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19-11 International Coordination of Economic Policies in the Global Financial Crisis: Successes, Failures, and Consequences

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Abstract

The global financial crisis dominated the international financial landscape during the first 20 years of the 21st century. This paper assesses the contribution of the international coordination of economic policies to contain the crisis. The paper evaluates international efforts to diagnose the crisis and decide on appropriate responses, the treatments that were agreed and adopted, and the successes and failures as the crisis unfolded. International economic policy coordination eventually contributed importantly to containing the crisis, but the authorities failed to agree on a diagnosis and the consequent need for joint action until the case was obvious. The policy actions that were adopted were powerful and effective, but they may have undermined prospects for coordinated responses to crises in the future.

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INTRODUCTION

Seven months after Lehman Brothers filed for bankruptcy on September 15, 2008, leaders of the Group of Twenty (G-20) met in London on April 1–2, 2009, in an atmosphere of hope. "I think a new world order is emerging with the foundation of a new progressive era of international co-operation," Prime Minister Gordon Brown of Britain, the host of the meeting, declared.[1] Ten years later, Brown's hopes have not been fulfilled.

The international coordination of economic policies in the wake of Lehman's collapse successfully contained the most serious global financial and economic crisis since the Great Depression. But the success of the London meeting was preceded by almost two years of failure by policymakers to recognize and act on the global financial crisis (GFC) as it intensified.[2] The delay increased the economic damage in every corner of the world. Although the epicenter of the global crisis was the US financial system, the integration of global financial systems facilitated its spread to Europe and beyond, triggering a global recession.[3] Moreover, the scope and scale of the policies that were ultimately implemented left a residue of political distrust and recrimination that clouds prospects for a repeat performance.

The crisis came after a period of strong economic growth, rapid credit expansion, and notable complacency about the interaction of these two trends. The crisis evolved in three phases: (1) the period before BNP Paribas announced on August 9, 2007, that it was stopping further redemptions from three of its investment funds because it could no longer value the subprime-related assets that they held; (2) the period from August 9, 2007, to September 15, 2008, when Lehman Brothers announced it was filing for bankruptcy; and (3) the period following the Lehman Brothers' filing through June 2009.[4]

Because policymakers did not promptly recognize the crisis, they were slow to establish a shared view of the appropriate coordinated policy actions to contain the crisis and limit its effects.

In the first phase, out of a misplaced hope that the growing financial turbulence would resolve itself, policymakers discounted its potential ramifications.

In the second phase, they failed to establish a shared narrative or diagnosis of the crisis. Idiosyncratic responses in different countries resulted. Consequently, policy coordination was limited to the establishment of Federal Reserve liquidity swap lines with two central banks (of the euro area and Switzerland) and a call for an international review of systemic failures of financial system supervision and regulation. The first action addressed

1. Gordon Brown, *The Telegraph*, April 3, 2009, www.telegraph.co.uk/finance/g20-summit/5097195/G20-summit-Gordon-Brown-announces-new-world-order.html.

2. Although the economic effects of the crisis were felt globally, the financial crisis was largely limited to the countries of the North Atlantic. However, the financial crisis fed the economic crisis and impacted emerging market and developing countries by disrupting the availability of cross-border financing.

3. The closest the post-World War II global economy had come to negative annual growth of real GDP was in 1982 when real GDP grew 0.6 percent, with the advanced economies growing 0.2 percent and the emerging market and developing economies growing 1.1 percent. The comparable figures in 2009 were −0.1, −3.3, and 2.8 percent. In 2008–10, 99 of 194 world economies covered in the IMF's *World Economic Outlook Database* (April 2019, www.imf.org/external/pubs/ft/weo/2019/01/weodata/index.aspx) experienced negative growth in in one or more of the three years, including 36 of the 39 economies classified as "advanced" and more than 40 percent (63 of 155) of the nonadvanced economies. Contributing to these growth declines, and in many cases precursors to them in the advanced countries, were banking crises. Reinhart (2011) identifies 14 banking crises in 2008-2010 in the 24 advanced countries in her sample, or more than one third of the 39 crises of this type in these countries from 1970 to 2010. Only two of the 47 emerging market economies in the sample had banking crises in 2008–10.

4. The National Bureau of Economic Research later concluded that the 18-month US recession, the longest since the Great Depression, ended in June 2009; see www.nber.org/cycles/cyclesmain.html.

the symptoms of a crisis that was generally seen as one of need of financial institutions for dollar liquidity. The second combined finger pointing at the United States and the prevention of future crises.

In the third phase, after almost a month of further uncoordinated policy actions following Lehman Brothers' filing for bankruptcy, international economic policy coordination kicked into high gear. The authorities jointly employed old and new policies that ultimately contained the crisis. National policymakers not only cooperated, they coordinated their policies.[5] The result was that the effects of their policy actions were magnified. The important role of the international policy coordination process in addressing the crisis is sometimes not appreciated. Even US policymakers, whose role was crucial to the design and success of the international coordination efforts, do not emphasize the role of the international coordination of policies.[6]

By the middle of 2009, the crisis was largely contained but its aftereffects contributed to a slow recovery and subsequent expansion.

During the crisis, new and politically controversial crisis management tools were developed and institutional changes were initiated. Whether these tools and changes will be available and effective in limiting the virulence of future systemic crises is an open question.

PHASE I – WHAT CRISIS? DENIAL AND OUTBREAK

The BNP Paribas announcement that it was halting redemptions from three investment funds because of its inability to value its underlying subprime assets punctuated the summer of 2007. Mervyn King (2016, 35) recalled that at the central bank governors' meeting at the Bank for International Settlements (BIS) in early September bank regulators assured them that the US subprime mortgage market was not "sufficiently large to bring down major banks." Their assessment proved to be overly optimistic. A closer look connecting the Paribas announcement with other recent financial events should have revealed red flags of a brewing systemic crisis. Those other events included the bankruptcy of several US mortgage originators, downgrading of asset-based securities and bonds linked to the US housing market, problems at hedge funds managed by Bear Stearns, runs on commercial paper programs, and losses at IKB Deutsche Industriebank.[7]

Problem Identification and Diagnosis

Prior to August 2007, the strength of some national housing markets, the possibility or probability that there were bubbles in house prices in several countries, and mounting issues involving subprime mortgages in the United States did raise some concerns. Authorities in Australia and the United Kingdom, in 2002 and 2003 respectively, responded by using monetary policy to reduce the probability of a house price boom and bust. In

5. A note on my terminology: I use "cooperation" to describe the generally continuous process of formal or informal exchanges of views or of consultations among national policymakers. Following Meyer et al. (2002), I use "coordination" to describe agreement on one or more policies by two or more countries to address a common problem and thereby achieve a Pareto improvement for the participating countries . Their actions may benefit some countries more than others. (The Pareto improvement may be zero or negligible.) Policy coordination does not involve altruism. Policymakers may choose to participate for many reasons, but they do not sacrifice their country's own perceived interests merely to please other countries. However, over time (with repeated opportunities) perceived discounted benefits may exceed perceived current costs. Credibility has value.

6. Bernanke, Geithner, and Paulson (2019) devote two paragraphs in their 129-page analysis of the firefighting lessons from the GFC.

7. See BIS (2007a) and Gorton and Metrick (2012). Interestingly, the latter source does not mention the BNP Paribas announcement.

June 2005, the Federal Open Market Committee (FOMC), drawing in part on a staff paper examining foreign experience (Ahearne et al. 2005) as background for an FOMC discussion of the US housing market, focused on the behavior of US house prices, evidence of a bubble, and the potential role of monetary policy in mitigating a boom-bust cycle in the real estate market. But the discussion barely touched on financial innovations, such as subprime mortgages and associated derivatives (BOG 2005).[8] Simulation of a 20 percent decline in average house prices in the United States did not reveal an excessively severe impact on the US economy. The simulation failed to capture the doom-loop effects of a crisis in a real sector (housing) on the financial sector and back on the overall economy.

The multilateral financial institutions also were slow in identifying a potential crisis. Before the crisis hit, the International Monetary Fund (IMF) and its members, including importantly the United States, were concerned about emerging global imbalances and the need for concerted actions to shrink them.

Federal Reserve chair Ben Bernanke (2005) pointed to global imbalances and their contribution to a glut of desired saving as contributing to low US long-term interest rates. But he overemphasized that channel. Estimates by BIS staff revealed later that in 2007, gross US dollar financial flows from countries in Asia to the United States were $749 billion, but they were dwarfed by $2,056 billion in flows from Europe (Avdjiev et al. 2015). In 2007, the European Union (EU) had a tiny current account deficit (0.67 percent of GDP) and the euro area had an even smaller surplus (0.04 percent of GDP).

Problems in the subprime mortgage market did attract increased attention, as reflected by Bernanke's testimony on March 28, 2007, in which he famously commented that "the impact on the broader economy and financial markets of the problems in the subprime market seems likely to be contained" (Bernanke 2007).

The IMF staff's April 2007 *Global Financial Stability Report* (IMF 2007) concluded that "some areas require heightened surveillance" and that "anecdotal evidence suggests that overseas investors have significant exposure to the riskier portions of the CDO [collateralized debt obligation] capital structure." The report also noted the short-term increase in spreads on credit default swaps following the bankruptcy of Ownit Mortgage Solutions in December 2006, commenting, "the episode illustrates how the opacity and uncertainty about how mortgage-related securities allocate underlying mortgage risk could trigger volatility and disrupt broader asset markets." It said, "the risks would be heightened if many subprime credit events were to take place simultaneously."

The G-7 finance ministers and central bankers, on April 13, 2007, expressed confidence that global imbalances would be reduced. They also reiterated their concerns about highly leveraged institutions, principally hedge funds, which were not the source of the impending crisis.

For its part, the BIS staff were similarly complacent. Their June 2007 *Quarterly Review* (BIS 2007c) noted that markets had rebounded after a bout of turbulence in late February and early March,[9] indicating that the

8. The transcript (BOG 2005) contains only five references to subprime mortgages.

9. The two previous quarterly reports were also upbeat about market conditions and the outlook.

problem of rising mortgage delinquencies and of bankruptcies of some subprime lenders was primarily confined to US financial institutions.[10]

In 2011, the Independent Evaluation Office (IEO 2011) of the IMF found that IMF bilateral and multilateral surveillance had failed to identify the crisis before it had broken.

Treatment

International economic policy coordination through August 2007 was limited to generally upbeat assessments of the outlook and expressions of low-level concern about asset prices, including the possibility of housing bubbles. Moreover, authorities did not agree on the desirability of using monetary policy to prick such bubbles. In retrospect, it is unlikely that concerted action in the regulatory sphere starting in late 2006 or early 2007 would have positively affected the global economic and financial crisis that was emerging.

PHASE II – THE CRISIS ERUPTS

Most observers thought that the implications of the BNP Paribas announcement would be limited. For example, Wall Street guru Albert Wojnilower told the *New York Times*, "It is a limited crisis as of now, and if I had to bet my life, I would bet that it would remain that way. But I would not want to bet my life."[11] He was wise not to bet his life.

The period from August 2007 through September 15, 2008, when Lehman Brothers filed for bankruptcy, witnessed a series of downgrades of institutions and instruments by credit rating agencies, write-downs, capital injections, financial support and nationalizations in Europe, and a cascade of loss recognitions by many institutions in the United States and Europe. Two key US events were (1) the acquisition of Bear Stearns by JPMorgan on March 16 with the help of the Federal Reserve using section 13(3) of the Federal Reserve Act for the first time since the Depression[12]; and (2) the invocation by the US Treasury on September 7 of the authority recently granted it by the Congress to place Fannie Mae and Freddie Mac in conservatorship.[13]

Market indicators of volatility and heightened risk mostly remained calm. For example, the VIX rose following the Paribas announcement but backed off and did not rise further until September 2008 (figure 1)[14] and equity indexes began to decline only in June 2008 relative to where they were in July 2007 (figure 2). Credit

10. The BIS was not alone in underappreciating the buildup of risks in US financial markets and the links to markets in other countries. In April 2007, I participated in a presentation on the global outlook at the Peterson Institute for International Economics and focused on the recent turbulence in financial markets. We saw a one-third probability of recession in the United States. I focused on fear and greed in the financial markets and concluded that if fear took over during the next year or two, the risk of a hard landing for the global economy would be 10 percent. (See https://piie.com/events/global-economic-prospects-spring-2007 [accessed on March 28, 2019].)

11. *New York Times*, August 14, 2007.

