

A Decade after the 2009 Global Recession
Macroeconomic and Financial Sector Policies

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Abstract

Unprecedented monetary policy accommodation in advanced economies and a large, coordinated fiscal stimulus by G20 countries helped to support a solid rebound in global output right after the 2009 Global Recession. However, global growth subsequently slowed to a sluggish pace by pre-recession standards, and many emerging market and developing economies (EMDEs) have been struggling to unwind their fiscal stimulus and contain a buildup of debt. The experience of the global recession in 2009 highlights

the need for well-timed, appropriately calibrated domestic stabilization policies, but also the benefits of international cooperation and coordination in support of strong and sustained global growth and financial system stability. Sound policy frameworks can help create room for stabilization policies, such as fiscal rules to safeguard fiscal sustainability or macroprudential policies and capital flow management measures to better manage systemic risks.

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1. Introduction

The global economy is currently in the midst of the deepest recession since the Second World War (World Bank 2020). This is an opportune time to look back at the previous global recession, in 2009, and draw lessons from the experience. After the deep 2009 recession, global growth rebounded within a year, reflecting in part the use of macroeconomic stabilization policies in many advanced economies, as well as in emerging market and developing economies (EMDEs). In 2009, for the first time during a major global crisis, EMDEs actively employed a wide range of countercyclical monetary and fiscal policies to stem contagion and boost post-crisis recovery. Many EMDEs lowered policy interest rates, intervened heavily in foreign exchange markets to maintain exchange rate stability, and implemented fiscal stimulus packages.

Robust growth prior to the 2009 global recession had allowed EMDEs to improve their fiscal and external positions, and to strengthen their macroeconomic policy frameworks. Policy space had widened in several dimensions. Lower inflation created room for expansionary monetary policies. Fiscal balances had improved, from a deficit of 0.8 percent of GDP in 2002, on average, to a surplus of 2.4 percent in 2007. EMDEs had strengthened external buffers, too, as their foreign exchange reserves had increased substantially—70 percent of EMDEs increased their international reserves by more than 10 percentage points of external debt, while one-quarter of EMDEs increased them by more than 50 percentage points.¹

However, since the 2009 global recession, EMDEs have mostly depleted their policy buffers. This is partly due to sluggish global growth and low commodity prices. Even before the outbreak of COVID-19, EMDEs, as a group, had not yet fully unwound their fiscal and monetary stimulus, and they were facing elevated fiscal and current account deficits, and growing debt. As a consequence, many EMDEs are now less resilient to the adverse shock from the pandemic than they were in 2007.

The 2009 global recession highlighted several shortcomings in the financial sector policies of EMDEs. For example, pre-crisis financial regulation and supervision tended to focus on microprudential policies, aimed at the stability of individual financial institutions, rather than on the stability of the financial system as a whole. Furthermore, the risk-weighted capital requirements of Basel II have tended to be procyclical, since requirements decline as risk ratings of bank loans improve, whereas requirements tend to rise during a contraction (Admati and Hellwig 2014; Gordy and Howells 2006).

Since the global recession in 2009, financial sector policies have undergone a major transformation. They now aim more explicitly at mitigating system-wide risks in order to safeguard financial stability. Prudential supervision shifted towards a more macroprudential focus, targeting the stability of the financial system as a whole. Restrictions on capital flows,

¹ Some suggested that global current account imbalances are a key factor contributing to the financial crisis (e.g., Bernanke 2009; Portes 2009). They argued that excessive saving in EMDEs, reflected in current-account surpluses (termed as “global saving glut”), put downward pressure on world interest rates and fueled a credit boom and risk-taking in major advanced economies, particularly in the United States, sowing the seeds of the global financial crisis.

a controversial policy measure before the global recession, have since been viewed more favorably from a macroprudential perspective.

Against this backdrop, this paper examines the following questions. First, what macroeconomic and financial sector policies characterized EMDEs prior to the 2009 global recession? Second, how have EMDE macroeconomic and financial sector policies evolved since the 2009 global recession?

This paper constitutes the first extensive stocktaking of the evolution of macroeconomic policies used by EMDEs before, during, and after the 2009 global recession. Previous studies focused on subsets of policies, such as monetary policies or fiscal policies (Cukierman 2013; de Haan et al. 2018; Ramey 2019); policies during or shortly after the 2009 global recession (Akerlof et al. 2014; Blanchard et al. 2016; Taylor 2014); or macro-financial linkages that propagated the financial crisis (Blanchard, Faruqee, and Das 2010; Claessens and Kose 2018). Most of these existing studies do not distill policy lessons specifically for EMDEs. The paper also provides a detailed overview of financial sector policies in EMDEs whereas the previous literature on such policies focuses on advanced economies (IMF 2018a). This paper distills lessons from the 2009 global recession that are relevant to EMDE policymakers today.

The paper reports the following findings. First, during the 2009 global recession, unprecedented coordinated monetary stimulus (in advanced economies) and fiscal stimulus (in advanced economies and EMDEs) supported a rapid rebound in global growth. Three-fifths of EMDEs with floating exchange rates had lowered their policy interest rates by the first quarter of 2009. EMDEs also made use of other measures to encourage bank lending such as reducing reserve requirements; accepting a broader range of collateral as lender of last resort; injecting liquidity into, and recapitalizing, domestic banks; and channeling government-supported lending through development banks. In addition, the fiscal policy response was unprecedented, with large spending packages implemented by G20 economies.

Second, between the 2009 global recession and the one in 2020, monetary policy remained accommodative and fiscal stimulus had not been fully unwound in many EMDEs. By 2018, fiscal balances had returned to 2007 levels in only one-quarter of EMDEs and real interest rates had returned to 2007 levels in only one-half of them. Most of the EMDEs that have unwound their crisis-related fiscal stimulus were commodity importers. Many commodity-exporting EMDEs implemented pro-cyclical policy tightening in response to the steep commodity price decline of 2011-16. Rising external, corporate, household, and government debt stocks, combined with wider fiscal and current account deficits, have increased the vulnerabilities of EMDEs to shocks, which materialized in 2020.

