated debt in EMs

Pre-crisis
Total

2030 excluding growth in EME external balance sheets

2030 including growth in EME external balance sheets


Notes: FX reserves exclude gold.

Augmenting the Bank of England’s Capital Flows-at-Risk framework with the major structural changes in the global financial system materially changes the Bank’s assessment of the quantum of Capital Flows-at-Risk when there are push shocks.

CHART 15: MAJOR STRUCTURAL CHANGES ARE INCREASING THE SENSITIVITY OF CAPITAL FLOWS-AT-RISK TO PUSH SHOCKS

Sources: IMF, EPFR, IIF, Bank calculations.

Notes: This chart shows estimates and projections for the sensitivity of Capital Flows-at-Risk to negative push shocks at different points in time. The chart is based on separate panel quantile regressions for FDI, banking, market-based finance and investment fund flows. We use the global FCI (push), country-specific FCIs (pull), and the share of NFC debt denominated in foreign currency as regressors. The third bar combines regression results with projections for the composition of flows and the role of FX-denominated debt in 2030, as described below and in footnote 21. The fourth bar also takes into account projected growth in EM’s external balance sheets as described below and in footnote 21.
In particular, we estimate that the growing shares of FX-denominated debt, market-based intermediation and, within that, the increasing role of investment funds, have increased the sensitivity of Capital Flows-at-Risk to push factors by 50% since the crisis (second bar, Chart 15)—largely using up the self-insurance purchased by EMEs.

Left unattended, these vulnerabilities are likely to grow.

If history serves as a guide to the evolution of EME balance sheets, EMEs’ external liabilities could double as a share of GDP by 2030: market-based finance could then account for half of external liabilities, up from one-third today. And if investment funds keep growing as they have over the past few years they could represent 40% of market-based finance flows to EMEs in a decade’s time. 21

These flows will benefit EMEs in good times, but if domestic institutional frameworks do not evolve in parallel, they could also be major sources of instability. By 2030, the sensitivity of Capital Flows-at-Risk to push factors could triple (fourth bar, Chart 15).

This would fully cancel out the positive impact of domestic reforms in EMEs over the past two decades: the shift left in the distribution when there is a push shock (grey distribution, Chart 16) is likely to be at least as great as the shift right that we have seen over the past two decades because of improvements in pull factors.

While these calculations should be taken with a grain of salt, they suggest that in a new world order that combines growing market-based finance with a deepening asymmetry at the heart of the international monetary financial system, fast reforming EMEs could be running to stand still in their quest for higher sustainable capital flows.

---

21 There is a systematic cross-country relationship between the size and composition of external balance sheets with levels of incomes per capita. This has been combined with current forecasts (and for investment funds recent trends) to generate scenarios for the size and composition of EM balance sheets in 2030. In early stages of development a country’s cross-border finance tends to reflect trade finance provided by banks. As global value chains develop FDI becomes more important. Finally, market-based finance increases as financial systems become more sophisticated and institutions trusted and assets and liabilities created by the first two layers are actively managed. See, BIS Annual Review (2017), Understanding Globalisation.
Policy Priorities

This possibility underscores that everyone must contribute to building the sustainable capital flows we need.

Emerging market economies should continue determined reform of domestic institutional frameworks to turn pull factors into insulators rather than amplifiers.

Historically, countries have only benefited from financial openness once they reach a critical threshold of financial depth and institutional quality.22

EMEs therefore need to reinforce the significant progress they have made on monetary policy credibility, including safeguarding central bank independence.

Fiscal space will need to be used carefully given ongoing structural imperatives, the rising risks of global shocks, and the clear limits of monetary policy.

---

To realise fully the benefits of financial openness EMEs need to reinforce banking system resilience and deepen their domestic capital markets, particularly to reduce reliance on foreign-denominated debt.\textsuperscript{23}

It will be particularly important for EMEs to continue to develop macroprudential policy toolkits to guard against excessive credit growth and high levels of indebtedness. Tightening of prudential policy in EMEs dampens the spillover from US monetary policy tightening by around a quarter,\textsuperscript{24} and reduces Capital Flows-at-Risk (Chart 17).