12. Section 13(3) of the Federal Reserve Act, before it was amended by the Dodd-Frank legislation in 2010, said "In unusual and exigent circumstances, the Board of Governors of the Federal Reserve System, by the affirmative vote of not less than five members, may authorize any Federal reserve bank to…[lend to] *any individual, partnership, or corporation*," as long as the loan is "secured to the satisfaction of the Federal Reserve bank." The language in italics was eliminated by the Dodd-Frank legislation.

13. Fannie Mae and Freddie Mac provided substantial support for lending in the US housing market.

14. The VIX is an index of the market's expectation of 30-day forward-looking volatility of S&P index options on the Chicago Board Options Exchange.

default swap (CDS) spreads for major banks were an exception. They rose in August 2007 and continued their rise with a spike in March around the time of the Bear Stearns rescue (figure 3).

Between the spring and fall of 2007, the outlook for US growth in 2008 weakened by 0.9 to 0.6 percentage points in the IMF and FOMC staff forecasts, to 2.0 and 1.7 percent respectively, on a Q4-to-Q4 basis. Some of the weakness in the US economy was expected to spill over onto other advanced economies.

Problem Identification and Diagnosis

In the context of the developments sketched above, statements and commentary by officials and institutions continued generally to be optimistic. Their theme was reassurance. August 2007 was not too late to issue warnings, but it was too late to sound the alarm.

Experienced hands in the IMF interpreted the BNP Paribas announcement as a wake-up signal. On August 22, 2007, IMF managing director Rodrigo de Rato (2007) commented on the recent turbulence in structured finance and related credit derivative markets and its implications. He stated that some market participants had underestimated the associated risks. He signaled that the IMF management and staff were very concerned, but his key observation was designed to calm markets: "[F]or the present, we still expect the global economy to continue performing well, even in the face of recent financial market turbulence."

The September 2007 BIS *Quarterly Review* (BIS 2007a) again highlighted concerns about exposures to US mortgages, losses on mortgage-related products, and associated uncertainties that had contributed to a pronounced squeeze in liquidity across major financial markets and prompted central banks to inject large amounts of liquidity into those markets. But that was as far as it went.[15]

The G-7 finance ministers and central bank governors met on October 19, 2007. Their statement was reassuring on economic prospects. The principal concerns they addressed in their statement were about the functioning of financial markets. Behind closed doors, the downside risks were discussed more openly, but most authorities were in denial.

Tim Geithner, then president of the Federal Reserve Bank of New York, reported at the September 18, 2007, FOMC meeting, "what you are now seeing in Europe, in the United Kingdom in particular, are the effects on confidence of finding the wrong balance, frankly, between concerns about moral hazard and the appropriate role of the central bank in situations like this" (BOG 2007, 73).

The near failure of Bear Stearns in mid-March 2008, which caused the Federal Reserve to employ authority that had been unused since the Great Depression, was for the US authorities "a sobering reality check about the frailty of the system" (Bernanke, Geithner, and Paulson 2019, 49). The Federal Reserve used the same authority to establish the Primary Dealers Credit Facility (PDCF) through which the Fed lent via repurchase operations to investment banks that were primary dealers. The US market for housing finance, especially the subprime mortgage market, was seen as the source of the market turbulence.

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15. We do not know how concerned the authors of these reports or their senior colleagues really were. They might have been pulling their punches out of concern not to provoke a crisis. However, such restraint would have been inconsistent with the reputation of the BIS, at least in recent years, for ruthless truth telling.

In June 2008, the BIS (2008a) quarterly report cautiously summarized developments in financial markets: "Following deepening turmoil and rising concerns about systemic risks in the first two weeks of March, financial markets witnessed a cautious return of investor risk tolerance over the remainder of the period to end-May 2008."

Later in June, the summary of the conclusion of the BIS Annual Report for 2007–08 (BIS 2008b) also did not sound an alarm except about inflation. It did, however, criticize the credit boom of the previous period.

> In the aftermath of a long credit-driven boom, it would not be surprising to see turmoil in financial markets, slowing real growth and temporarily rising inflation…. With inflation a clear and present threat, and with real policy rates in most countries very low by historical standards, a global bias towards monetary tightening would seem appropriate…. Perhaps the principal conclusion to be drawn from today's policy challenges is that it would have been better to avoid the build-up of credit excesses in the first place.

At the G-8 summit in early July in Japan, leaders recognized downside risks but were positive about the economic outlook. Stressing the importance of financial reform, the official view was that if the recommended reforms were implemented promptly the system would stabilize.

The BIS in its September 2008 quarterly review (BIS 2008c) issued at the end of August continued to express confidence in the ability of financial markets to adjust to global financial and economic conditions.

Most forecasts began to recognize that the turbulence in financial markets was likely to impact growth prospects of advanced countries. However, the outlook for growth in emerging-market economies was expected to hold up; FOMC staff forecasts for that group did not show a deterioration until September 2008[16] (figure 4).

Inside national and international official institutions, concerns were more elevated. The memoirs of Ben Bernanke (2015, chapter 11), Tim Geithner (2014, chapter 5), and Hank Paulson (2010, 130–31) reveal that US officials were very concerned about the next institution that might topple, but they possessed limited tools to prevent a collapse.

On the other hand, perceptions of the economic risks were not all one-sided. The FOMC met on August 5, 2008. The transcript (BOG 2008a) reports a consensus that it would take some time for the financial adjustment that was underway to play out and that there was a risk that there was more to come. Participants noted that Europe was experiencing the same types of pressures. The staff presented a "severe financial stress" scenario in which US growth was negative in the second half of 2008 but returned to plus 0.5 percent in 2009.[17] Nevertheless, some participants expressed concern about continuing inflation pressures. One voting member dissented from retaining the fed funds target at 2 percent; he preferred to raise it.

The staff of the European Central Bank (ECB) were slow to recognize the implications of the financial turbulence and slowdown in other advanced countries for their projections of economic activity in the euro area.

16. Because the forecasts of foreign growth are weighted by US exports, the deterioration in the forecast for emerging market economies is somewhat exaggerated. The IMF staff's *World Economic Outlook* forecasts for the advanced countries as a group, which selectively include growth rates of real GDP on a Q4/Q4 basis during the period, by October 2008 were essentially the same as the FOMC staff forecast in that month's Greenbook.

17. By mid-2009, the estimate of US real GDP growth in the second half of 2008 was minus 3.4 percent.

In March 2008, the midpoint for 2009 year-over-year growth in the euro area was 1.8 percent, the same as the current estimate for 2008 and more than half a percentage point higher than the IMF staff forecast in April. By September the ECB and IMF forecasts had converged and by the end of 2008 they were both at -0.5 percent.[18]

In summary, as of the end of August 2008, the authorities in many advanced countries did not identify the global financial crisis that was already underway. The consensus diagnosis was that financial institutions faced liquidity problems that would have limited negative effects on economic activity. Officials were publicly confident that these problems could be adequately addressed with conventional tools. US authorities did not share this consensus, but they also were not prepared for what happened next.

Treatment

The absence of a shared diagnosis of the implications of the weakness in the portfolios of many US financial institutions and of financial institutions in other systems and their economies meant that there was no international consensus on the appropriate policy actions. Consequently, coordinated policy actions during phase II of the GFC were few. With two exceptions, individual countries took ad hoc actions. They generally consulted informally before or after doing so, but that was all.

Enhanced Liquidity Support

Each of the major central banks responded to the BNP Paribas announcement within its own institutional structure. The ECB injected an initial €95 billion into European money markets; the Federal Reserve expanded its open market operations; and the central banks of Australia, Canada, Japan, and Korea either injected liquidity or announced that they stood ready to do so. Many central banks granted long-term as well as short-term access to central bank credit, conducted longer-term open market operations, and expanded the collateral that was eligible for discount (BIS 2007b, 12). Central bankers briefed their colleagues, but policy decisions were not coordinated.

One exception was the Federal Reserve's decision to reestablish swap arrangements with the ECB and the Swiss National Bank (SNB).[19] This action was consistent with the narrative that the principal need for non-US financial institutions was for US dollar liquidity. The swap arrangements were established by agreement between the participating central banks, and in that sense, they were coordinated. But the Fed's motivation was primarily to facilitate the achievement of its domestic objectives.

In December 2007, the FOMC considered establishing a term auction facility (TAF) to provide longer-term financing to banks via the Federal Reserve discount window to which non-US banks had access if they had

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18. The economic projections cited in the text are the midpoints of ranges. The ECB staff in Frankfurt prepare the projections in March and September and the staff of the Eurosystem prepare those in June and December; see www.ecb.europa.eu/mopo/strategy/ecana/html/table.en.html (accessed on May 26, 2019).

19. Swap arrangements between central banks are a tool of international economic policy coordination that date back to the 1960s when they were generally used to supply the partner central bank with foreign exchange to intervene in the markets. Their use to supply liquidity to banking system or to facilitate clearing dated from preparations for the millennium change-over and their employment in the aftermath of the 9/11/2001 attack on the World Trade Center in New York.

posted appropriate liquidity.[20] The aim of the proposal was to remove some of the stigma from such borrowing (see English and Mosser 2019). Many non-US financial institutions held substantial US dollar assets, including US housing-related instruments, and financed those holdings by borrowing dollars short term. As concerns about the quality of those holdings increased, access to dollar liquidity dried up. The three-month LIBOR-OIS swap spread reached more than 100 basis points in December 2007, making it increasingly costly for financial institutions to borrow in the money market.[21] In addition, demand by non-US financial institutions for dollar funding added volatility to the fed funds market. Rates were bid up early in the day. The open market desk at the Federal Reserve Bank of New York supplied reserves to meet that demand. In the afternoon, the funds rate fell back below the FOMC's target.

It was expected that foreign banks that had access to the discount window would bid for funds from this new facility, increasing the Fed's credit risk. Consequently, the TAF proposal was coupled with a proposal to establish liquidity swap lines with the ECB and SNB, to shift the credit risk to these central banks.[22] The swap line with the ECB was limited to $20 billion and that with the SNB to $4 billion, but their size was increased in March and again in July 2008.

The swap arrangements, while established by joint agreement, were designed primarily to assist the Fed even though non-US financial institutions benefitted from them. Moreover, the ECB sought to convey that it was merely supporting the Fed's efforts to counter US-centric and dollar-centric stresses. The actions were, however, jointly announced on December 12, 2007, by the Fed, Bank of England (BoE), and SNB. Separately, the Bank of Canada (BoC) and BoE announced new actions in the area of liquidity provision, and the Bank of Japan (BoJ) and the Swedish Riksbank issued supporting statements. Thus, they produced a moderate show of cooperation and policy coordination.

Financial Reform

As noted above, the dominant crisis narrative in phase II of the GFC was that the cause of the turbulence was financial supervision and regulation failures by the US authorities. European officials criticized the US authorities for not limiting the financial excesses that had infected their financial markets and institutions. Those officials were not self-critical about their own failures to prevent their institutions from participating in the dance.

In response to this criticism, US Treasury undersecretary for international affairs David McCormick and Federal Reserve Board vice chairman Donald Kohn wrote a letter to their G-7 counterparts in early September proposing that the Financial Stability Forum (FSF) be tasked to study the causes of the stresses rippling through

20. Over the entire period of the crisis, foreign banks accounted for 85 percent of the borrowing at the Federal Reserve discount window (English and Mosser 2019).

21. The Overnight Indexed Swap (OIS) rate is the compound rate based, for example, on the overnight federal funds rate. The London Interbank Offer Rate (LIBOR) was the rate used at that time for term lending between banks.

22. Swap lines had been established among central banks in most cases to supply currency for use in foreign exchange market operations—dollars for the foreign central bank and foreign currency for the Federal Reserve. The liquidity swap lines operated similarly but with a different objective. They supplied US dollars to the foreign central bank for a set period at a fixed exchange rate in return for the currency of the foreign central bank that was kept on deposit at that bank. Normally after 90 days the transaction would be reversed at the same exchange rate, but it might be rolled over up to three times.

financial markets. McCormick and US Treasury undersecretary for domestic finance Robert Steel also wrote an op-ed in the *Financial Times* on September 12 outlining the US administration's views. They called for an examination of four issues: financial institutions' liquidity, market, and credit risk practices; accounting and valuation procedures for financial derivative instruments; supervisory principles for regulated financial entities' contingent claims; and the role of credit rating agencies in evaluating structured finance products.[23] In response, the FSF established a Working Group on Market and Institutional Resilience, which prepared a preliminary report and work plan that was presented to the G-7 ministers and governors for their endorsement on October 19, 2007.