Third, after the 2009 global recession, all advanced economies and about 70 percent of EMDEs strengthened their macroprudential policy frameworks and the resilience of their financial systems. Several new instruments have been implemented under the Basel III framework to reduce systemic risk. EMDEs have been more aggressive than advanced economies in their use of macroprudential tools like foreign exchange and liquidity policies

(for instance, limits on foreign currency loans and foreign exchange countercyclical reserve requirements) to mitigate their exposure to volatile capital inflows.

Fourth, the use of capital flow management measures as a tool to promote financial stability in appropriate circumstances has gained greater acceptance. During the global recession in 2009, many EMDEs strengthened existing capital flow management measures while others introduced new ones. Measures such as reserve requirements on foreign investment, taxes on currency outflows, taxes on interest and capital gains earned by nonresidents, minimum term requirements for holdings of central bank securities, and limits on foreign currency positions have often been used by EMDEs over the past decade.

Fifth, the 2009 global recession offers important lessons for policy priorities. Fiscal and monetary policy can be effective stabilization tools if they are implemented swiftly and, especially, if they are coordinated in response to global shocks. However, policy stimulus can have the unintended consequence of sowing the seeds for the next crisis if the stimulus is not unwound in a timely manner and if financial sector supervision and regulation are inadequate.

The current severe global recession, triggered by the COVID-19 pandemic, is a test of the resilience of EMDE policy frameworks and economies. Like advanced economies, EMDEs have swiftly provide large-scale monetary and fiscal stimulus in 2020 to support livelihoods and health care systems—suggesting that this lesson from the 2009 recession has been taken to heart (World Bank 2020). However, in some EMDEs, limited fiscal and monetary policy space is already constraining their ability to support health care systems and livelihoods.

The rest of the paper is structured as follows. First, the paper describes the macroeconomic policies used by EMDEs before, during, and after the 2009 global recession. Second, it focuses on financial sector policies, including the emerging interest in complementing microprudential policies with macroprudential policies, and the renewed interest in capital flow management policies. Finally, it concludes and distills policy lessons.

2. Macroeconomic policies

2.1. Before the 2009 global recession: Growing policy space in EMDEs²

Strong growth during 2002-07 widened policy space in many EMDEs. Lower inflation created room for monetary policy to ease substantially without undermining the credibility of central bank commitments to inflation control. Budget deficits narrowed and government debt declined, which provided governments the space to raise spending or cut taxes. Improved current account balances and rising international reserves strengthened the buffers against external shocks and boosted the confidence of investors.

Before the 2009 global recession, EMDEs possessed sufficient monetary buffers. Inflation remained in single digits in 82 percent of EMDEs during 2002-07, compared to only 35

² For simplicity, “the global recession” refers to the one occurred in 2009 from this section onwards, unless specified otherwise. Similarly, “the crisis” refers to the 2008 global financial crisis unless specified otherwise.

percent in the preceding decade (Ha, Kose, and Ohnsorge 2019). Even in Latin America and the Caribbean (LAC), which had been plagued by persistently high inflation during the 1980s and 1990s, inflation was brought down to an average of 4.6 percent in 2002-07. In a notable case, Brazil's inflation rate in 2007 had fallen to 3.6 percent, compared to an average of more than 1000 percent in the early 1990s. This broad-based disinflation reflected the strengthening by many EMDEs of their macroeconomic policy frameworks, including granting greater independence to their central banks over the conduct of monetary policy, and moving towards more flexible exchange rate regimes (Ha, Kose, and Ohnsorge 2019).

The fiscal position of many EMDEs improved as robust growth buoyed government revenues and lightened real debt burdens. Fiscal balances in EMDEs improved on average from a deficit of 0.8 percent of GDP in 2002 to a surplus of 2.4 percent in 2007. Government debt declined sharply from 76 percent of GDP in 2002 to 45 percent in 2007. The improvements were most pronounced in commodity exporters, which benefitted from the commodity price boom of the mid-2000s.

Export-driven growth generated smaller current account deficits in EMDEs (up from 3.5 percent of GDP in 2001 to 1.2 percent in 2007), allowing a considerable accumulation of foreign exchange reserves (Goldstein and Xie 2009; Ocampo 2009). In about 70 percent of EMDEs, reserves increased by more than 10 percentage points of external debt between 2002 and 2007 and, in one-quarter of EMDEs, they increased by more than 50 percentage points of external debt. The reserve buildup was most pronounced in EAP, where reserves increased to 250 percent of external debt in 2007 (Figure 1). China, with reserves of more than 4 times external debt in 2007, accounted for most of this increase. Among other major EMDEs, Brazil accumulated foreign reserves equivalent to 75 percent of external debt. The increases in current account surpluses and accumulation of international reserves were partly a reflection of exchange rate policies, as several countries intervened in foreign exchange markets to contain appreciation of their currencies, which both increased their reserves and helped maintain or improve their international competitiveness.

2.2. During the 2009 global recession: Stimulus

Unprecedented coordination of monetary and fiscal stimulus, in the largest advanced economies and EMDEs alike, supported a strong rebound of global output in 2010. EMDE central banks, having accumulated large foreign reserves and tamed inflation before the crisis, were able to intervene heavily in foreign exchange markets in support of their currencies and lower policy interest rates. In addition, EMDE governments announced fiscal packages that included infrastructure investment, tax cuts, and social protection programs.

During the 2009 global recession, monetary stimulus was conducted in advanced economies. In response to slowing output growth and escalating threats to financial stability, six major central banks—the U.S. Federal Reserve, the Bank of Canada, the Bank of England, the European Central Bank, the Sveriges Riksbank, and the Swiss National Bank—announced policy rate cuts simultaneously in October 2008 (Figure 1). This was the first-ever

coordinated monetary policy response to a financial crisis or recession (BIS 2009).³ By May 2009, policy rates of the major central banks had been reduced to close to zero, except for the European Central Bank and Bank of Canada, which stopped their rate cuts well before reaching the zero-lower bound (Arteta et al. 2015). In several advanced economies, this was complemented with capital injections or emergency funding for financial institutions (U.S. Department of Treasury 2013).