**CHART 17: THE IMPACT OF MACROPRUDENTIAL POLICY ON CAPITAL FLOWS-AT-RISK**

<table>
<thead>
<tr>
<th>Capital flows as a % of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average macro-prudential stance</td>
</tr>
<tr>
<td>Tighter macro-prudential stance</td>
</tr>
</tbody>
</table>


Notes: Chart shows conditional distributions of capital flows to EMEs under an average macro-prudential stance and a one standard deviation tighter macro-prudential stance, as measured by Cerutti et al. (2014). The unconditional distribution differs from others in the speech given data on macro-prudential actions only starts in 2001 rather than in 1996 as the rest of our data. See Chart 5 and Annex for further details.

So many of the traditional imperatives for EMEs remain, but the Bank of England’s analysis shows that keeping one’s house in order won’t be sufficient, the neighbourhood too must change.\textsuperscript{25}

\textsuperscript{23} The G20 has previously discussed these issues, for example see Report of the G20 Eminent Persons Group on Global Financial Governance (October 2018) and G20 Action Plan on the Development of Local Currency Bond Markets (July 2013).

\textsuperscript{24} Coman, A, Lloyd, S (forthcoming) *In the Face of Spillovers: Prudential Policies in Emerging Economies*.

\textsuperscript{25} Some economists have called for monetary policy rules that constrain the actions of sending-country central banks under some circumstances, see Rajan, R (2019), *Rising Tide, Finance and Development*, June. Certain kinds of unconventional monetary policy actions in specific environments could be ruled out of order because of the large adverse spillovers they create—much as sustained one-directional intervention in the exchange rate was frowned on until recently. In this view, adhering to such rules would not be a matter of altruism. Countries that have signed the IMF Articles of Agreement already accept responsibility for the international consequences of their actions.
It is in the interest of advanced economies to moderate push factors. As EMEs have grown as a share of the global economy, so too have ‘spillbacks’ to advanced economies.

The projected rise in capital flow volatility because of structural changes in the global financial system could take 1.2 percentage points off EME growth by 2030, all else equal. Rising ‘spillbacks’ to advanced economies means growth there could also be at least 0.2 percentage points lower.26

And while it is unrealistic to expect advanced economy policymakers to internalise fully spillovers from their actions on emerging markets, given their domestic mandates, AE monetary policies will increasingly need to take account of spillbacks. The spillover from a one standard deviation tightening in US financial conditions now reduces GDP for the average emerging market economy by around 0.2%, twice its 1990–2004 average. And the spillback from a 1% hit to EME GDP now drags on US activity by 0.15%, compared to 0.1% in 1990. Taking the two together, spillbacks from a tightening in US financial conditions have tripled—accounting for around 6% of the impact of changes in US financial conditions on US GDP. These effects will grow as financial integration continues.

Continued transparency around monetary policy will also help EMEs to anticipate Capital Flows-at-Risk, and take pre-emptive actions where warranted.

As long as there remains a fundamental asymmetry between the multi-polar global economy and dollar-dominated international monetary financial system, absent other reforms EMEs may turn to Capital Flow Management (CFM) measures to safeguard financial stability in the face of push shocks.

For example, limits on foreign currency borrowing and restrictions on the activities of open-ended investment funds could help EMEs to avoid dangerous build-up in volatile debt.

But there are clear shortcomings to CFMs. History has shown them to be addictive and often highly distortionary. That is why the IMF’s Institutional View makes clear that CFMs should not substitute

---

26 The impact on EME growth combines estimated higher volatility, derived from the Capital Flows-at-Risk model in the face of increasing sensitivity of capital flows to global factors, with the historical relationship between growth and volatility shown in Chart 2. The spillback to advanced economies is consistent with estimates in the following paragraph for the US.
for domestic institutional reforms nor warranted macroeconomic adjustments.