The US initiative paved the way for substantial financial market and financial institution reforms in the wake of the GFC. However, it was directed at the prevention of future crises and not germane to managing the emerging crisis. For example, the list of topics did not include potential guidelines on governmental support for financial institutions, on bailing in subordinated creditors, or on the resolution of failing, multicountry institutions. Different policy approaches in these areas over the next year highlighted the lack of agreed best practices.

Macroeconomic Policies

The Federal Reserve was the only central bank to lower its policy interest rate at the start of phase II of the crisis. The FOMC reduced its target for the fed funds rate by 50 basis points from 5.25 percent on September 18, 2007, and six more times by April 2008 when the target reached 2 percent, down 325 basis points from August 2007 and 225 basis points from December 2007 (figure 5). Over the next year, the Fed rolled out an alphabet soup of new facilities designed to support or unfreeze portions of the US, and by extension global, financial markets, such as the Treasury Security Lending Facility (TSLF) and the Primary Dealer Credit Facility (PDCF) (Logan, Nelson, and Parkinson 2019).

The central banks of the United Kingdom and euro area did not respond to the August 9, 2007 announcement with conventional monetary policy. In both jurisdictions, the 12-month rate of consumer price inflation was at or slightly below their 2 percent inflation targets (figure 6).[24] The BoE had raised its bank rate by 25 basis points in May and July 2007; in December 2007 and February and May 2008, it lowered the rate in three 25-basis-point steps to 5 percent.

The ECB, for its part, raised its main refinancing rate 25 basis points to 4.25 percent in early July 2008. The ECB was focused on headline inflation. Its close-to-but-less-than 2 percent target had reached 3.7 percent (year over year) in May 2008 and would peak at 4.1 percent in July. However, that peak was followed by a tumble to 1.6 percent by January 2009. The ECB might have looked through the headline figure to core inflation, which only touched 2 percent from below in March and October 2008.

By early 2008, Treasury secretary Henry Paulson, President George W. Bush, and his economic advisors concluded correctly that the US economy was in recession and needed a fiscal boost, which it received in the

23. See www.ft.com/content/1eb92ef4-615c-11dc-bf25-0000779fd2ac.

24. Subsequently through the middle of 2008, headline inflation rates rose to 4 in the euro area and to 5 percent in the United Kingdom, driven by higher commodity prices.

form of a timely one-time tax rebate and favorable tax treatment of equipment purchases (Paulson 2010, 84–87). But the United States acted alone in its early application of fiscal policy to the crisis.

Other Policies

One area where international cooperation was involved but did not rise to the level of policy coordination was the substantial investment by foreign government–controlled sovereign wealth funds (SWF) in US financial institutions in the fall of 2007 and the winter of 2008. Examples were investments in Citigroup by the Abu Dhabi Investment Authority, Government of Singapore Investment Corporation, and Kuwait Investment Authority (KIA) and investments in Merrill Lynch by the Korean Investment Corporation, KIA, and Temasek. SWFs were politically controversial at that time (Truman 2010), and most of these investments received tacit approval from the US Treasury in advance. Many turned sour over the next few years and became politically controversial in the home countries.

During the summer of 2008, yields on the debt of Fannie Mae and Freddie Mac rose to 100 basis points above five-year treasury securities and the price of their stock dropped to less than $10 from more than $60 a year earlier (see Frame et al. 2015). Too many investors in the obligations of Fannie and Freddie, both foreign and domestic, thought they carried an implicit government guarantee. US officials coaxed and cajoled foreign official holders, which held at least $1 trillion of these obligations (Frame et al. 2015), not to unload them (Paulson 2010, chapter 7). In late July 2008, the Congress passed legislation giving the US Treasury the power to put Fannie and Freddie in conservatorship. The hope was that authority would not have to be used, but on September 7 it was.

In summary, the international coordination of economic policies to treat the GFC during its second phase was constrained by the dominant narrative that the crisis was made in America and would stay there. In the 13 months between the BNP Paribas announcement and the Lehman Brothers bankruptcy announcement on September 15, 2008, the authorities could have acted vigorously to limit the crisis that was already underway through, for example, coordinated monetary and other macroeconomic policy actions, establishment of understandings about the resolution of major international financial institutions, and creation of a larger network of swap arrangements with more generous access. But the central narrative did not envision an aggressive coordinated policy response.

PHASE III – CRISIS CONTAINMENT

Lehman Brothers' filing for bankruptcy on September 15 marked the start of the third phase of the GFC. The filing occurred after marathon weekend negotiations. The Lehman episode did not strictly involve international economic policy coordination. Failed negotiations with institutions and authorities in Japan, Korea, and the United Kingdom, however, played a role in the drama. Arguably, more intensive, ex ante conversations might have resulted in an outcome that was better for the system.

The irony is that despite the European concerns with moral hazard and despite the prevailing European narrative that the financial crisis was a US problem that would not severely affect their economies, European officials were highly critical of the US authorities for not saving Lehman. Christine Lagarde, then the French

Box 1

The importance of the Lehman bankruptcy filing

I have long held the view that Lehman's filing for bankruptcy was an important date rather than a cataclysmic event that caused the financial crisis to go global.[1] Observers can disagree about the appropriate counterfactual. But Barry Eichengreen (2015, 5) was fantasizing when he wrote, "The failure to endow Treasury and the Fed with the authority to deal with insolvency of a nonbank financial institution was the single most important policy failure of the crisis." His critique is too facile for two reasons.[2]

First, Eichengreen accepts that the Fed and Treasury did not have the authority to rescue Lehman alone and acknowledges that the Congress would not have given them the authority to do so if they had asked.[3] The conditional authority that now would allow such a rescue was granted in the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, but it remains politically controversial.

Second, before the Lehman weekend, runs were already underway on several large US financial institutions, including Merrill Lynch, which was acquired by Bank of America during the weekend, AIG, Morgan Stanley, Goldman Sachs, and Washington Mutual, as well as on financial institutions in Belgium, Ireland, Iceland, France, and Germany. An assisted rescue of Lehman would not have stopped those runs though subsequent developments might have been somewhat less dramatic. But time ran out before an assisted rescue could be arranged. Moreover, such a half measure at that point might only have postponed the inevitable virulent phase of the crisis.

1. Bernanke, Geithner, and Paulson (2019, 61 and 70) state that the Lehman collapse "was more a symptom than a cause of the weaknesses in the system.... The fall of Lehman dramatically accelerated the crisis, but a less frantic less visible run on the financial system had been building for more than a year." Agreement with my view, of course, is not the same as proof.

2. See also Eichengreen (2015, 197–202).

3. The negative attitude at the time is confirmed by Bernanke, Geithner, and Paulson (2019, 54), who report a visit to House Financial Services Committee chair Barney Frank appealing for new legal authority to deal with failing nonbank financial institutions. Frank explained that the politics would be impossible. Cline and Gagnon (2013) argue that Lehman did not pass the Bagehot solvency test for central bank lending to individual institutions and that the rescues of Bear Stearns, Fannie, Freddie, and AIG did.

finance minister, described what she saw as a US policy failure as "horrendous."[25] But Lehman's declaration of bankruptcy was more of a date in the evolution of the GFC than the cause of the spread of the crisis during the following days. See box 1.

Six and a half months passed between Lehman Brothers' bankruptcy filing and the G-20 leaders' meeting in London on April 1–2, 2009. Twenty-four days passed before the authorities of the major countries managed to get on the same page with a coordinated cut in policy interest rates on October 8, 2008 in advance of the Columbus Day weekend, October 10–13. On October 10, G-7 finance ministers and central bankers announced to the world that they were in full policy coordination mode. Coordinated crisis containment became their principal preoccupation.[26]

25. See www.telegraph.co.uk/finance/financialcrisis/3212182/Financial-crisis-Christine-Lagarde-warned-Hank-Paulson-to-bail-out-Lehman-Brothers.html.

26. In my crisis terminology, containment is both a process and an outcome. As a process, it is the phase in which all the normal barriers to action are removed including de facto and sometimes de jure guidelines, rules, and regulations. The objective is to stop the bleeding (see Truman 2009). As an outcome, containment is the point at which the crisis begins to ebb. Generally, that point is recognized only after it has been passed for several months.

Following the Lehman filing, financial institution dominos fell across the advanced countries. National authorities undertook a plethora of uncoordinated ad hoc measures in response, including extensions of deposit insurance, blanket guarantees of bank liabilities, capital injections, and nationalizations. Some announced the temporary suspension of short selling, suspensions that often were extended. Even the United States instituted a temporary ban on shorting stocks of financial institutions in the wake of Lehman. Whatever one thinks of short selling or its prohibition, in an integrated international capital market the choices of one regulator impact conditions in other markets, sometimes through proxy trading.

As these and other ad hoc actions reverberated through the global financial system, indicators of market distress intensified. The VIX spiked and remained elevated through June 2009 (figure 1). Equity indexes plunged and did not begin to recover until March 2009 (figure 2). Five-year credit default swap spreads for major banks moved higher and peaked in the spring of 2009 (figure 3), and five-year credit default swaps for three key emerging-market economies (Brazil, Korea, and Mexico) rose sharply, remained elevated, and also peaked in the spring of 2009 (figure 7).

At the same time, growth prospects for emerging markets and developing economies (EMDEs) deteriorated (figure 4), and the IMF staff began to mark down its year-over-year growth outlook for 2009 (figure 8). Symptomatic of the deteriorating economic conditions, demand for IMF-supported adjustment programs increased. An IMF program with Hungary was agreed on November 9, 2008, followed by Iceland on November 19, Latvia on December 23, and Romania on May 4, 2009. From September 2008 to February 2009, IMF lending commitments increased by $50 billion. This was the largest IMF financial intervention over a short interval in its history, even larger than during the first five months of the Asian financial crisis in 1997.

Identification and Diagnosis

Following the events of mid-September 2008, few policymakers could doubt that they faced a financial crisis with global ramifications.

Their focus, however, continued primarily to be on the financial ramifications of the crisis rather than on its implications for global economic activity. The strong, concise statement by the G-7 ministers and governors on October 10, 2008, illustrates this bias. They signaled a joint commitment to do whatever was necessary to staunch the bleeding in financial markets and institutions, but they stopped short of a commitment address the global economic collapse that was underway. The restoration of financial stability was "to support global economic growth" and "macroeconomic policy tools [were to be] used as necessary and appropriate" (the text and source are provided in appendix A).

Similarly, the G-20 leaders' statement in Washington on November 15 allocated 101 words to the origins of the crisis in the financial sector and 40 words to macroeconomic developments (see appendix A). The fact that 141 words were devoted to the causes of the crisis illustrates the absence, even at that late date, of consensus on the diagnosis of the crisis and, consequently, on the appropriate policy response.

Treatment

The lack of a consensus diagnosis of the GFC contributed to a tension in priorities. Should the emphasis be on repairing financial systems or offsetting the impacts on real economies? Questions of policy priorities are common in crises that involve a substantial financial component, and they plagued international economic policy coordination efforts for the next six months.

Experience had shown that repair of financial systems is important to crisis resolution. In cases where financial collapse impacts the real economy, the real economy needs support for its own sake as well as to assist in financial repair. In 2008–09, all policymakers did not agree with this proposition, but eventually they followed a two-pronged approach.

Another area of division involved the appropriate strategy toward banks. In the United Kingdom and the United States, the emphasis was on rebuilding their capital so that they could contribute to the resumption of growth. In continental Europe, more emphasis was placed on meeting liquidity needs, in part out of concern about inflation as well as aversion to bailouts, notwithstanding the fact that most authorities did bail out their own institutions.

The balance of this section provides a roughly chronological account of coordinated policy actions in the third phase of the GFC.

Central Bank Swap Lines

In the aftermath of Lehman's bankruptcy filing and the intensification of the GFC, the FOMC acted, first, on September 18, 2008, to expand the size of the swap lines with the ECB and SNB and, second, to enlarge the network to include the BoE, BoJ, and BoC. These actions brought total potential dollar funding available through the five central banks to $180 billion. On September 24, the central banks of Australia, Denmark, Norway, and Sweden were added, and the size of potential drawings reached $620 billion.

In addition, the ECB established swap lines with the SNB and Danish and Swedish central banks, and credit facilities with the central banks of Latvia, Hungary, and Poland. These latter arrangements are understood to have allowed the foreign central bank to repo euro-denominated bonds with the ECB.[27]

Monetary Policy

Until October 8, 2008, the monetary policies of the major central banks were uncoordinated. On that date, the Federal Reserve cut its fed funds target another 50 basis points, acting in concert with the ECB, BoE, SNB, BoC, and Swedish Riksbank.[28] In explaining this proposal to the FOMC, Bernanke (BOG 2008b, 14–15) stressed the importance of "the opportunity to move jointly with five other major central banks," noting that coordinated action could bring "multiplier effects" with a larger effect on the "global and US economy than our acting alone." He also argued that joint action would pose less downside risks to the dollar and, hence, reduced upside risks to inflation expectations, which continued to be a concern to some FOMC participants.