Despite lower funding costs, banks globally tightened credit standards, so financial conditions faced by borrowers did not ease by nearly as much as the cuts in policy rates might indicate. To boost credit availability, major central banks subsequently broadened the scope of their policy to include quantitative easing programs—large-scale purchases of government bonds and private sector assets and credit provision—and forward guidance on monetary policy, both aimed at lowering longer-term rates (Carstens 2019). The asset purchases resulted in substantial changes in the size and composition of the balance sheets of central banks.⁴

The Federal Reserve also coordinated swap arrangements with other major central banks to address the shortage of U.S. dollar funding among non-U.S. banks. By the end of 2008, the Federal Reserve had extended swap lines to all major central banks as well as to Australia, Brazil, Denmark, Korea, Mexico, New Zealand, Norway, and Sweden. Within Europe, central banks had similar swap arrangements for short-term funding in the euro and Swiss franc.

Although these policy responses addressed the immediate funding needs of banks and succeeded in averting a collapse of the financial system, the bankruptcy of Lehman Brothers in September 2008 caused serious concerns about the solvency of many systematically important financial institutions. As a result, additional measures were undertaken by governments in advanced economies to stabilize markets and institutions, including providing deposit and debt guarantees, capital injections to increase bank solvency, and asset purchases.

Against the backdrop of a decade of low inflation, improved policy frameworks, and high international reserves, EMDEs also pursued monetary policy accommodation. Three-fifths of central banks in EMDEs with floating exchange rates lowered policy rates by the first quarter of 2009 (Ha, Kose, and Ohnsorge 2019).⁵ Some low-income countries (LICs), mostly in Sub-Saharan Africa (SSA), eased monetary policy when inflation pressures subsided amid lower energy and food prices (IMF 2010a). The monetary easing during the crisis stands in sharp contrast to, for example, the 1997-98 Asian financial crisis when many of the affected

³ The Bank of Japan, with a policy rate already very low, at 0.5 percent, did not ease, but expressed strong support for the coordinated policy action.

⁴ The Federal Reserve began its quantitative easing program in November 2008, the Bank of England in March 2009, and the European Central Bank in May 2009. These programs of large-scale purchases of longer-term assets were intended mainly to lower longer-term interest rates, partly through a “signaling effect” (i.e., by boosting investor confidence in these assets), and more importantly through a “portfolio balance effect” through which the asset purchases would reduce the availability of such assets to the private sector, thus raising their prices and lowering their yields.

⁵ Based on 39 EMDEs with available data on exchange rate regimes and monetary policy rates. In the early stages of the crisis, EMDEs increased policy rates to stem rising inflation as growth remained robust, whereas in advanced economies growth had weakened. EMDEs started to cut rates in late 2008 and early 2009.

countries had exchange rate targets, and raised policy rates in attempts to prevent large currency depreciations (Figure 1).

EMDEs adopted a wide range of additional monetary instruments during this period. Central banks in East Asia and Pacific (EAP; China, Malaysia), LAC (Brazil, Colombia, Peru), and South Asia (SAR; India) reduced reserve requirements while others accepted a broader range of collateral as lender of last resort (Argentina, Chile, Czech Republic).⁶ Some central banks in Middle East and North Africa (MNA) and SSA injected liquidity into domestic banking systems (Nigeria, Tunisia) or recapitalized domestic banks (Algeria, Kenya, Mali). Brazil, Colombia, China, and the Philippines also loosened financial conditions by increasing government-financed lending, channeled through their development banks. During 2007-09, the combined loan portfolio of development banks increased by 36 percent, well above the 10 percent increase in commercial bank credit (de Luna-Martinez and Vicente 2012).

In addition to injecting monetary policy stimulus, many EMDE central banks used a variety of tools to ease downward pressures on their exchange rates.⁷ In 2009, about one-fifth of EMDEs intervened in foreign exchange markets to support their currencies and, on average, these countries used 15 percent of their international reserves (Figure 1). Such operations included selling foreign currency in the spot market (Brazil, India, Mexico) and engaging in swap market auctions (Brazil, Hungary, Poland). Other measures included setting up repo facilities (Argentina, Brazil, Philippines), providing guarantees on currency deposits (India, Malaysia, Turkey), and changing regulations to facilitate foreign borrowing (Chile, India). Some central banks established loan facilities.⁸ In the fourth quarter of 2008, the Federal Reserve extended swap lines to Brazil, Korea, Mexico, and Singapore, while the European Central Bank and the Swiss National Bank provided support to Hungary and Poland through swap and repurchase agreements.⁹

Beginning in late 2008, concerns that monetary stimulus would not be sufficient to avert sharp output contractions led to an unprecedented use of countercyclical fiscal policy responses by major economies (Figure 2). G20 countries concurrently introduced fiscal stimulus packages, equivalent to 1.4 percent of global GDP (IILS 2011).¹⁰ Among advanced economies, the packages adopted in the United States, euro area, and Japan amounted to 5.6, 2.0, and 7.9 percent of annual GDP, respectively (Cottarelli, Gerson, and Senhadji 2014; ECB 2010; OECD 2009).¹¹ China adopted the largest stimulus package, equivalent to 12.7 percent

⁶ In the run-up to and in the wake of the global financial crisis, several EMDEs such as Brazil, Colombia, Indonesia, and Thailand introduced capital controls and other measures to manage exchange rate pressures (Gallagher 2015; IMF 2012; World Bank 2009). Some EMDEs also implemented unconventional monetary policy (García-Cicco and Kawamura 2014).

⁷ China faced upward pressures instead; the central bank accumulated foreign reserves until mid-2014.

⁸ Many EMDEs with less developed financial systems lack the administrative capacity or policy credibility to implement effective countercyclical measures (Allen and Giovannetti 2011). Monetary policy in these countries has therefore focused on boosting credit supply by using non-interest rate instruments (Binici and Yörükoğlu 2011).

⁹ Colombia, Mexico, and Poland also obtained access to the IMF's Flexible Credit Line for countries with sound fundamentals.