There are two major challenges in operationalising CFMs. The first is proving intent so as not to provoke retaliation. The second is that they can panic investors and make matters worse.

A Capital Flows-at-Risk framework might help with these judgements. If authorities can develop and agree a holistic approach it could inform policy actions, including the occasional disciplined use of Capital Flow Management tools in EMEs and the deployment of macroprudential measures in AEs.

Indeed, policymakers in ‘push’ economies also have special responsibilities to manage risks in these global public goods. This is especially the case for the Bank of England, given London’s role as the world’s leading internationally active financial centre. Recognising that the city is a global public good, we have transformed the resiliency of UK-based banks, we are well on the path to ending too-big-to-fail, and we have overhauled our liquidity facilities to support continuously open markets.27 We have simplified the complex and opaque web of OTC derivatives trade. And we have convened market participants to develop new standards of market practice, such as the Global FX Code and the FMSB standards for FICC markets. The UK’s Senior Managers Regime (SMR) gives teeth to voluntary codes by incentivising firms to embed them and by re-establishing the link between seniority and accountability.

The Bank’s findings suggest that the global macroprudential responsibilities of AEs will likely extend to the oversight of market-based finance given its potential for major cross-border spillovers.

**REINFORCING THE BEST OF RESILIENT NON-BANK FINANCIAL INTERMEDIATION**

Over half of investment funds have a structural mismatch between the frequency with which they offer redemptions and the time it would take them to liquidate their assets.28 Under stress they may need to fire sell assets, magnifying market adjustments and triggering further

---

28 Estimates are based on the FSB’s measure of ‘collective investment vehicles with features that make them susceptible to runs’, see FSB Global Monitoring Report on Non-Bank Financial Intermediation 2018.
redemptions—a vicious feedback loop that can ultimately disrupt market functioning.

Two-thirds of investment funds with structural mismatches are domiciled in the US and Europe so, as is the case for banks, ensuring leverage and liquidity risks are managed in funds investing abroad is both a national asset and a global public good.

System-wide stress simulations are currently being developed, including at the Bank of England, to assess these risks. And authorities are beginning to consider macroprudential policy tools to guard against the build-up of systemic risks in non-banks.

Regulators currently have far less sight of risks within funds compared to the core banking system, particularly synthetic leverage arising from funds’ use of derivatives. IOSCO is consulting on a set of metrics for measuring leverage. To be most decision-useful, these need to be consistent and comprehensive across countries.

The upcoming FSB-IOSCO evaluation of implementation and effectiveness of recommendations to address liquidity mismatch in funds will be crucial to improve our understanding of best practice, including the merits of adjustments to redemption periods to be more consistent with investments.

We are mindful that these decisions could have global as well as local implications.

THE GFSN

Better surveillance, a more resilient core of the financial system and a macroprudential approach to market-based finance will all help increase sustainable capital flows, but they will be most effective if they are underpinned by an adequate GFSN.

Pooling resources at the IMF is much more efficient than individual countries self-insuring against Capital Flows-at-Risk, distributing the costs across all 189 member countries. To maintain reserve adequacy in the face of future larger and more risky external balance sheets, EMEs would need to double their current level of reserves over the next 10 years—an increase of $9 trillion. A better alternative would be to hold $3 trillion in pooled resources, achieving the same level of insurance for

29 For example see Baranova, Y; Coen, J; Lowe, P; Noss, J; and Silvestri, L (2017), Simulating stress across the financial system: the resilience of corporate bond markets and the role of investment funds, BoE FS Paper No. 42, July.
a much lower cost. This would imply a tripling in the IMF’s resources over the next decade, enough to maintain their current share of global external liabilities.

The design of the GFSN is also important. Positive steps have been made in recent years by introducing precautionary liquidity facilities so countries can borrow to prevent crises, as well as mitigate their impact. This should also reduce stigma of drawing on the facilities. But so far, only a few countries have taken them up. It is important to do everything we can to normalise use of these precautionary facilities.