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27. The ECB has released fewer details about its arrangements with foreign central banks than has the Federal Reserve. The information in this paragraph comes from ECB (2009), ECB (2016), Allen and Moessner (2010), and Papadia (2013), but the sources do not agree on all points, such as the coverage of ECB swap lines and when they were established. Allen and Moessner also report that the Bank of Japan established US dollar swap lines with the Reserve Bank of India (June 2008), Bank of Korea (December 2008), and Bank Indonesia (April 2009).

28. Most of the rate cuts were 50 basis points, larger than the 25-basis-point norm. The SNB cut by 25 basis points. The People's Bank of China cut rates the same day, but its move was not coordinated with the other central banks.

He went on to note an important "tactical issue":

> I think the real key to this [proposal] is actually the European Central Bank.... They made an important rhetorical step at their last meeting to open the way for a potential rate cut, but I think that this coordinated action gives them an opportunity to get out of the corner into which they are somewhat painted, and their move will have a big impact on global expectations about policy responsiveness.

Although generally well received by markets and the public, the joint action did not turn the tide of adverse dynamics at work in the global economy. Subsequently, rates were cut further. The Bank of England and the Swiss National Bank, however, moved more rapidly than the European Central Bank to cut (figure 5).

The BoJ situation as of August 2007 differed from that of the other major central banks. As of February 2007, its overnight call rate was only 50 basis points. Nevertheless, the rate was lowered to 30 basis points on October 31, 2008, and to 10 basis points on December 19. The BoJ also progressively expanded its purchases of Japanese government bonds starting in October 2008. By December it was purchasing commercial paper outright, and in January 2009 it began to purchase corporate bonds outright. The BoJ's quantitative easing, which it had inaugurated in a small way earlier in the century, covered a broader set of instruments than that of the Fed.

Columbus Day Weekend

The passage of the Troubled Asset Relief Program (TARP) legislation on October 3, which had received a public G-7 endorsement before its first defeat in the Congress on September 29, put the United States in a better position to act on threats to the financial system originating in US institutions. In addition, the British authorities on October 8 announced a three-part program of support for their banks.[29]

The G-7 meeting of finance ministers and central bank governors on October 10 started with finger pointing (Paulson 2010, 350–51). Several European officials argued that the crisis was the fault of the United States. However, most participants recognized that a release of the normal type of bland and reassuring statement after the meeting would not fit the needs of the moment. Instead, they issued a short, action-oriented statement (see appendix A). Following the meeting, President Bush invited the G-7 ministers and governors to the White House to demonstrate the determination of his administration to follow through.

The next week, authorities in most of the G-7 countries acted.[30]

- Euro area leaders, having failed to reach agreement on October 4 on a common policy position to deal with their weakened banks, agreed on October 12 essentially to adopt the UK approach toward bank recapitalization and debt guarantees.[31]

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29. The British program included (a) a £50 billion recapitalization program for major UK banks, (b) a £250 billion credit guarantee program for banks issuing new debt, and (c) an expanded £200 billion program to provide liquidity to banks to support their lending.

30. As reported above, by the end of the month the BoJ had begun to exploit its limited scope to ease monetary conditions.

31. The flaw in the euro area approach was that each country was to implement it on its own. This feature laid the groundwork for the doom loop between weak banks and weak sovereign balance sheets that contributed importantly to the euro area debt crisis that broke in 2010 after the global economy and financial system had largely stabilized.

- The United Kingdom on October 13 effectively nationalized the Royal Bank of Scotland and HBOS/Lloyds via capital injections.
- Paulson and Bernanke met on October 13 with the heads of the nine major US banks and persuaded them to accept capital injections from the TARP even if they did not want them, a tough-love version of the UK approach.[32]
- The FDIC agreed on October 14 to guarantee, within limits, new bank debt.

Financial markets rallied in the wake of these actions but only briefly.

Further Expansion of the Swap Network

After the G-7 meeting, the FOMC on October 13 agreed that the BoE, BoJ, ECB, and SNB could draw on their swap lines with the Fed without limit.[33] Moreover, as the North Atlantic financial crisis started to affect the world economy, the financial systems of major emerging market economies came under stress. Governors of central banks of several of these countries approached the Federal Reserve for assistance.

During the IMF/World Bank annual meetings in Washington on October 11–12, 2008, Guillermo Ortiz, governor of the Bank of Mexico, approached the Federal Reserve Board with a request. Mexico was being hit by a double shock. First, it was feeling the contractionary economic effects of the global financial crisis. Second, several large Mexican corporations had made sizable foreign exchange wagers against the dollar. These two factors posed intense risks to Mexico's financial system and economy. Governor Ortiz said that Mexico would use its international reserves to manage through the immediate shock, but he also argued that a dollar-liquidity swap line with the Federal Reserve would buttress confidence in Mexico's economy and provide space for the country to cope.[34]

On October 28–29, the FOMC took up requests from several central banks of emerging market countries to be included in the liquidity swap network. The Committee agreed to add Brazil, Mexico, South Korea, and Singapore to the network each with a cap of $30 billion.[35] The FOMC staff advanced several criteria for recommending the four countries. First, each had significant economic or financial status. Singapore was a global financial center, and the other three had GDPs of around $1 trillion. Second, these countries had pursued disciplined economic policies in recent years and were being adversely affected by global contagion. Third, there was good reason to believe that the swap lines would be helpful in defusing the pressures and risks that they faced.

One consideration was whether an FOMC action would be viewed in political terms. Although the Federal Reserve informed the US Treasury and State departments of its intentions, and Secretaries Paulson and Rice

32. Gordon Brown (2017, 312–13) argues that he persuaded the US authorities to adopt this approach, but Bernanke (2015, 337) reports that the use of the TARP funds to recapitalize US banks had been under discussion for some time.

33. The action with the BoJ was announced on October 14.

34. "Big Currency Bets Backfire: Huge Losses from Dollar's Gains Surface at Companies in the Developing World," *Wall Street Journal*, October 22, 2008.

35. On October 28 the Reserve Bank of New Zealand became the tenth institution from an advanced country in the liquidity swap network.

supported the proposal, the Fed's motivation was to support global financial stability. The swaps were not foreign aid, they were designed to meet short-term liquidity demands in support of the global financial system in countries whose policies were otherwise perceived to be sound.

Another consideration was whether the Fed would be stepping into the traditional area of activity of the IMF. In its proposal, the FOMC staff noted that "meeting the potential liquidity needs of these large countries would strain the available resources of the Fund." Thus, "taking off the IMF's hands some of the largest potential liquidity needs [allows the Fund] to focus on a whole range of additional countries."[36] The Federal Reserve saw its initiative as "broadly complementary" to those of the IMF. The staff further argued that "given the strength of their policies, [these countries] no longer view themselves as clients of the Fund and would prefer to go it alone rather than seek IMF support" (BOG 2008c, 10 and 37). In addition, when discussions with these central banks started, the IMF did not have a fast-disbursing liquidity instrument that would be appropriate for top-tier emerging market economies. However, the Fund moved rapidly to create such a facility. The Fed's press release announcing the emerging market swap lines welcomed the new IMF facility.[37]

The FOMC agreed that the bar for swap lines with additional emerging market central banks was high. In fact, the program was never expanded, notwithstanding inquiries from other potential central bank partners.[38] Only the line with South Korea was actively used; its drawings reached about $16 billion during the first quarter of 2009. Mexico made one precautionary drawing on its line, $3.2 billion in April 2009. Following the Federal Reserve announcement, the CDS spreads for three of the recipient countries narrowed by 200 to 300 basis points, but they remained elevated well into 2009 (figure 7).

Total borrowing under the swap lines peaked in mid-December 2008 at more than $580 billion. Of these drawings, the ECB accounted for more than $310 billion (exceeding the total foreign currency holdings of euro area central banks of about $200 billion), the BoJ for more than $125 billion, the BoE for $50 billion, and the SNB for $16 billion. Drawings under these lines fell sharply during the first half of 2009, and the lines were terminated on February 1, 2010. The program was soon reinstated, however, in May 2010 in response to the intensifying euro area debt crisis. The Fed reestablished liquidity swap lines with the ECB, BoE, SNB, BoJ, and BoC. These lines were made permanent in 2013, again without a limit on the size of potential total drawings.[39]

G-20 Leaders' Meeting in Washington

On October 18, 2008, President Bush and Secretary Paulson met at Camp David with French President Nicolas Sarkozy and European Commission president José Manuel Barroso. Sarkozy pressed Bush to host a leaders-level meeting of the G-8 countries plus a few other countries to develop an action plan to deal with the financial

36. At the time, the Federal Reserve's commitment of potentially $120 billion in short-term liquidity assistance to these four countries freed up the IMF's balance sheet to make loans to a broader set of members. At the outbreak of the crisis, the IMF had only $250 billion in usable resources to lend.

37. Federal Reserve, October 29, 2008, www.federalreserve.gov/newsevents/pressreleases/monetary20081029b.htm. In the end, the new IMF facility attracted no borrowers.

38. The FOMC on October 28–29 discussed an approach by Iceland that had been turned down and mentioned Chile, India, and South Africa as other potential applicants; the names of other countries that had approached the Federal Reserve were redacted from the transcript (BOG 2008c, 33, 17, 29, 30, and 32, respectively).

39. The drawing central bank must request activation of a swap line, however, and receive approval to do so.

crisis. He recommended holding such a meeting in New York City to signal that New York had been where the crisis started. He suggested that the meeting didn't need to include finance officials because they were the ones who had created the mess in the first place. The European narrative that the GFC was made in America and was largely a financial crisis persisted even though the view that only the United States would be affected had been abandoned. Sarkozy didn't know that Bush has already decided that a leaders' meeting should be held after the US presidential election (Paulson 2010, 375). US officials had determined that it was necessary to have a more systemic approach to the crisis, one that promised broader global political buy-in.

At the time, the only coordinated leaders' meeting that addressed international economic issues was the annual G-8 summit. Proposals to expand the G-8 format had been around for years. Adding China, Brazil, and India was agreed but views diverged on which other countries should be added. The United States decided it was preferable to elevate the G-20 to the leaders' level from the level of finance ministers and central bank governors, a proposal that had also been around since the G-20 was established at the ministerial level in 1999 (e.g., Bradford and Linn 2006). Use of the G-20 brought diversity in many dimensions—in geography, economic models, income levels, and religious backgrounds. At the leaders' level, the G-20 would also build on the existing structure of the finance ministers and central bank governors and their deputies.

Meanwhile, the global crisis intensified. Between early October and mid-November, the IMF staff's forecast for 2009 world growth, both year over year and Q4 over Q4, deteriorated by a remarkable 0.8 percentage point. Indicators signaled a further worsening of financial market tension between Columbus Day weekend and the Washington summit.

The G-20 Washington Declaration included a list of action items, some of which were already underway: (1) macroeconomic stimulus, (2) injections of liquidity and capital into financial institutions where appropriate, (3) a forward-looking agenda for financial regulatory reform,[40] and (4) ramped-up financing for and by the international financial institutions (IFIs).[41]

Representatives of the emerging market and developing countries in the G-20 pressed for including some of their priorities: (1) expanding the membership of the Financial Stability Forum, (2) pushing for governance reforms in the IFIs, and (3) resisting trade and investment protectionism.

The global slowdown was having a devastating effect on trade. The volume of world trade declined by almost 20 percent between April 2008 and January 2009 before starting a slow recovery (Eichengreen and O'Rourke 2010). Responding in part to sharp contractions in global supply chains, the initial collapse in trade dramatically outpaced the decline in the early stage of the Great Depression (Almunia et al. 2010). Shrinking global trade spread the recession from the advanced countries to the emerging market and developing economies.

With memories of the Great Depression revived, talk in the corridors at the regularly scheduled Asia-Pacific Economic Cooperation (APEC) meeting of finance ministers on November 5–6, 2008, in Trujillo, Peru, was

40. By the Washington G-20 summit, the FSF had produced a dozen documents that were the basis for the portion of the G-20 Declaration's Action Plan to Implement Principles for Reform.