¹⁰ At the November 2008 G-20 Summit in Washington, DC, leaders of the G20 countries pledged rapid action to use fiscal measures to stimulate domestic demand.

¹¹ Estimating the size of fiscal stimulus packages is often complicated by an unclear breakdown of old and new spending and an uncertain timeframe for implementation. Hence, estimates from different sources may differ substantially (Cottarelli, Gerson, and Senhadji 2014).

of GDP. Other G20 EMDEs, such as India, Russia, Saudi Arabia, South Africa, and Turkey, also implemented large fiscal stimulus packages.

Outside the G20, several countries (Egypt, Philippines, Singapore, Vietnam) also announced large fiscal stimulus packages (more than 4 percent of GDP; Nanto 2009).¹² Several commodity exporters that had accumulated large sovereign wealth funds during the 2002-07 commodity price boom (Kuwait, Qatar, United Arab Emirates) implemented countercyclical fiscal stimulus (IMF 2010b). Governments in several LICs, such as Kenya and Tanzania, also increased government spending, mostly on infrastructure and other public investments (Osakwe 2010).¹³ In contrast, many countries from Europe and Central Asia (ECA) could not adopt sizable fiscal stimulus programs because of severely constrained government finances. Several economies in this region (Hungary, Kyrgyz Republic, Ukraine) sought emergency lending from the IMF.

The composition of the fiscal stimulus packages varied widely. In the United States and the euro area, the measures consisted mainly of tax cuts and increases in transfers, which tend to have lower fiscal multipliers (Ramey 2019). In contrast, China's fiscal stimulus package focused primarily on infrastructure investment, which tends to have large multipliers (Leduc and Wilson 2014). Given the high import content of investment spending, this also benefited regions with close trade linkages to China (Southeast Asia for manufacturing and LAC, MNA, and SSA for commodities). Other EMDEs, such as India, Mexico, and South Africa, also channeled their stimulus into infrastructure investment to close infrastructure gaps. Some countries introduced new social protection programs, such as conditional cash transfer schemes (CCTs) in 2008-09, while others expanded either existing coverage of CCTs or benefits were increased (Fiszbein, Ringold, and Srinivasan 2011).¹⁴

During the 2009 global recession, most EMDEs implemented discretionary fiscal stimulus on a larger scale than in earlier global contractions and allowed automatic fiscal stabilizers to operate unimpededly (World Bank 2015). Economies with relatively wide fiscal space (i.e., with government debt below 40 percent of GDP) were able to implement greater fiscal stimulus than more indebted governments with narrower fiscal space (Figure 2; Kose, Ohnsorge, and Sugawara 2018, 2020). However, widening fiscal deficits were reflected in rapidly rising debt (Kose et al. 2020).

2.3. After the 2009 global recession: Partial policy tightening

¹² While these packages were considered large at the time, they have since been dwarfed by those approved in 2020 (World Bank 2020).

¹³ Kenya graduated to middle-income status in 2016.

¹⁴ As shown in Fiszbein, Ringold, and Srinivasan (2011), examples of new CCT programs implemented between 2008-2009 include Indonesia's Bantuan Langsung Tunai (existed in 2005 and started again in 2008 as a one-off program) and Senegal's Social Cash Transfer and Nutritional Security (lasted for 6 months in 2009). Kenya's Orphan and Vulnerable Children program (launched in 2004 with the scaled-up program being rolled out in 2010, still operating) and the Philippines' Pantawid Pamilyang Pilipino Program have been scaled up (carried out in 2008, still operating). In 2008, Brazil's Bolsa Familia (created in 2003, still running) and Mexico's Oportunidades (created in 1997, still running), have expanded their coverage expanded and increased the amount of household transfers.

By the end of 2019, countries had by and large not fully reversed the post-crisis policy stimulus, in part because of protracted weakness in post-crisis growth. Since the global recession, monetary policy has remained highly accommodative in advanced economies and EMDEs. Although the post-crisis plunge in commodity prices forced a policy tightening in commodity-exporters, EMDE fiscal and external positions have generally worsened.

During the early 2010s, large government fiscal deficits and rising debt in advanced economies, resulting partly from the fiscal stimulus and financial rescue packages, raised concerns about fiscal sustainability. Some countries with large deficits in the euro area at times faced acute market concerns about sovereign risk. Despite austerity measures in Ireland, Italy, Greece, Portugal, and Spain, these market concerns spilled into the banking sector, which had accumulated sizable government debt holdings. A series of bailout packages organized under new standing facilities backed by the European Union and the IMF, as well as expanded bond purchases by the European Central Bank, provided crucial support to these economies.

The euro area's fiscal balance gradually improved after 2011, and the deficit-to-GDP ratio had almost returned to its 2007 level by 2018 (Figure 2). The fiscal deficit of the United States fell from about 13 percent of GDP in 2009 to just over 3 percent in 2015, but has since risen to over 4 percent in 2018. Japan maintained an expansionary fiscal stance on reconstruction efforts following the 2011 earthquake, but fiscal deficits gradually declined until the 2020 global recession struck.

Since the global financial crisis, monetary policy in the major advanced economies has remained highly accommodative (Arteta et al. 2018; Kose and Ohnsorge 2019). In part, this has reflected concerns about the possibility of secular stagnation which posits that chronic demand weakness lowers potential growth (Summers 2014). During the recovery, major central banks have kept policy rates at, or a little above, the historically low levels attained after the crisis. The U.S. Federal Reserve started to raise the federal funds rate from close to zero in December 2015, and its target range for the rate reached 2.25-2.50 percent in late 2018 before being reduced by 25 basis points one year later. But, a decade after the global recession, euro area and Japanese policy rates remain negative.

In addition, central banks continued their large-scale asset purchases well after the global financial crisis. To boost the sluggish recovery, the U.S. Federal Reserve undertook several rounds of such asset purchases between late 2008 and October 2014. The European Central Bank announced several asset purchase facilities during 2011-2016, including an expanded asset purchase program in March 2015. While this was due to be phased out after December 2018, the weakness of the euro area economy in the following year has prompted the ECB to announce preparations for an additional round of purchases. The Bank of Japan, over the same period, also introduced new asset purchase programs. While it slowed its quantitative easing program in December 2018, it has maintained a highly accommodative policy stance in 2019.