**Conclusion**

In the deceptively simpler time of the pre-crisis world order, “keeping your house in order” was a handy prescription of the G7 to EMEs. When countries were hit by volatile capital flows, they were admonished that there were “no innocent bystanders” and that only by doubling down on the Washington Consensus reforms could they be free to enjoy the benefits of sustainable cross-border investment.

The experience of successive crises and shocks—confirmed by the Bank of England’s analysis—suggests that advice was once worthy but is increasingly incomplete. The significant improvements in the institutional frameworks of EMEs are being offset by the deepening fundamental asymmetry in the international monetary financial system, the continued shrinking of the GFSN, and the rapid rise of market-based finance.

Now there can be innocent bystanders: but there should be no disinterested observers.

We are all responsible for addressing the fault lines in the global financial system and its safety net. In doing so we will reduce the volatility of capital flows, increase the sustainability of cross-border investment, and meet the great challenges of our age.

---

30 Since 1980 a maximum of 30% of EMs have concurrently been in an IMF programme, and since 1970 a maximum of 38% of EMs have experienced a crisis concurrently.

31 This is based on projections of emerging market economies’ external balance sheets—see footnote 21.

32 To date three countries, Colombia, Mexico, and Poland, have used the IMFs Flexible Credit Line. While none of the three countries have so far drawn down on these lines, the FCL has provided a valuable backstop for these countries and helped boost market confidence during the period of heightened risks.
ANNEX: CAPITAL FLOWS-AT-RISK

The Bank’s capital flows-at-risk (KF@R) framework is based on the use of quantile regression methodology. It models the entire distribution of gross capital inflows to emerging market economies (EMs) based on a set of covariates, and focuses on the dynamics of the left tail of those conditional distributions, which is taken to be the relevant measure of capital flows-at-risk.

In the baseline specification, the distribution of capital flows is estimated conditional on proxies for “push” and “pull” factors. For this purpose, the framework makes use of in-house financial conditions indices (FCIs), which measure co-movement in a series of financial indicators at the country level. The global average of these indices is considered to be a summary measure of “push” factors, and the residual obtained from regressing country indices on this global FCI to be a country-specific summary measure of “pull” factors.

For different horizons (h) and quantiles (ϕ) of the distribution, a panel regression of capital flows is performed on a constant, and the proxies for push and pull factors:

\[
\text{KF@R}_{t+h,\phi} = \alpha_{t+h,\phi} + \beta_{t+h,\phi} \text{Push}_t + \gamma_{t+h,\phi} \text{Pull}_{t+h,\phi} + \varepsilon_{t+h,\phi} \quad (1)
\]

This specification allows capital flows-at-risk to be estimated, which is measured as the 5th percentile of the distribution in the baseline case. This specification is estimated on quarterly gross-inflows from non-residents to a set of 13 EMs over the period 1996-2018. The specification is estimated separately for FDI, banking and portfolio flows, and a split of portfolio flows into those intermediated via investment funds and those which are not. The analysis focuses on the effect of push and pull shocks on capital flows in the contemporaneous quarter and the subsequent two quarters.

33 The FCI is the first principal component of the following series: long term government bond yields, term spreads, sovereign spreads, interbank spreads, corporate spreads, equity returns, equity volatility and financials market capitalisation (normalised by the broader market). These indices are based on those presented by the IMF in their April 2017 GFSR.

34 The main difference between this specification and the one proposed by the IMF in their October 2018 GFSR is that they consider capital flows in aggregate across EMs and, consequently, can only look at the effect of push factors. The choice to do this in a panel setting with country-specific series means pull factors can be incorporated into the analysis. The current analysis also broadens the scope from portfolio flows to different types of capital flows.