41. These institutions are the IMF, for countries in need of balance of payments support, and the World Bank, and other multilateral development banks, for developing countries in need of other forms of financial support.

dominated by the risks of protectionism.[42] The APEC statement at the end of the meeting gave voice to those concerns, which were echoed on November 9 by the G-20 ministers and governors after their meeting in São Paulo, Brazil. Six days later, the G-20 leaders in Washington issued their pledge not to raise new barriers to investment or trade for one year (appendix A).[43]

G-20 Leaders' Meeting in London

In Washington, the G-20 leaders agreed to meet early in the new year to take stock of progress on the action items identified at the Washington meeting.[44] They met April 1–2, 2009, in London.[45]

Between the Washington and the London meetings, the outlook deteriorated further. Continuing financial market turmoil contributed to additional projected economic weakness. In early October 2008, the weakness in the global outlook for 2009 projected by the IMF staff had been largely confined to the advanced countries. By mid-March 2009 the EMDEs were projected to be affected as well.

The London summit focused primarily on four Washington action items:

- macroeconomic policies,
- enhancing the role of the international financial institutions,
- trade matters, and
- financial regulatory reform.

Macroeconomic Policies

In Washington, G-20 leaders cautiously "Recognize[d] the importance of monetary policy support, as deemed appropriate to domestic conditions, [and endorsed] use [of] fiscal measures to stimulate domestic demand to rapid effect, as appropriate, while maintaining a policy framework conducive to fiscal sustainability."

Soon after the Washington meeting, the major central banks moved aggressively to ease policies further (figure 5). The fed funds target was 0–0.25 percent by the end of 2008. And in early December the Fed began its first round of large-scale asset purchases, or quantitative easing (QE), by purchasing mortgage-backed securities. In March, it expanded the program and began to purchase longer-term treasury securities.[46] Other major central banks also substantially loosened their conventional policies in the interval between the G-20 summits, and, in the case of the BoJ, adopted unconventional policies.

Fiscal policy was another matter. On December 1, 2008, IMF managing director Dominique Strauss-Kahn advocated[47] a global fiscal stimulus of 2 percent of GDP, or an estimated $1.2 trillion of global 2008 GDP

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42. Twelve of the 21 members of APEC are not members of the G-20.

43. In London, the G-20 leaders reiterated and extended the pledge until the end of 2010.

44. The G-20 leaders met twice in 2009 (in London and Pittsburgh) and twice in 2010 (in Toronto and Seoul) before adopting a more normal annual schedule.

45. The G-20 finance ministers and central bank governors met in Horsham, England, on March 14 and their communiqué anticipated many of the decisions ratified in London.

46. This first round of Fed QE attracted little international attention or criticism, unlike the second round that started in November 2010.

47. See www.ft.com/video/ae85073f-aa70-357f-89a7-44120723f97c.

of $63.7 trillion.[48] US officials embraced this proposal, but discussions degenerated into technical and policy conflicts.

The technical conflicts concerned what should count as fiscal stimulus: automatic stabilizers, discretionary measures, or other factors affecting countries' overall fiscal balance. An associated issue was the appropriate multiplier or multipliers to apply to the various measures and, hence, the expected economic impacts.

At the policy level, the dominant European view was that no fiscal stimulus could be justified beyond allowing automatic stabilizers to operate, and then only if the country's sovereign debt was under control.

In the event, the G-20 leaders' statement boldly announced that "We are undertaking an unprecedented and concerted fiscal expansion,…that will by the end of next year [2010] amount to $5 trillion, raise output by 4 percent, and accelerate the transition to a green economy. We are committed to deliver the scale of sustained fiscal effort necessary to restore growth."[49] IMF staff (2009) subsequently estimated that the cumulative change in the combined, overall fiscal balance for the G-20 countries in 2009 would be only $2.7 trillion.

Enhancing the Role of the International Financial Institutions[50]

The stepped-up lending by the IMF in the fall of 2008 and winter of 2009 was straining the IMF's effective lending capacity of about $250 billion. The IMF had already started to seek bilateral commitments from members to lend temporarily to the Fund. However, the United States and some other countries did not favor lending to the Fund that would be only temporary and thought that the amount the IMF sought to raise would be inadequate. Another proposal was to increase IMF quota resources, but that could take months if not years to negotiate and to fully implement. Instead, Treasury secretary Geithner proposed instead an increase in the IMF's New Arrangements to Borrow (NAB) by up to $500 billion.[51]

The London G-20 meeting endorsed the NAB proposal. It also blessed the IMF management's ongoing effort to raise $250 billion in bilateral financing that would be incorporated in the expanded NAB. And it agreed to an acceleration of the completion of the 14th review of IMF quotas and associated governance reforms by January 2011, a commitment that was kept.[52]

The G-20 in London also agreed to an allocation of $250 billion in special drawing rights (SDR). This proposal was more controversial than the increase in the NAB, but eventually it was endorsed (see box 2). The

48. This calculation is based on the IMF's *World Economic Outlook* Database, April 2018.

49. G-20 Leaders' Statement in London, April 2, 2009, available at G20 Information Centre, www.g20.utoronto.ca/.

50. The IFIs in this context are the International Monetary Fund, the World Bank Group, and the other regional development banks (RDBs), collectively the MDBs.

51. The NAB was proposed in the mid-1990s after the Mexican financial crisis. It recognized that the IMF could periodically need to supplement its quota resources for lending during periods of stress. It took some time to reach agreement, and it did not become effective until November 1998, after the Asian financial crises. NAB resources were about $50 billion in 2008.

52. The 13th review of IMF quotas was completed in January 2008 without increasing quota resources. The membership, including the United States, agreed that the IMF had adequate resources at the time—a flawed judgment. However, in April 2008, the IMF members agreed to a set of ad hoc increases in IMF quotas that, once ratified, increased total quotas by 9.5 percent. The 14th review of quotas and reform of IMF governance were completed by January 2011 as promised in London, but the United States did not until December 2015 take the necessary steps so that the agreement could be implemented.

Box 2

The SDR Proposal

In 2009, the special drawing right (SDR) was an almost forgotten instrument in the IMF's toolkit. In late 2008, I proposed a special one-time allocation of SDR50 billion (about $75 billion) for the G-20 agenda in London (Truman 2008). At several meetings in London in early 2009, the proposal was supported by representatives of other think tanks who also urged a larger allocation.

On March 5, 2009, the *Financial Times* published my op-ed proposing a $250 billion allocation of SDR.[1] I argued that an SDR allocation would provide a boost to confidence, would signal concrete international cooperation, and could be implemented quickly. The allocation would provide $17 billion in potential low-cost aid to the poorest countries and a further $80 billion to other emerging market and developing countries, and hopefully blunt any subsequent demands to build up even larger holdings of international reserves. Developed countries, short on their own reserves, could lend their SDR to other countries. But US support of the proposal was crucial.[2]

Opponents of the proposal in the US government, in other advanced countries, and at the IMF argued that an SDR allocation would provide countries with unconditional financing (contributing to moral hazard), would not go to the right countries because allocations are based on quota shares and the large countries have the largest shares, would not respond to a long-term global need to add to international reserves (the official criterion for allocations), and would risk exacerbating inflation.

The British authorities initially were noncommittal but were attracted by the proposal's novelty and size. They were also intrigued by the idea that they could use part of their allocation to lend to other countries, for example to EU partners in Eastern Europe. Once Geithner signaled US support for the proposal, UK Prime Minister Gordon Brown and the British team became proactive. Brown himself lobbied other leaders among the Europeans to favor the idea. Consequently, when the London statement was drafted during the night of April 1, the other European sherpas and finance deputies said that they personally did not favor the idea but were under orders from their leaders to support it. The allocation became effective on August 28, 2009, earlier than most other proposals at the London summit.

1. See https://piie.com/commentary/op-eds/how-fund-can-help-save-world-economy. The *Financial Times* later endorsed the idea.

2. An SDR allocation requires an 85 percent weighted majority vote of IMF members; the United States held 16 percent of the votes. The United States could, without congressional authorization, support an SDR allocation in which the US allocation was no larger than the US quota in the IMF. This provision dictated the size of the proposed $250 billion allocation.

SDR allocation increased the size of the package of potential new international financial resources to $750 billion.

In March, before the G-20 meeting in London, the IMF established a new lending instrument, the Flexible Credit Line (FCL). It provides large, upfront financing to members that have very strong fundamentals and institutional policy frameworks, sustained track records of implementing very strong policies, and a commitment to maintain such policies (IMF 2019). Mexico established an FCL immediately and Colombia and Poland followed, but no country has yet drawn on its line.

A fourth element of the package to support the IFIs focused on the multilateral development banks (MDBs). The World Bank and regional development banks faced demands that they stretch their balance sheets to provide financing to emerging markets and lower-income developing countries in need. Their new nonconcessional lending, which had averaged $35 billion annually from 2005 to 2007, increased by 22 percent in 2008, to $43 billion. In London the G-20 leaders endorsed a further expansion, of $100 billion, in MDB lending over the next two years. Subsequently, nonconcessional MDB lending increased from 2009 to 2011 by a combined $126 billion relative to the 2005–07 average.[53] The commitment of $100 billion in additional support from the MDBs raised the size of the London package of international financing to $850 billion.

Understandably, the heads of the MDBs saw an opportunity to press for commitments to augment the capital of their institutions. In London the G-20 leaders supported a 200 percent capital increase for the Asian Development Bank, which had been under discussion for some time. They also endorsed accelerated consideration of capital increases for other MDBs.

Trade Matters

The London summit addressed two trade topics. First, the leaders renewed the Washington trade pledge. Second, they addressed more directly the collapse in world trade. In early 2009, global trade was shrinking more than what was expected on the basis of the decline in economic activity (Ahn, Amiti, and Weinstein 2011). The common interpretation was that trade finance had dried up.

In advance of the London summit, a Trade Finance Experts Group met to mobilize the international financial institutions and national export credit agencies to revive trade finance. The result was a G-20 commitment to ensure that at least $250 billion to support trade over the next two years would be available through various official mechanisms and international institutions. Leaders also called for regulatory relief on the treatment of trade finance. The framework principally involved an agreement that export credit agencies should reverse their current policies against support for short-term trade credit and use direct financing rather than guarantees because banks were husbanding their liquidity and consequently were not attracted by traditional trade guarantees.

The $250 billion commitment involved some multiple counting since it assumed that trade finance would turn over every 90 days for the next two years. Nonetheless, the promise that $250 billion in trade finance would be available, along with the pledge to continue to resist protectionism, sent a strong message.

The $250 billion commitment in addition to the increase in the NAB ($500 billion), the SDR allocation ($250 billion), and the increase in MDB lending ($100 billion) produced the headline-grabbing figure of $1.1 trillion in new international financing committed at the London summit (see appendix A).

Financial Reform

Intense discussions on international financial regulatory reform were well underway by the time the Obama administration came into office. By then, the global financial crisis had turned into a global recession. As noted, many G-20 countries and some advisors in the US government thought the principal focus in London should be on financial system reform rather than support for the global economy.

53. These data were provided by Rebecca M. Nelson of the Congressional Research Service. See also Nelson (2018).

President Obama decided that the US position should be that financial reform should receive as much emphasis as macroeconomic stimulus in London. To demonstrate the US commitment to this position, Geithner outlined the administration's framework for comprehensive US regulatory reform on March 26, a week before the London summit.[54]

As negotiations for a new set of global standards continued, one issue for London was how many new countries should be added to the FSF.[55] Although not all G-20 countries had equal claim to membership in the expanded FSF, it was simpler to include all 20 and to add Spain and the European Commission as full members, than to tie up the London meeting in controversy. The FSF also was reconstituted as the Financial Stability Board (FSB), with a broadened mandate and Mario Draghi continuing as chairman.

In every complex international negotiation, seemingly extraneous topics are introduced. At the London G-20 meeting, these included actions to expose tax havens and to limit tax evasion. The issue nearly derailed the London agreement because China saw the French insistence on including this topic as direct criticism of Macau's role as an offshore financial center. Compromise language was worked out.[56]

Aftermath

The G-20 meeting in London was a rare well-advertised international event when results exceeded expectations. It did not usher in Gordon Brown's "new world order…with the foundation of a new progressive era of international co-operation," but it marked the end of the containment phase of the GFC. The basic message was that the participating countries would do whatever it took to end the crisis.

Following the London gathering, financial and economic conditions began to stabilize across both the advanced industrial and the developing world.

The VIX continued gradually to quiet down (figure 1).

Equity prices for advanced and emerging market economies bottomed out in early March 2009 (figure 2).

CDS spreads on the sovereign debt of the three countries that had been included in the Fed's swap network also improved, especially for Mexico, which was aided by applying and qualifying for an FCL from the Fund (figure 7).