The unwinding of stimulus was delayed in most EMDEs. Several EMDEs that had introduced

fiscal and monetary stimulus in 2009-10 gradually, but only partially, unwound this stimulus starting in 2010. By 2018, only one-quarter of EMDEs had returned their fiscal deficit-to-GDP ratios to 2007 levels, while about one-half had returned their real interest rates to 2007 levels (Figure 3). Most of the EMDEs that fully unwound their crisis-related fiscal stimulus were commodity importers.

Several large EMDEs have not reversed their fiscal stimulus at all since 2011. In China, to deal with potential financial stability risks, the government reined in investment by local governments, discouraged financing through the non-bank system, tightened housing market regulations, and slowed the growth of bank lending (World Bank 2014).¹⁵ However, the government subsequently embarked on additional rounds of stimulus spending in 2015-16 and 2018-19. Similarly, in India, fiscal and monetary stimulus by the central government was only partially unwound until 2016, when policy loosening resumed.¹⁶ In Brazil, the unwinding of crisis-related fiscal stimulus was also delayed.¹⁷ Turkey has struggled to unwind its spending increases and its policy interest rates remained negative in real terms despite double-digit inflation and rapid credit growth since 2017 (Gürkaynak et al. 2015). The persistence of large budget deficits has meant that EMDE debt sustainability indicators have steadily deteriorated since 2011. In more than one-third of EMDEs, widening deficits are setting government debt on firmly rising trajectories, especially in LICs (Figure 2, Kose et al. 2017; World Bank 2017).¹⁸

Many commodity-exporting EMDEs were required to enact procyclical policy tightening during the commodity price slide of 2011-16, despite being in the midst of recessions or sharp slowdowns (World Bank 2018). Two-thirds of commodity exporters tightened fiscal policy in 2014-16, even in the face of slowing growth. One-half of commodity exporters with flexible exchange rates raised policy rates in 2014-16, in response to above-target inflation and strong depreciation pressures. Under exchange market pressure, several EMDEs allowed more exchange rate flexibility. Russia, which had been operating on a managed floating exchange rate regime since 1999, transitioned to a flexible rate in November 2014. Azerbaijan, Kazakhstan, and Nigeria also began to allow greater exchange rate flexibility in 2015-16. Oil-exporting countries with fixed exchange rate regimes were less able to avoid procyclical fiscal policies, reducing government spending by 8 percentage points of GDP more than those with flexible exchange rate regimes.

As a result of rising external, corporate, household, and government debt stocks, and

¹⁵ The People's Bank of China raised its policy interest rate by 1.25 percentage points between October 2010 and May 2012, but subsequently pursued a more accommodative monetary policy, including a reduction of the required reserve ratio.

¹⁶ The general government deficit declined from 9.5 percent of GDP in 2009 to 6.9 percent in 2019, despite a large stimulus package carried out in 2017 to support the ailing banking sector and to boost infrastructure investment. The Reserve Bank of India raised policy rates by 3.75 percentage points between February 2010 and October 2011 but has since lowered them.

¹⁷ Brazil's fiscal deficit deteriorated from 3.2 percent of GDP in 2009 to 10.2 percent of GDP in 2015, before a slight improvement in 2016-18.

¹⁸ The average fiscal deficit of LICs peaked at 5.2 percent of GDP in 2015 compared to 1.8 percent of GDP in 2007. Government debt, although lower than pre-crisis, increased by 17 percentage points of GDP between 2012 and 2018.

deteriorations in fiscal and current account balances, EMDEs entered the 2020 global recession with more vulnerable to external shocks than they were before the 2009 global recession.¹⁹ This has left EMDE policymakers with less room than they had in 2007 to support domestic demand and activity in the event of future financial or economic stress (Figure 3).

In terms of external positions, on average, external debt in EMDEs increased sharply, to 57 percent of GDP in 2018 from 43 percent of GDP in 2007. Although still above 1990s averages, international reserves fell relative to external debt in more than two-thirds of EMDEs, and in some EMDEs more than halved, since 2007.

On average, EMDE fiscal surpluses of 2.4 percent of GDP in 2007 have turned into deficits of 2.7 percent in 2018. Because of the sharp decline in commodity prices, the deterioration has been particularly severe in commodity exporters, from a surplus of 3.5 percent of GDP in 2007 to a deficit of 3.3 percent of GDP in 2018. EMDE government debt has increased to 54 percent of GDP in 2018, from 45 percent of GDP in 2007; in more than one-third of EMDEs, government debt rose by more than 20 percentage points of GDP. Deteriorating public debt sustainability has also been reflected in sovereign credit rating downgrades. In some EMDEs, the share of nonresident holdings in local currency bond markets has grown to more than 30 percent, exposing these countries to the risk of sharp market displacements in the event of swings of global risk sentiment (Agur et al. 2018).

In LICs, average government debt relative to GDP in 2018 was less than the level in 2007. However, it has risen sharply, by 17 percentage points of GDP from a low in 2012 to 51 percent of GDP in 2018 (World Bank 2019b).²⁰ As a result, interest payments have absorbed a growing share of government revenues. Debt has been increasingly owed to non-concessional and private creditors, heightening the vulnerability of LICs to financial market disruptions.

In non-LIC EMDEs, rapid credit growth fueled an increase in corporate debt, on average by 16 percentage points of GDP since 2007 to 50 percent of GDP in 2018. While the largest corporate debt increase (54 percentage points of GDP) occurred in China, several other EMDEs (Chile, Philippines, Turkey, United Arab Emirates) experienced increases in excess of 30 percentage points of GDP (Borensztein and Ye 2018; Ohnsorge and Yu 2016; Alfaro et al. 2017).