35 The EMs considered are Argentina, Brazil, Chile, Colombia, Hungary, India, Indonesia, Mexico, Peru, Philippines, Russia, South Africa and Turkey.
In a second specification the role of a set of additional factors (X) in affecting the sensitivity of capital flows-at-risk to global push shocks is considered. This is done by adding an interactive effect to equation (1):

\[ KF@R = \alpha + \beta \ Push + \gamma \ Pull + \delta \ X + \theta \ (Push \times X) + u \] (2)

A series of factors is considered: in one specification the focus is on the share of foreign currency-denominated debt and a measure of reserve adequacy, while in another specification the role of macro-prudential policy is analysed.

---

36 Horizon and quantile subscripts are dropped here for simplicity.
Group of Thirty Members 2019*

Jacob A. Frenkel
Chairman of the Board of Trustees, Group of Thirty
Chairman, JPMorgan Chase International
Former Governor, Bank of Israel
Former Professor of Economics, University of Chicago

Tharman Shanmugaratnam
Chairman, Group of Thirty
Senior Minister & Coordinating Minister for Social Policies, Singapore
Former Chairman of International Monetary & Financial Committee, IMF

Guillermo Ortiz
Treasurer, Group of Thirty
Partner and Member of the Board, BTG Pactual
Former Governor, Banco de México
Former Chairman of the Board, Bank for International Settlements

Jean-Claude Trichet
Honorary Chairman, Group of Thirty
Former President, European Central Bank
Honorary Governor, Banque de France

Paul A. Volcker
Chairman Emeritus, Group of Thirty
Chairman, The Volcker Alliance
Former Chairman, President Barack Obama’s Economic Recovery Advisory Board
Former Chairman, Board of Governors of the Federal Reserve System

Leszek Balcerowicz
Professor, Warsaw School of Economics
Former President, National Bank of Poland
Former Deputy Prime Minister and Minister of Finance, Poland

Mark Carney
Governor, Bank of England
Former Chairman, Financial Stability Board
Former Governor, Bank of Canada
Member, Board of Directors, Bank for International Settlements

Agustín Carstens
General Manager, Bank for International Settlements
Former Governor, Banco de México
Former Deputy Managing Director, IMF
Former Secretary of Finance and Public Credit, Mexico

Jaime Caruana
Member of the Board of Directors, BBVA
Former General Manager, Bank for International Settlements
Former Financial Counsellor, International Monetary Fund
Former Governor, Banco de España

*As of July 1, 2019
Domingo Cavallo
Chairman and CEO, DFC Associates, LLC
Former Minister of Economy, Argentina

Mario Draghi
President, European Central Bank
Member, Board of Directors, Bank for International Settlements
Former Governor, Banca d'Italia
Former Vice Chairman and Managing Director, Goldman Sachs International

William Dudley
Senior Research Scholar, Princeton University
Former President, Federal Reserve Bank of New York
Former Partner and Managing Director, Goldman Sachs International

Roger W. Ferguson, Jr.
President and CEO, TIAA-CREF
Former Chairman, Swiss Re America Holding Corporation
Former Vice Chairman, Board of Governors of the Federal Reserve System

Arminio Fraga Neto
Founding Partner, Gávea Investimentos
Former Chairman of the Board, BM&F-Bovespa
Former Governor, Banco Central do Brasil

Timothy F. Geithner
President, Warburg Pincus
Former US Secretary of the Treasury
Former President, Federal Reserve Bank of New York

Gerd Häusler
Member of the Supervisory Board, Munich Reinsurance
Former Chairman of the Supervisory Board, Bayerische Landesbank
Former Chief Executive Officer, Bayerische Landesbank
Former Financial Counselor and Director, International Monetary Fund

Philipp Hildebrand
Vice Chairman, BlackRock
Former Chairman of the Governing Board, Swiss National Bank
Former Partner, Moore Capital Management

Gail Kelly
Senior Global Advisor, UBS
Member, McKinsey Advisory Council
Former CEO & Managing Director, Westpac Banking Corporation

Lord Mervyn King
Member of the House of Lords, United Kingdom
Former Governor, Bank of England
Former Professor of Economics, London School of Economics