In early February, Geithner had announced the Obama administration's plan to stabilize the financial system, including subjecting major US bank holding companies to stress tests—the supervisory capital assessment program (SCAP). When the results were announced on May 7, they provided reassurance that the US banking system was not on the verge of imploding. As a consequence of the general easing of financial strains and the US stress test, CDS spreads for major banks eased, although they remained elevated (figure 3).

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54. See Treasury press release, "Treasury Outlines Framework for Regulatory Reform: Provides New Rules of the Road, Focuses First on Containing Systemic Risk" (March 26, 2009; available at www.treasury.gov/press-center/press-releases/pages/tg72.aspx).

55. The FSF already included financial supervisors from some non-G-7 financial centers, such as Hong Kong, the Netherlands, Singapore, and Switzerland.

56. The G-20 also agreed to bolster the IMF's capacity to assist low-income members through debt reduction and the use of larger-than-anticipated profits from projected IMF gold sales to help fund the IMF's Poverty Reduction and Growth Trust and to subsidize the interest rate on its loans down to zero.

Forecasts for overall global economic performance in 2009 began to turn up within a few months of the London summit. In July, the IMF's forecast for the four quarters of 2009 signaled an improvement in its outlook.

US real GDP per capita declined 5.3 percent over six quarters through the second quarter of 2009 and recovered to its previous peak in less than six years. Carmen Reinhart and Kenneth Rogoff (2014) find that the US economy fared far better than advanced economies had on average in previous systemic banking crises from 1857 to 2013. Those crises were associated with an average peak-to-trough decline in real output per capita of 9.6 percent and a duration of 2.9 years. But in the GFC, the extent and speed of economic improvement was uneven among other crisis-affected countries, reflecting the scale of the damage to prospects and differences in policies adopted. In addition, European countries by early 2010 faced a new round of crises in the euro area following on those in Iceland and Eastern Europe when the GFC began.

EVALUATION

International coordination of economic policies was crucial to the containment of the GFC. Uncoordinated policy actions by individual countries might in time have limited the effects of the crisis on each economy and financial system. However, with an uncoordinated application of national policies, the global economy and financial system would have healed even more slowly.

The liquidity swaps limited somewhat the spread of the crisis and reduced the number of financial institutions whose problems metastasized from liquidity to solvency. The parallel application of monetary and fiscal policy actions in phase three produced reinforcing positive effects on all countries. The support of the international financial institutions via increases in their resources and the use of tools such as new facilities and an SDR allocation helped to restore confidence and to limit the spread of the crisis. The trade pledge and increased access to trade financing facilitated the recovery of world trade.

Notwithstanding the eventual success of international economic policy coordination, economic and financial authorities and international institutions failed for some time to diagnose the causes of the crisis or its potential depth.[57]

The first step toward effective international economic policy coordination is recognition of a common problem and development of a shared diagnosis. The latter is essential to agreement on what should be done.

The initial diagnosis of what became the GFC was that it was a financial crisis whose effects would be limited to the United States—it was a problem for the US authorities alone. The subsequent diagnosis recognized that the financial crisis was global, or at least North Atlantic, in scope. But the possibility of a financial crisis in the North Atlantic countries becoming a global economic crisis was not recognized until the Great Recession was well underway.

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57. To be fair, there is little agreement even today on the causes of the GFC. For example, Robert Samuelson in an April 16, 2019, column in the *Washington Post* bemoaned that fact while concluding that regulatory failures and "greedy capitalists…played a role, but the larger role was played by the convergence of many forces that we understand only in retrospect and can control only with difficulty." The causes of the crisis, he implied, were all of the above. See www.washingtonpost.com/opinions/what-really-caused-the-financial-crisis/2019/04/14/c7b4372c-5d41-11e9-a00e-050dc7b82693_story.html?utm_term=.4e04cc47276d.

In phase one, the impending crisis could have been deduced from a string of negative financial events. However, it was probably too late to do anything other than assemble the fire equipment in the form of augmenting the global financial safety net, which was not done.

In phase two, no shared narrative connected events. Officials agreed only that some financial institutions faced dollar liquidity problems and that there was a collective imperative to examine the flaws in the financial system and its regulation. Economic policymakers initially responded idiosyncratically to problems in their own financial systems. Most chose not to apply macroeconomic tools to limit the impact on their economies. The United States with its 2008 fiscal package and the Federal Reserve's reductions in its fed funds target were limited, but arguably too cautious, exceptions.

Many central banks felt constrained by inflation concerns that proved to be misplaced given the depth of the economic recession. Prior to the GFC, a widely discussed topic was whether monetary policy should be used to blunt financial booms, a question on which there remains no consensus. The use of monetary policy to address a financial bust was another area of nonconsensus.

In retrospect, the use of monetary policy in the fall of 2007 to take out insurance against substantial negative effects of the growing financial turmoil on the real economy was a no-brainer, but many central bankers hesitated out of concerns about inflation and moral hazard. The counterfactual of an aggressive use of monetary policy, to say nothing of fiscal policy, at that time has not been rigorously examined. But considering how the crisis evolved, it is difficult to believe that the costs of a vigorous policy response would have exceeded the benefits. The hypothetical benefits of delay and abstention from proactive policies in order to inflict pain and losses on economic actors to teach them a lesson were small. Allowing the crisis flames to burn imposed costs not only on the countries and their citizens who were directly affected but also on other countries that were drawn into the conflagration. Moreover, if the extreme measures adopted in the fall of 2008 and winter of 2009 could have been avoided by more limited actions earlier, the negative, ex post public opinion of the ultimate policy responses might have been minimized.

Only in phase three did policymakers agree that they faced challenges that required a concerted collective response. Analysts will debate for decades which of the policy elements adopted from October 2008 through the spring of 2009 were most responsible for turning the tide, but the tide did turn.

My view is that scale mattered in terms of the number of policy tools employed and their size. The liquidity swaps were important in defusing financial disruptions, but the Federal Reserve should have expanded the network more rapidly and uncapped the major lines earlier. The policy package approved at the G-20 meeting in London included new elements, such as blessing unconventional monetary policies, expanding the NAB, and approving a special issue of SDR. The $1.1 trillion package of new international financing was designed to impress and did.

A descent into trade protectionism was largely contained. Protection measures were adopted, as they are in every economic downturn but far fewer than predicted by historical experience. Scholars such as Bown and Crowley (2013) attribute this record to the G-20's anti-protectionism pledge as well as close monitoring by the World Trade Organization, the World Bank, and research organizations like Global Trade Alert.

The global financial crisis spawned new initiatives and institutions. The NAB was expanded as a second-line-of-defense tool of the IMF. The FCL was not only created but used. The SDR was employed as a crisis management tool without feared ill effects. The FSB was established and expanded.

Supervisors got a jump on reforming the architecture of supervision and regulation of financial markets and institutions, including reform of derivative markets and improvements in the resolution of large, failing, internationally active financial institutions. Not only was Basel III agreed on an impressively short timetable, but the monitoring of adherence to the improved international standard was enhanced via the Regulatory Consistency Assessment Program.

The IMF made the Financial Sector Assessment Programs (FSAP) mandatory for the 25 countries that are host to major financial centers at least every five years.

The G-20 was established as a consultative group at the leaders' level after many years of debate. Critics argue that the G-20 is too large and unwieldy to be effective. I respectfully disagree. The G-20 is a forum in which leaders and their colleagues from a diverse set of systemically important countries get to know each other better. It can provide impetus to joint action such as the Basel III reforms of the supervision of the global banks. It can act in a crisis when action is clearly needed.

Within the G-20, representatives of a few major countries will continue to play a dominant role in setting agendas and teeing up initiatives. That has been the case for decades in groups such as the G-5 and the G-7. The United States, in particular, frequently put forward initiatives after consulting closely with either Germany or Japan. Leadership in the G-20 will evolve, and it is likely to involve the United States, China, and the euro area if the last group can achieve more economic, financial, and political cohesion.

China's role in the GFC was very supportive in the area of macroeconomic stimulus. However, on March 23, 2009, about ten days before the London Summit, the People's Bank of China released an essay by Governor Zhou Xiaochuan (2009) on reform of the international monetary system. The essay was originally a coda to a speech on global imbalances, but it was widely interpreted as an attack on the international role of the dollar in the context of the GFC. At the time, nothing came of China's trial balloon, but Governor Zhou's initiative signaled both China's discomfort with US leadership and the international role of the US dollar and the prospect of future US-China disagreements.

The establishment of the G-20 at the leaders' level also has the potential to diminish the role of the IMF in managing financial crises. That may prove to be another of many prices of the success in containing the GFC.

A third potential price is that in the future it may be more difficult to muster quickly financial resources for the IMF or MDBs to deploy.

In a political response to some of the extraordinary US actions during the crisis, some of the tools used were repealed by the Dodd-Frank legislation, an outcome that many observers and former officials, including Bernanke, Geithner, and Paulson (2019), regret. To my surprise, the three generals, while regretting these backward steps, draw no firefighting lessons on international economic policy coordination or on the importance of keeping the IFI firehouses well equipped with funds and tools.[58]

58. The three US financial generals (pages 120–21) cite the Dodd-Frank legislation's elimination of the FDIC's broad guarantee authority and elimination and constraint of the Federal Reserve's authority under section 13(3) of

In other countries, the political backlash has taken many forms but generally has imposed new formal and informal barriers to firefighting and policy activism. Public opinion in many advanced continues has lost faith in the capacity of political leaders to protect those less fortunate and decries the lack of old testament judgment on those in the financial sector who are perceived as having perpetrated the crisis and benefitted from its resolution while innocent bystanders were severely impacted.

Experts will debate for years whether the withdrawal of fiscal stimulus starting in 2010 was premature and whether central banks were too eager to exit from unconventional monetary policies only to have to readopt them, thereby undermining their effectiveness. For some, the advocacy at the G-20 London meeting of an early exit (as documented in appendix A) was a failure of international economic policy coordination.

Did the GFC produce the high point of international economic policy coordination in the post–World War II era? Writing a year after the London summit in 2009, Colin Bradford and Johannes Linn (2010) predicted that "in coming years, the London G-20 Summit will be seen as the most successful summit in history, eclipsing the G-8."

My answer, a decade later, is that London was a high point. The process that culminated in the G-20 meeting in London ranks with the G-7 leaders' meeting in Bonn in 1978 for the scope and impact of its decisions. The Bonn 1978 summit remains controversial. Similarly, economists and historians will long debate the causes of the GFC and, consequently, the merits of many of the measures employed to contain it.

However, success in the international coordination of economic policies entailed potential costs. The delay in diagnosing the most consequential global economic and financial disaster so far in the 21st century and in recognizing the necessity for a coordinated policy response to contain the crisis, coupled with the political dissatisfaction with the policies that were eventually implemented, does not bode well for more effective coordinated action in the future.

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the Federal Reserve Act, among tools that were used to fight the 2007–09 financial fires and are now unavailable. They also lament new disclosure requirements associated with the use of the Federal Reserve's discount window. They do applaud the strengthened financial supervisory and regulatory system nationally and globally (fire protection), but they note that fire protection is not the same as fire prevention.

APPENDIX A
EXCERPTS FROM SELECTED JOINT INTERNATIONAL STATEMENTS AND COMMUNIQUÉS[59]

G7 Finance Ministers and Central Bank Governors Plan of Action
Washington, October 10, 2008

The G7 agrees today that the current situation calls for urgent and exceptional action. We commit to continue working together to stabilize financial markets and restore the flow of credit, to support global economic growth. We agree to:

1. Take decisive action and use all available tools to support systemically important financial institutions and prevent their failure.
2. Take all necessary steps to unfreeze credit and money markets and ensure that banks and other financial institutions have broad access to liquidity and funding.
3. Ensure that our banks and other major financial intermediaries, as needed, can raise capital from public as well as private sources, in sufficient amounts to re-establish confidence and permit them to continue lending to households and businesses.
4. Ensure that our respective national deposit insurance and guarantee programs are robust and consistent so that our retail depositors will continue to have confidence in the safety of their deposits.
5. Take action, where appropriate, to restart the secondary markets for mortgages and other securitized assets. Accurate valuation and transparent disclosure of assets and consistent implementation of high quality accounting standards are necessary.

The actions should be taken in ways that protect taxpayers and avoid potentially damaging effects on other countries. We will use macroeconomic policy tools as necessary and appropriate. We strongly support the IMF's critical role in assisting countries affected by this turmoil. We will accelerate full implementation of the Financial Stability Forum recommendations and we are committed to the pressing need for reform of the financial system. We will strengthen further our cooperation and work with others to accomplish this plan.