EMDE household debt increased on average by 5 percentage points of GDP since 2007 to 25 percent of GDP in 2018. In some EMDEs (Brazil, Chile, Colombia, Czech Republic, Malaysia,

¹⁹ There has been an intense debate about whether the rapid increase in debt is cause for concern, given historically low interest rates. Blanchard (2019) and Furman and Summers (2019) provide reasons for additional borrowing but Auerbach, Gale, and Krupkin (2019) caution against adding to debt. A detailed discussion on the benefits and costs of debt accumulation is provided in World Bank (2019a) and Kose, Ohnsorge, and Sugawara (2020).

²⁰ Debt relief under the Heavily Indebted Poor Countries initiative and the Multilateral Debt Relief Initiative helped to reduce average public debt in LICs from a debt-to-GDP ratio of 115 percent in the early 2000s to 35 percent in 2012.

Poland), household debt has risen by more than 10 percentage points of GDP. The largest increases occurred in China and Thailand, where household debt swelled by 32 and 24 percentage points of GDP, respectively.

3. Financial sector policies

The 2008 global financial crisis triggered a major shift in financial sector policies. Prudential regulation and supervision have evolved from a focus on the stability of individual financial institutions towards a focus on the stability of the financial system as a whole. Restrictions on capital flows, a controversial policy measure before the crisis, have come to be viewed more favorably from a macroprudential perspective.

3.1. Prudential policies

Before the global financial crisis, the financial regulatory framework and supervision practices focused mainly on monitoring prudential risks at individual institutions. For example, in 2006, following this traditional microprudential approach, the U.S. Federal Deposit Insurance Corporation claimed that more than 99 percent of U.S. insured institutions met or exceeded the requirements of the highest regulatory capital standards, giving no indication of the large-scale vulnerabilities that were building up.

The crisis highlighted several shortcomings of this microprudential approach. First, the regulatory perimeter had mainly encompassed banks, with much less attention paid to the buildup of systemic risk in the nonbank sector. In the United States and other advanced economies, lightly regulated non-deposit institutions had steadily grown in size and complexity. Second, the microprudential regulatory regime tended to have procyclical effects on bank behavior (Gordy and Howells 2006). In particular, the risk-weighted capital requirements of Basel II tended to decline in the expansionary phase of the business cycle, and to rise during the contractionary phase. As a result, despite meeting the Basel II requirements, banks in advanced economies and some EMDEs had high leverage, which posed risks to financial stability (Bruno and Shin 2015). Lastly, fair-value accounting—using current market values as the basis for valuation—lent a further procyclical impulse since it encouraged balance sheet expansion in economic upswings, and deleveraging in downswings.

After the 2009 global recession, the global financial crisis brought about a rethinking of prudential regulation, which led to a rising interest in complementing microprudential policies that regulate the risk of individual institutions with macroprudential policies aimed at minimizing systemwide risk and at ensuring that the financial system does not create or amplify shocks that could lead to economic downturns (Claessens 2014; Zeev 2017; World Bank 2019c).²¹ An illustration of this new focus is the rapid increase in the use of the term “macroprudential” since 2008 (Figure 4; Cukierman 2013; Ostry et al. 2010). A key objective

²¹ Despite the rising interest in macroprudential policies, there are many challenges in designing and implementing them, especially in EMDEs. See details in Dijkman (2015) and Krishnamuti and Lee (2014).

of macroprudential policy is to minimize systemic risk by limiting boom-bust credit cycles. Several new instruments have been developed under the Basel III framework specifically to promote this objective, such as: countercyclical capital requirements and dynamic provisioning to build up capital or liquidity buffers during good times; maximum leverage ratios to capture both on- and off-balance sheet exposures; and capital surcharges on systemically important financial institutions.

Macroprudential instruments have increasingly become an integral part of the toolkit of many central banks and other financial regulators since the crisis. Macroprudential indexes derived from a dataset for 36 advanced economies and 124 EMDEs suggest that all advanced economies, and about 70 percent of EMDEs, have used these instruments to strengthen the resilience of their financial systems (Cerutti, Claessens, and Laeven 2017). EMDEs have more actively used macroprudential instruments—often on an ad-hoc or experimental basis—partly reflecting the fact that they are more exposed to volatile capital flows and have less liberalized financial systems (Claessens 2014). These instruments have been used to reduce the growth of credit to nonfinancial corporations and households, and to help restrain asset price inflation, especially in the housing sector (Budnik and Kleibl 2018; Kuttner and Shim 2013, Vandebussche, Vogel, and Detragiache 2015; Zhang and Zoli 2016).

In ECA, more than four-fifths of EMDEs have increased the use of macroprudential tools, while in SSA the share is only about one-half (Figure 4). The use of different tools has reflected different structural characteristics among countries. ECA has had relatively high financial integration internationally with a large presence of foreign banks slower lending in U.K. banks, and dynamic provisioning has been associated with smoother credit cycles in Spain (Aiyar, Calomiris, and Wieladek 2016; Jiménez et al. 2017). In contrast, foreign exchange and liquidity policies, such as limits on foreign currency loans and foreign exchange countercyclical reserve requirements, have been more often used in EMDEs in efforts to reduce exposures to volatile capital inflows (Figure 4). This is especially the case in ECA, which had been plagued by currency mismatches in the balance sheets of households and firms (Ben Naceur, Hosny, and Hadjian 2019; Fidrmuc, Hake and Stix 2013; Ranciere, Tornell, and Vamvakidis 2010).

China implemented a wide range of macroprudential policies after the global financial crisis (Figure 4). A priority goal was to contain the growth of corporate debt, especially of state-owned enterprises, through limits on the exposures of banks. Other macroprudential measures aimed at curbing real estate speculation through sector-specific lending limits and higher mortgage down payment requirements. In India, macroprudential policy focused on preventing excessive credit growth by increasing the capital that banks are required to hold against riskier loans and increasing the rate at which banks are required to provision against loan losses for specific sectors. Macroprudential measures have also been used in economic downturns; for example, Brazil lowered reserve requirements in 2017 to help counter its protracted economic slowdown.