Paul Krugman
Distinguished Professor, Graduate Center, CUNY
Former Member, Council of Economic Advisors

Christian Noyer
Honorary Governor, Banque de France
Former Chairman, Bank for International Settlements
Raghuram G. Rajan  
Distinguished Service Professor of Finance, Chicago Booth School of Business, University of Chicago  
Former Governor, Reserve Bank of India  
Former Chief Economist, International Monetary Fund  
Former Chief Economic Advisor, Ministry of Finance, India  

Maria Ramos  
Former Chief Executive Officer, Absa Group  
Former Director-General, National Treasury of the Republic of South Africa  

Kenneth Rogoff  
Thomas D. Cabot Professor of Public Policy and Economics, Harvard University  
Former Chief Economist and Director of Research, IMF  

Masaaki Shirakawa  
Special Professor of International Politics, Economics, & Communication, Aoyama Gakuin University  
Former Governor, Bank of Japan  
Former Vice-Chairman, Board of Directors, Bank for International Settlements  
Former Professor, Kyoto University School of Government  

Lawrence H. Summers  
Charles W. Eliot University Professor, Harvard University  
Former Director, National Economic Council for President Barack Obama  
Former President, Harvard University  
Former US Secretary of the Treasury  

Tidjane Thiam  
CEO, Credit Suisse  
Former CEO, Prudential plc  
Former CEO, National Bureau for Technical Studies and Development, Côte d’Ivoire  

Lord Adair Turner  
Chairman of the Governing Board, Institute for New Economic Thinking  
Member of the House of Lords, United Kingdom  
Former Chairman, Financial Services Authority  

Kevin M. Warsh  
Distinguished Visiting Fellow, Hoover Institution, Stanford University  
Lecturer, Stanford University Graduate School of Business  
Former Governor, Board of Governors of the Federal Reserve System  

Axel A. Weber  
Chairman, UBS  
Former Visiting Professor of Economics, Chicago Booth School of Business  
Former President, Deutsche Bundesbank  

Yi Gang  
Governor, People’s Bank of China  
Member, Board of Directors, Bank for International Settlements  

Ernesto Zedillo  
Director, Yale Center for the Study of Globalization, Yale University  
Former President of Mexico
Zhou Xiaochuan  
President, China Society for Finance and Banking  
Vice Chairman, Boao Forum for Asia  
Former Governor, People’s Bank of China  
Former President, China Construction Bank  

SENIOR MEMBERS  

Haruhiko Kuroda  
Governor, Bank of Japan  
Former President, Asian Development Bank  

Stanley Fischer  
Former Vice Chairman, Board of Governors of the Federal Reserve System  
Former Governor, Bank of Israel  

Janet L. Yellen  
Distinguished Fellow in Residence, Hutchins Center on Fiscal and Monetary Policy,  
Brookings Institution  
Former Chair, Board of Governors of the Federal Reserve System  
Former President and Chief Executive, Federal Reserve Bank of San Francisco  

EMERITUS MEMBERS  

Abdlatif Al-Hamad  
Chairman, Arab Fund for Economic and Social Development  
Former Minister of Finance and Minister of Planning, Kuwait  

Geoffrey L. Bell  
Former President, Geoffrey Bell & Company, Inc.  
Former Executive Secretary and Treasurer, Group of Thirty  

E. Gerald Corrigan  
Former Managing Director, Goldman Sachs Group, Inc.  
Former President, Federal Reserve Bank of New York  

Richard A. Debs  
Advisory Director, Morgan Stanley  
Former President, Morgan Stanley International  
Former COO, Federal Reserve Bank of New York  

Guillermo de la Dehesa  
Member of the Board of Directors and Executive Committee, Grupo Santander  
Chairman, Institute of Santa Lucía Vida y Pensiones  
Former Deputy Managing Director, Banco de España  
Former Secretary of State, Ministry of Economy and Finance, Spain  