Declaration of the [G-20] Summit on Financial Markets and the World Economy
Washington, November 15, 2008

3. During a period of strong global growth, growing capital flows, and prolonged stability earlier this decade, market participants sought higher yields without an adequate appreciation of the risks and failed to exercise proper due diligence. At the same time, weak underwriting standards, unsound risk management practices, increasingly complex and opaque financial products, and consequent excessive leverage combined to create vulnerabilities in the system. Policy-makers, regulators and supervisors, in some advanced countries, did

59. *Sources:* G7 Information Centre (http://www.g7.utoronto.ca/finance/index.htm and G20) and G20 Information Centre (http://www.g20.utoronto.ca/).

not adequately appreciate and address the risks building up in financial markets, keep pace with financial innovation, or take into account the systemic ramifications of domestic regulatory actions.

4. Major underlying factors to the current situation were, among others, inconsistent and insufficiently coordinated macroeconomic policies, inadequate structural reforms, which led to unsustainable global macroeconomic outcomes. These developments, together, contributed to excesses and ultimately resulted in severe market disruption.

13. We underscore the critical importance of rejecting protectionism and not turning inward in times of financial uncertainty. In this regard, within the next 12 months, we will refrain from raising new barriers to investment or to trade in goods and services, imposing new export restrictions, or implementing World Trade Organization (WTO) inconsistent measures to stimulate exports.

G-20 Leaders' Statement
London, April 2, 2009

5. The agreements we have reached today, to treble resources available to the IMF to $750 billion, to support a new SDR allocation of $250 billion, to support at least $100 billion of additional lending by the MDBs, to ensure $250 billion of support for trade finance, and to use the additional resources from agreed IMF gold sales for concessional finance for the poorest countries, constitute an additional $1.1 trillion programme of support to restore credit, growth and jobs in the world economy. Together with the measures we have each taken nationally, this constitutes a global plan for recovery on an unprecedented scale.

11. We are resolved to ensure long-term fiscal sustainability and price stability and will put in place credible exit strategies from the measures that need to be taken now to support the financial sector and restore global demand. We are convinced that by implementing our agreed policies we will limit the longer-term costs to our economies, thereby reducing the scale of the fiscal consolidation necessary over the longer term.

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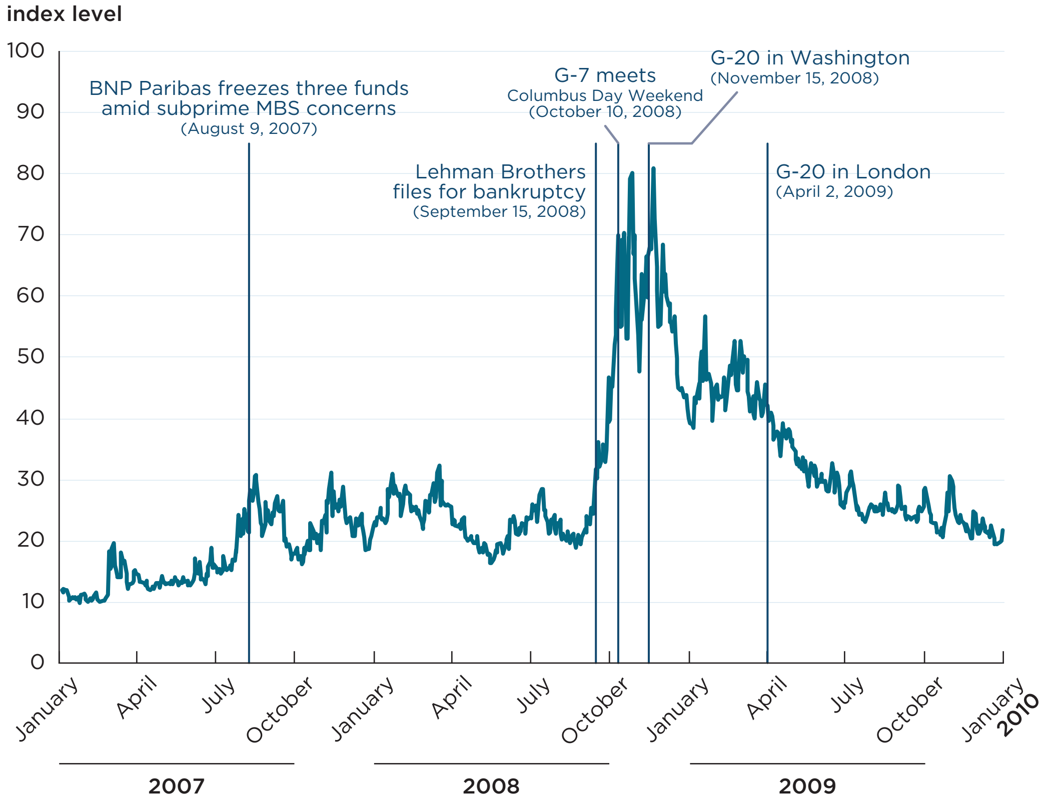
Zhou, Xiaochuan. 2009. *Reform of the International Monetary System* (March 23). Available at www.bis.org/review/r090402c.pdf (accessed on June 27, 2019).

Figure 1

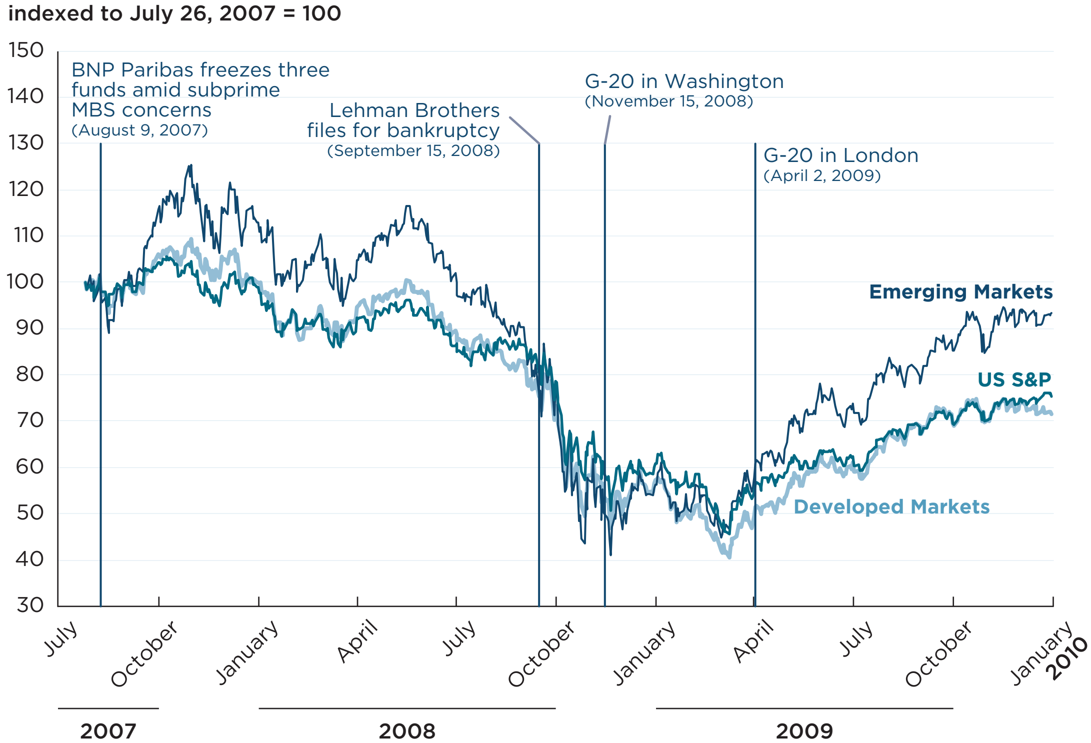
Chicago Board Options Exchange volatility index (VIX), 2007–10



MBS = mortgage-backed security

Source: Chicago Board Options Exchange, CBOE Volatility Index (VIXCLS), retrieved from FRED, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org/series/VIXCLS.

Figure 2
Equity indexes, July 2007–January 2010

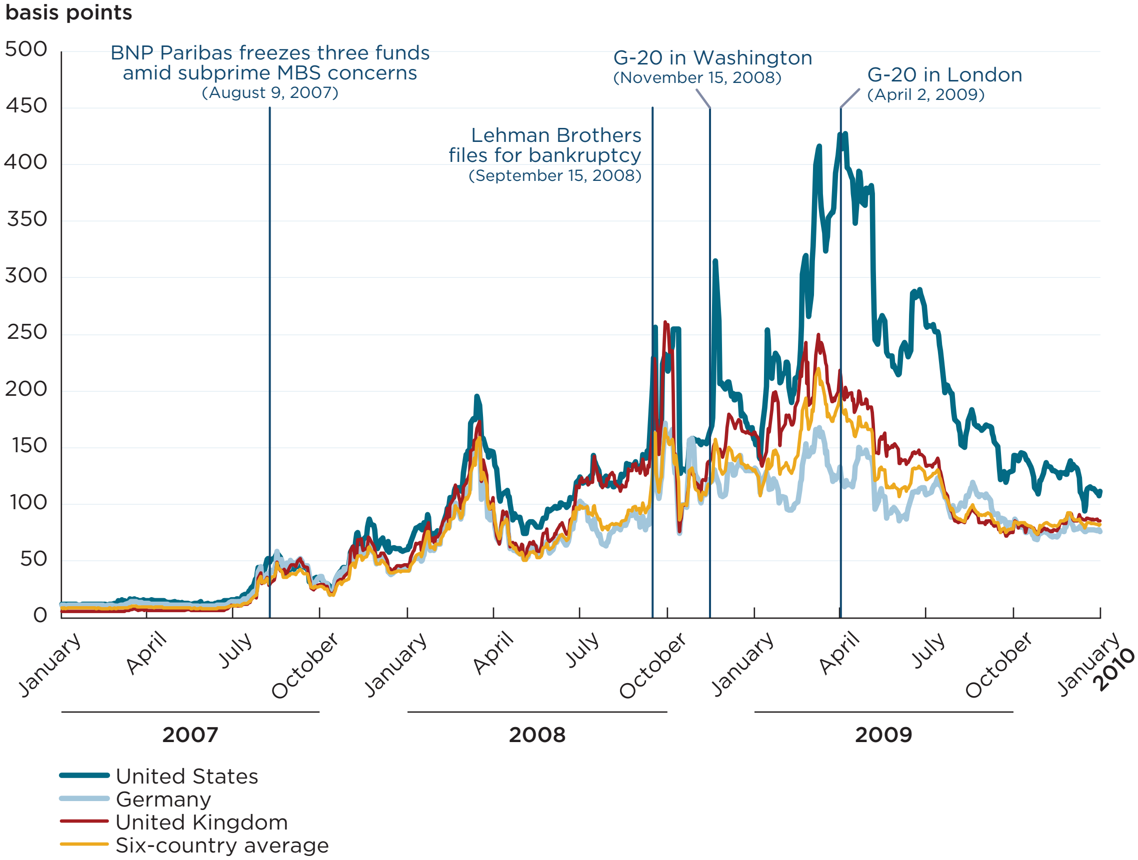


MBS = mortgage-backed security

Note: Emerging markets: iShares MSCI Emerging Markets ETF; Developed markets: Vanguard FTSE Developed Markets ETF (US); United States: S&P 500. Some of the data are not available before July 26, 2007.

Source: Bloomberg.