The experience of the global financial crisis kindled interest in the impact of monetary and fiscal policy on financial stability and, conversely, the impact of prudential decisions on

monetary conditions.²² The impact of prudential policies on monetary conditions is explored in a small body of literature that is constrained by prudential data requirements. Among U.K. banks, higher capital requirements have been found to lower bank lending abroad and domestically (Aiyar et al. 2014; Meeks 2017). For large banks, their domestic lending response to capital requirements was stronger than their response to monetary policy (Aiyar, Calomiris, and Wieladek 2016).

The main instrument of monetary policy—the short-term interest rate—is generally a weaker instrument for the promotion of financial stability than regulatory instruments (Lane 2016; Adrian, Laxton, and Obstfeld 2018). The latter can be focused on specific issues in institutions or markets and on lenders or borrowers whereas monetary policy cannot. That said, sound monetary policy contributes to financial stability. In times of severe stress, such as 2008-09, central banks inject liquidity into the system on a large scale and stand ready to act as lender of last resort. In normal times, central banks provide support to financial stability, for example, through oversight of payment systems, monitoring of risks and vulnerabilities, and the maintenance of foreign reserves to defend their currencies against short-term speculative attacks (Cheung and Qian 2009; Jara, Moreno, and Tovar 2009).

Sound fiscal policy also contributes to financial stability. For example, by removing tax incentives to borrowing by the corporate sector, allowing a more balanced tax treatment of equity financing, and reducing tax exemptions of interest payments on mortgages, fiscal authorities can help curb credit growth and increases in housing prices.

The increase in emphasis on systemic risk and macroprudential policy led to the establishment of the Financial Stability Board (FSB) in 2009, with the endorsement of the G20, to promote the reform of international financial regulation and supervision. Several countries have improved their system-wide regulatory architecture to meet goals set by the FSB. This has included enhancing the capacity to use macroprudential tools, strengthening international coordination among entities that share the financial stability mandate (especially in the cases of potential cross-border spillovers), and improving governance, transparency, and accountability. In general, economies that were harder-hit by the crisis—such as the United States, the United Kingdom, and the EU—have been somewhat more proactive in addressing regulatory weaknesses (Lombardi and Moschella 2017; Lombardi and Siklos 2016).

Since the global financial crisis, several EMDEs with FSB memberships have established national financial stability councils or committees (Brazil, China, India, Mexico, Russia,

²² Nevertheless, the consensus among central bankers and economists remains that monetary policy is best aimed at controlling inflation and that it cannot take primary responsibility for financial stability (Yellen 2014). There are, however, exceptions to this general proposition (Lane 2016; Mishkin 2011; IMF 2019; Yellen 2014). For example, a large-scale, credit-fueled, asset-price boom may pose an obvious risk to financial and economic stability, and justify an increase in the policy rate beyond the normal requirements of the inflation objective (Gourio, Kashyap, and Sim 2018). An entirely alternative view is that monetary policy should systematically focus on financial stability as well as the macroeconomic goals (Borio 2014; Collard et al. 2017; Stems 2013; Svensson 2016).

Turkey), and incorporated new mandates for the central bank to exercise macroprudential supervision (Indonesia, Russia, South Africa; FSB 2018, 2019). Most of these EMDEs have made progress in implementing reforms, especially to meet Basel III capital and liquidity requirements and implement over-the-counter derivatives reforms (FSB 2018). EMDEs that are also members of the Basel Committee on Banking Supervision, including Brazil, China, Russia, and South Africa, have put in place risk-based capital rules, liquidity coverage ratio regulations, and capital conservation buffers (BCBS2019).

The financial regulatory agenda set out by the G20 has several implications in EMDEs. Regulatory tightening in advanced economies has contributed to the withdrawal of major banks from EMDEs (Kose and Ohnsorge 2019). The Basel III recommendations are, like their predecessors, calibrated primarily for advanced economies, making some EMDEs hesitant to adopt those regulations to avoid potential new challenges associated with these new standards (Beck and Rojas-Suarez 2019). A recent survey suggests that the financial sector agenda set out by the G20 may have unintended economic costs for individual EMDEs (Briault et al. 2018). For example, the introduction of creditor-funded recapitalization, known as “bail in”, wipes out senior claims on the bank during bank resolution. However, most of the depositors on the liability side of banks in many EMDEs are small depositors. Bailing in those depositors would only intensify a financial crisis by eroding the credibility of the financial system. Additionally, these EMDEs typically lack sufficiently developed financial markets for banks to issue debt securities that can be bailed in (Feyen and Zuccardi 2019).

Although the importance of macroprudential policy is now widely accepted, it is still not well understood which tools are best suited to different circumstances and how they should be adapted to country characteristics. There are also questions on the appropriate design of policy institutions, in particular whether such policies should be under the purview of the central bank, a new financial stability agency, an existing market supervisory agency, or a committee comprising various institutions.

4. Capital flow management policies

Prior to the 2009 global recession, capital flow management measures (CFMs) were widespread under the Bretton Woods regime of pegged exchange rates, as they provided countries with a degree of independence in monetary policy. After the collapse of the regime in the early 1970s, advanced economies began to shun restrictions on capital flows. They opened their capital accounts and financial markets to the international economy. EMDEs started to open their capital accounts later, during the 1980s and 1990s. This reflected the view that, by liberalizing international capital flows, EMDEs would potentially benefit from access to credit and investment from advanced economies, hence promoting growth and development. However, the experiences of several countries during the 1997-98 Asian financial crisis highlighted the risk of too rapid an opening of the capital account and of the importance of coordinating capital account liberalization with stronger financial regulation and supervision.

Many EMDEs deployed capital management measures during and following the 2009 global recession, mainly in response to capital flow volatility (Gallagher 2011; IMF 2012, 2018a; Rey 2015). Early in the crisis, EMDEs experienced heavy outflows, in a flight to safety (Figure 5).²³ The recovery of capital inflows in 2009-11 reflected the widening of interest rate differentials in favor of EMDE assets and was induced by unprecedented monetary policy accommodation in advanced economies. Concerns that heavy inflows might result in currency appreciation, asset bubbles, inflationary pressures, and financial instability more broadly led to the use of capital flow management measures on inflows, while the risk of a resurgence of capital flight underlay increased controls on outflows.