Gerhard Fels  
Former Director, Institut der deutschen Wirtschaft  

Toyou Gyohten  
Former President, Institute for International Monetary Affairs  
Former Chairman, Bank of Tokyo
John G. Heimann
Founding Chairman, Financial Stability Institute
Former US Comptroller of the Currency

Jacques de Larosière
Former President, Eurofi
Former President, European Bank for Reconstruction and Development
Former Managing Director, International Monetary Fund
Former Governor, Banque de France

Sylvia Ostry
Former Distinguished Research Fellow Munk Centre for International Studies, Toronto
Former Ambassador for Trade Negotiations, Canada
Former Head, OECD Economics and Statistics Department

William R. Rhodes
President & CEO, William R. Rhodes Global Advisors LLC
Former Senior Advisor, Citigroup, Inc.
Former Chairman and CEO, Citibank

David Walker
Former Chairman, Winton
Former Chairman, Barclays PLC
Former Chairman, Morgan Stanley International, Inc.
Former Chairman, Securities and Investments Board, U.K.

Marina v N. Whitman
Professor of Business Administration & Public Policy, University of Michigan
Former Member, Council of Economic Advisors

Yutaka Yamaguchi
Former Deputy Governor, Bank of Japan
Former Chairman, Euro Currency Standing Commission
Group of Thirty Publications Since 2000

SPECIAL REPORTS

Banking Conduct and Culture: A Permanent Mindset Change
Banking Conduct and Culture Working Group. 2018

Managing the Next Financial Crisis: An Assessment of Emergency Arrangements in the Major Economies
Emergency Authorities and Mechanisms Working Group. 2018

Shadow Banking and Capital Markets: Risks and Opportunities

Fundamentals of Central Banking: Lessons from the Crisis
Central Banking Working Group. 2015

Banking Conduct and Culture: A Call for Sustained and Comprehensive Reform
Banking Conduct and Culture Working Group. 2015

A New Paradigm: Financial Institution Boards and Supervisors
Banking Supervision Working Group. 2013

Long-term Finance and Economic Growth
Long-term Finance Working Group. 2013

Toward Effective Governance of Financial Institutions
Corporate Governance Working Group. 2012

Enhancing Financial Stability and Resilience: Macroprudential Policy, Tools, and Systems for the Future
Macroprudential Policy Working Group. 2010

The Reform of the International Monetary Fund
IMF Reform Working Group. 2009


The Structure of Financial Supervision: Approaches and Challenges in a Global Marketplace

Global Clearing and Settlement: Final Monitoring Report
Global Monitoring Committee. 2006

Reinsurance and International Financial Markets
Reinsurance Study Group. 2006

Enhancing Public Confidence in Financial Reporting
Steering & Working Committees on Accounting. 2004

Global Clearing and Settlement: A Plan of Action
Steering & Working Committees of Global Clearing & Settlements Study. 2003
REPORTS

Sharing the Gains from Trade: Reviving the Doha Round
Study Group Report. 2004

Key Issues in Sovereign Debt Restructuring
Study Group Report. 2002

Reducing the Risks of International Insolvency
A Compendium of Work in Progress. 2000

Collapse: The Venezuelan Banking Crisis of ‘94
Ruth de Krivoy. 2000

THE WILLIAM TAYLOR MEMORIAL LECTURES

Three Years Later: Unfinished Business in Financial Reform
Paul A. Volcker. 2011

It’s Not Over ‘Til It’s Over: Leadership and Financial Regulation
Thomas M. Hoenig. 2010