Figure 3
Five-year credit default swap spreads for major banks by country, January 2007–January 2010

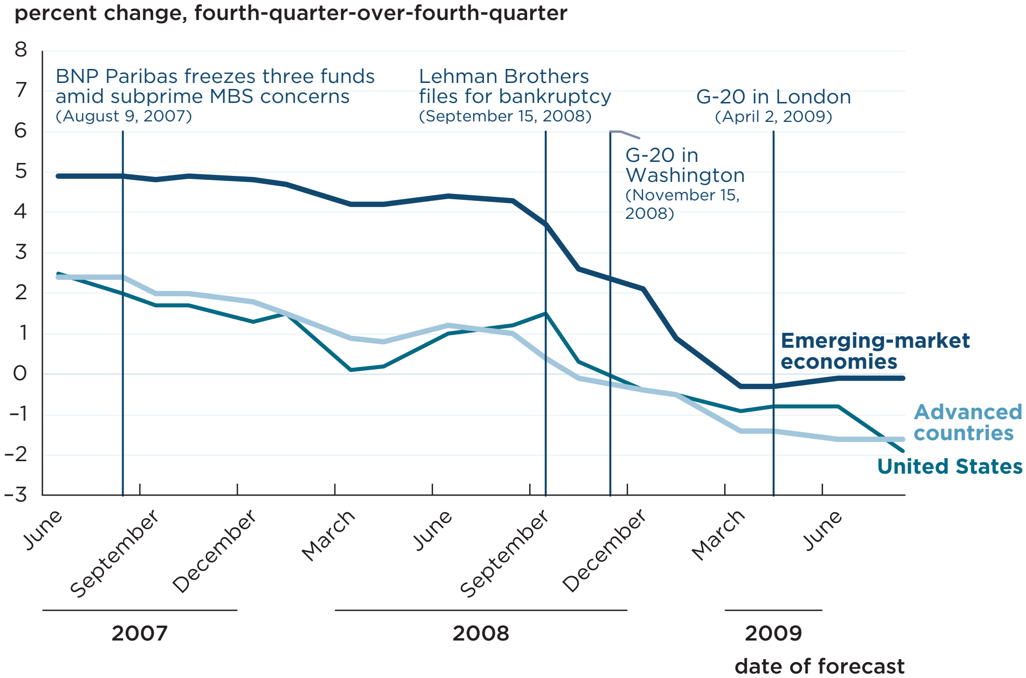


MBS = mortgage-backed security

Notes: United States: JPMorgan Chase and Citigroup; Germany: Deutsche Bank; United Kingdom: Barclays Bank; six-country average: equal-weighted average of selected US, German, and UK banks, in addition to selected banks from Japan (Sumitomo Mitsui Banking Corp. and MUFG Bank), Italy (Intesa SanPaolo and Unicredit), and France (BNP Paribas and Société Générale). Credit default swap spreads are shown in basis points but are priced in local currencies.

Source: Bloomberg, IHS Markit.

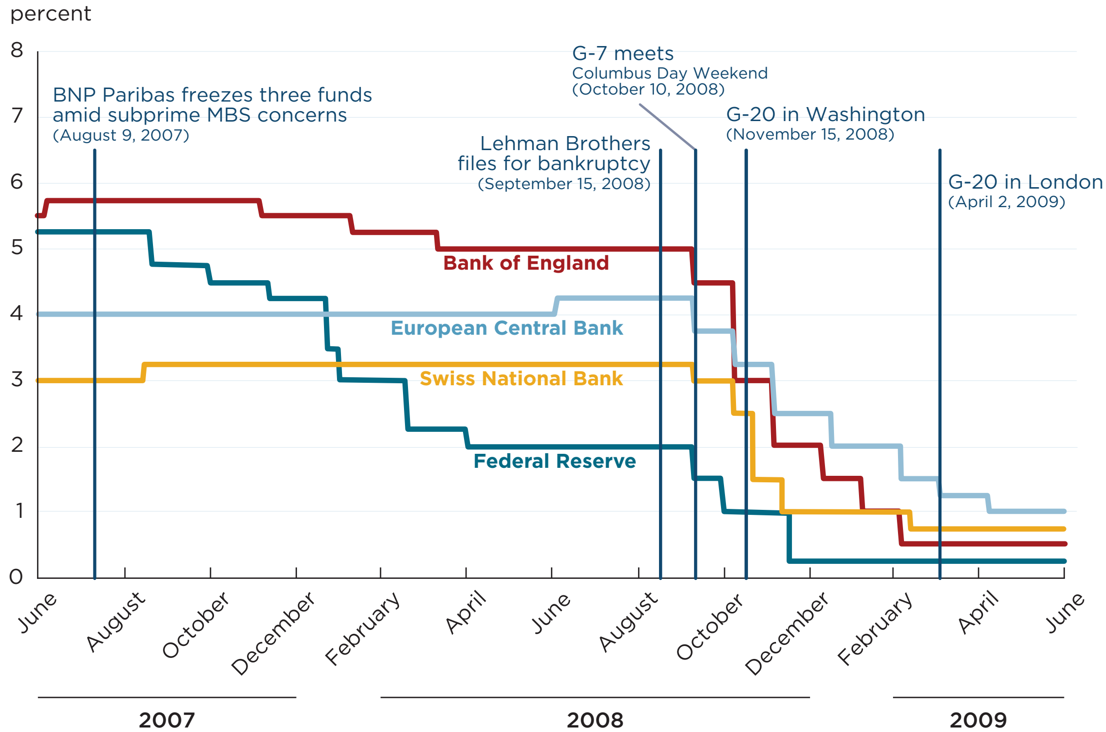
Figure 4
Federal Open Market Committee staff forecasts of growth of 2009 real GDP, June 2007–June 2009



MBS = mortgage-backed security

Source: Board of Governors of the Federal Reserve System, *Current Economic and Financial Conditions: Part I Summary and Outlook* ("Greenbook") (issues for dates of the forecasts).

Figure 5
Policy interest rates of major central banks, June 2007–June 2009



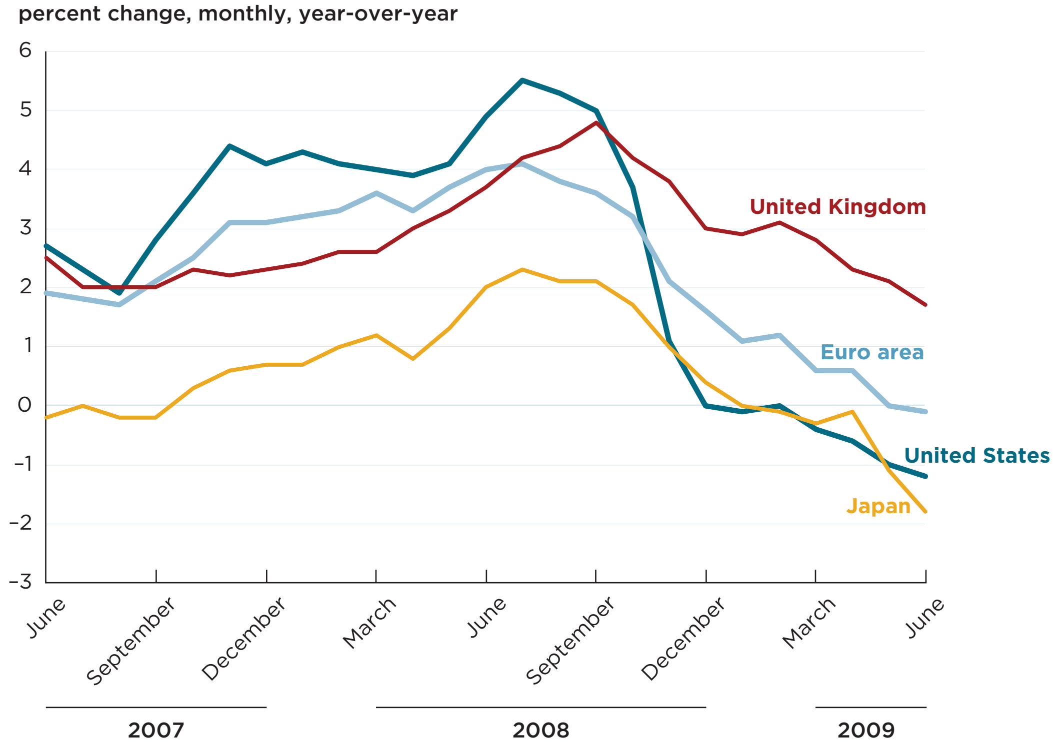
MBS = mortgage-backed security

Note: Federal Reserve: Federal Funds Target Rate–Upper Bound; European Central Bank: Main Refinancing Operations Announcement Rate; Bank of England: Official Bank Rate; Swiss National Bank: Maximum Libor Target Range.

Source: Bloomberg.

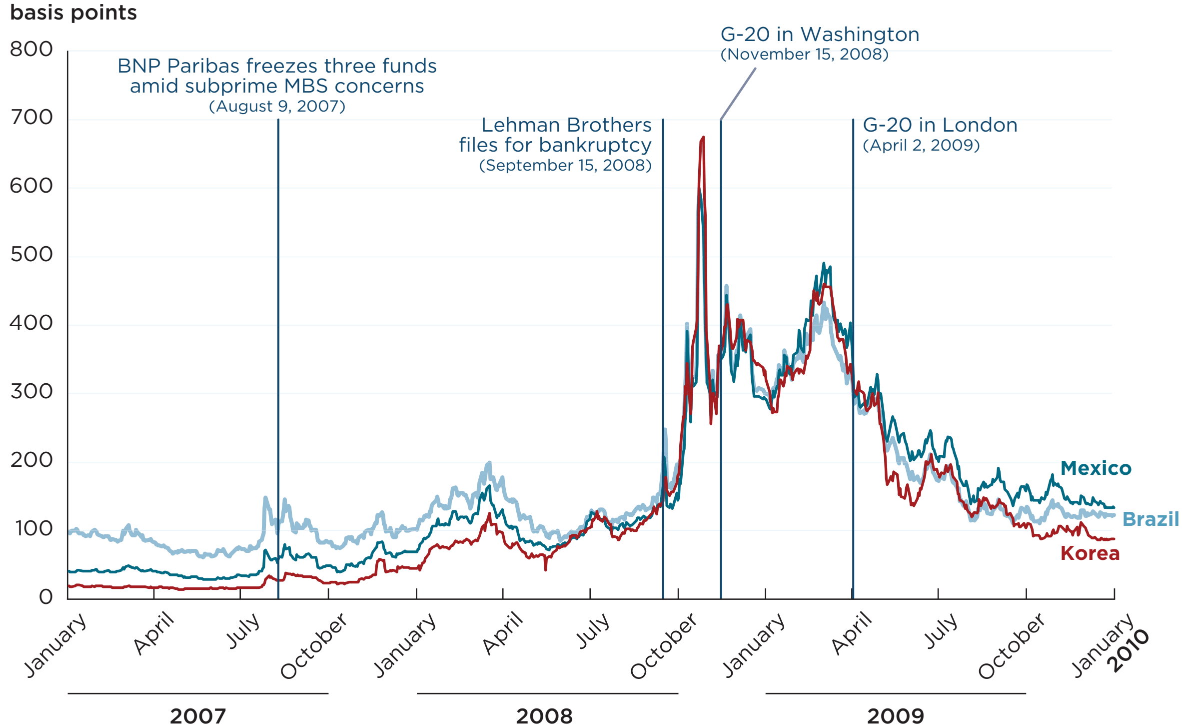
Figure 6

Consumer price inflation in major economies, June 2007–June 2009



Source: Relevant national statistical agencies.

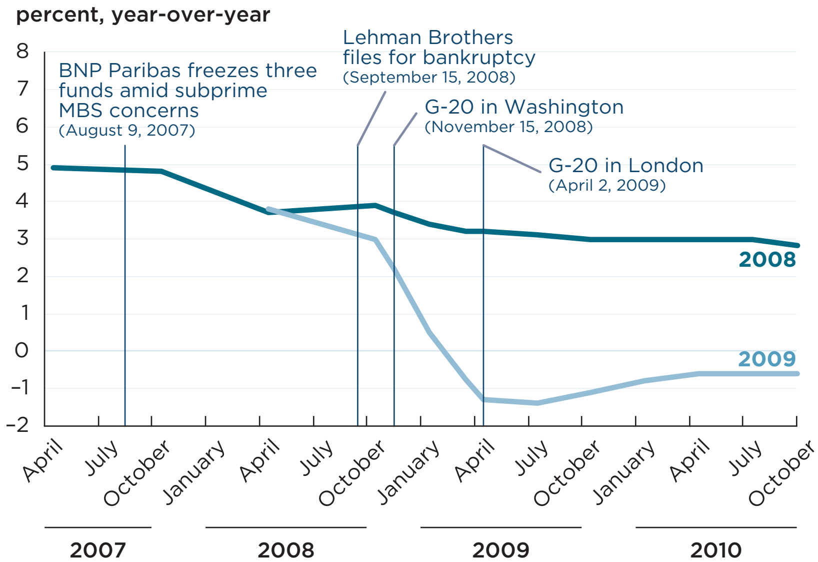
Figure 7
Five-year sovereign credit default swap spreads for selected emerging-market countries, January 2007–January 2010



MBS = mortgage-backed security
Sources: Bloomberg; IHS Markit.

Figure 8

IMF forecasts of growth of world real GDP in 2008 and 2009, April 2007–October 2010



MBS = mortgage-backed security

Note: March 2009 figures are the midpoint of ranges of projections in "Global Economic Policies and Prospects," IMF paper prepared for G-20 ministers and governors meeting in March 2009.

Source: IMF, *World Economic Outlook* and *Updates*.