The Credit Crisis: The Quest for Stability and Reform
E. Gerald Corrigan. 2008

Lessons Learned from the 2008 Financial Crisis
Eugene A. Ludwig. 2008

Two Cheers for Financial Stability
Howard Davies. 2006

Implications of Basel II for Emerging Market Countries
Stanley Fisher. 2003

Issues in Corporate Governance
William J. McDonough. 2003

Post Crisis Asia: The Way Forward
Lee Hsien Loong. 2001

Licensing Banks: Still Necessary?
Tomasso Padoa-Schioppa. 2000

OCCASSIONAL PAPERS

95. Is This the Beginning of the End of Central Bank Independence?
Kenneth Rogoff. 2019

94. Oil in the Global Economy

93. Thoughts on Monetary Policy: A European Perspective
Jacques de Larosière. 2016

92. Financial Stability Governance Today: A Job Half Done
Sir Andrew Large. 2015

91. Growth, Stability, and Prosperity in Latin America
Alexandre Tombini, Rodrigo Vergara, and Julio Velarde. 2015
90. Central Banks: Confronting the Hard Truths
   Discovered and the Tough Choices Ahead
   Philipp Hildebrand. 2015

89. The Digital Revolution in Banking
   Gail Kelly. 2014

88. How Poland’s EU Membership Helped Transform its Economy
   Marek Belka. 2013

87. Debt, Money, and Mephistopheles: How Do We Get Out of This Mess?
   Adair Turner. 2013

86. A Self-Inflicted Crisis? Design and Management Failures Leading to the Eurozone Crisis
   Guillermo de la Dehesa. 2012

85. Policies for Stabilization and Growth in Small Very Open Economies
   DeLisle Worrell. 2012

84. The Long-term Outlook for the European Project and the Single Currency
   Jacques de Larosière. 2012

83. Macropredential Policy: Addressing the Things We Don’t Know
   Alastair Clark and Andrew Large. 2011

82. The 2008 Financial Crisis and Its Aftermath: Addressing the Next Debt Challenge
   Thomas A. Russo and Aaron J. Katzel. 2011

81. Regulatory Reforms and Remaining Challenges
   Mark Carney, Paul Tucker, Philipp Hildebrand, Jacques de Larosière,
   William Dudley, Adair Turner, and Roger W. Ferguson, Jr. 2011

80. 12 Market and Government Failures Leading to the 2008–09 Financial Crisis
   Guillermo de la Dehesa. 2010

79. Lessons Learned from Previous Banking Crises: Sweden, Japan, Spain, and Mexico
   Stefan Ingves, Goran Lind, Masaaki Shirakawa, Jaime Caruana,
   Guillermo Ortiz Martinez. 2009

78. The G30 at Thirty
   Peter Kenen. 2008

77. Distorting the Micro to Embellish the Macro: The Case of Argentina
   Domingo Cavallo and Joaquin Cottani. 2008

76. Credit Crunch: Where Do We Stand?
   Thomas A. Russo. 2008

75. Banking, Financial, and Regulatory Reform
   Liu Mingkang, Roger Ferguson, and Guillermo Ortiz Martinez. 2007

74. The Achievements and Challenges of European Union Financial Integration and Its Implications for the United States
   Jacques de Larosière. 2007
73. Nine Common Misconceptions About Competitiveness and Globalization
Guillermo de la Dehesa. 2007

72. International Currencies and National Monetary Policies
Barry Eichengreen. 2006

71. The International Role of the Dollar and Trade Balance Adjustment
Linda Goldberg and Cédric Tille. 2006

70. The Critical Mission of the European Stability and Growth Pact
Jacques de Larosière. 2005

69. Is It Possible to Preserve the European Social Model?
Guillermo de la Dehesa. 2005

68. External Transparency in Trade Policy
Sylvia Ostry. 2004

67. American Capitalism and Global Convergence
Marina V.N. Whitman. 2003

66. Enron et al: Market Forces in Disarray
Jaime Caruana, Andrew Crockett, Douglas Flint, Trevor Harris, Tom Jones. 2002

65. Venture Capital in the United States and Europe
Guillermo de la Dehesa. 2002

64. Explaining the Euro to a Washington Audience
Tomasso Padoa-Schioppa. 2001

63. Exchange Rate Regimes: Some Lessons from Postwar Europe
Charles Wyplosz. 2000

62. Decisionmaking for European Economic and Monetary Union
Erik Hoffmeyer. 2000