Some EMDEs strengthened existing controls while others introduced new measures (Gallagher 2011; Ghosh, Ostry, and Qureshi 2017). These CFMs included a wide range of price-based and quantity-based controls. These included: reserve requirement taxes on foreign investment (Brazil, Ecuador, Indonesia, Peru, Uruguay); taxes on currency outflows (Argentina, Ecuador, Venezuela); taxes on interest earned and capital gains on nonresidents (Thailand); minimum term requirements for holding central bank securities (Indonesia); and limits on foreign currency positions (Philippines). Some of these measures were subsequently eased when the inflow surge abated after 2012 (IMF 2016).

Not all countries responded to the pressures of capital inflows with capital flow management measures—some could not impose CFMs because of bilateral or multilateral trade and investment treaties (Abdelal 2007; Gallagher 2011). For example, the EU enforces open capital accounts across the union (Article 63 of the Lisbon Treaty; EU 2007), NAFTA considers capital controls an actionable offense, and the OECD has a (although not actionable) code on liberalization of capital movements. Some countries bound by trade and investment agreements reframed capital controls as macroprudential policies or as quasi-controls (Indonesia, Korea, Peru, Uruguay; Grabel 2015).

The 2008 global financial crisis triggered a rethinking of the role, benefits, and costs of financial liberalization, especially in light of the role of cross-border capital flows during the financial crises (Reinhart and Rogoff 2008). There is now an emerging consensus that capital flow management measures can play a legitimate role in a framework of rules to promote macroeconomic and financial stability. This has been supported by successes in stabilizing financial markets by reining in large capital flows (Brazil), and by development models built on measured capital account opening (China, India). The institutional views of major international organizations have evolved to admit the possibility of a role for managing capital flows, which can include capital flow management measures as part of broad

²³ Brazil, for example, imposed a series of capital flow management measures between October 2009 and August 2011. The measures included taxes on inward portfolio investment (2 percent in October 2009, 6 percent in October 2010), taxes on American Depositary Receipts (1.5 percent in November 2009), an increase in reserve requirements on capital inflows (January 2011), taxes on repatriated funds (6 percent in March 2011), and taxes on derivatives (1 percent in August 2011). In advanced economies, Iceland imposed CFMs in November 2008 amid a severe banking crisis. To prevent capital flight, and a collapse of the exchange rate, the Central Bank of Iceland restricted foreign currency outflows and froze offshore holdings of krona-denominated assets. Restrictions on capital outflows were lifted in March 2017, but those on inflows have been tightened, primarily to prevent currency speculation.

coordinated policy packages.²⁴

Since 2013, however, global capital flows have been more subdued than in the pre-crisis period. Thus, in practice, despite the increased availability of capital flow management measures, countries that have experienced episodes of large-scale inflows have dealt with the associated concerns about currency appreciation mainly through monetary easing and foreign exchange intervention (Colombia, India, Indonesia, Thailand, Turkey). This indicates that capital flow management measures may play a useful role during capital-inflow surges in certain situations (IMF 2018a).²⁵ During periods of financial stress, capital flow management measures can provide effective support to other instruments (IMF 2016). For example, capital flow management measures have been used complementarily with macroeconomic policies, as well as with structural and financial sector reforms, to moderate financial stress episodes in Belarus, Cyprus, Greece, Iceland, and Ukraine. Outside crisis episodes, capital flow management measures have been employed to address country-specific financial sector vulnerabilities (China, North Macedonia, Peru, Russia). In some cases, macroprudential measures have been used to discourage borrowing in foreign currency (Korea, Peru).

Whether capital flows are to be welcomed or whether they represent a problem to be tackled may be difficult to determine. Policymakers thus face challenges in understanding the underlying causes, and determining whether the flows will cause undue damage to competitiveness or threaten financial stability. A CFM intended to address a specific component of capital flows could merely shift the composition of flows toward noncontrolled segments of the financial system. Widespread CFMs could have cross-border spillover effects, for example, if they strongly affect exchange rate valuations and trade competitiveness.

5. Conclusion

Following the global financial crisis and the 2009 global recession, the largest advanced economies and EMDEs enacted what was considered at the time unprecedented and coordinated macroeconomic stimulus. This provided crucial support to the international financial system and staved off a deeper global recession. For the first time during a major crisis, EMDEs were also able to employ a wide range of countercyclical monetary and fiscal policies to stem contagion and boost the post-crisis recovery. Numerous EMDEs lowered policy interest rates, intervened heavily in foreign exchange markets, and implemented fiscal stimulus packages. Three-fifths of EMDEs with floating exchange rates had lowered policy rates by the first quarter of 2009 and made use of other stimulus measures, such as reducing reserve requirements, injecting liquidity into and recapitalizing domestic banks, and

²⁴ See, for instance, FSB-IMF-BIS (2011), Ghosh, Ostry, and Qureshi (2017), IMF (2012, 2018), and Ostry et al. (2010, 2011).

²⁵ During capital-inflow surges, capital flow management measures may play a useful role particularly when: 1) the room for adjusting macroeconomic policies is limited; 2) appropriate policies require time to take effect; 3) the inflow surge contributes to systemic financial risks; and/or 4) there is heightened uncertainty about the underlying economic stance due to the capital inflow surge (Adrian 2018; IMF 2018a).

channeling lending through development banks.

The 2008 global financial crisis also ushered in a rethinking of financial sector policies. The emphasis of prudential regulation and supervision has shifted from the sole focus on the regulation and supervision of individual institutions (involving microprudential tools) toward a more balanced view on containing both individual risks and systemwide risks (involving macroprudential measures). At the same time, the appropriate use of capital controls as part of a package of policies to promote financial stability has gained greater acceptance.

Despite the successful manner in which EMDEs navigated the global financial crisis and its aftermath, as a group, they entered the 2020 global recession more vulnerable to external shocks than the 2009 global recession. This could be compounded by other pressures if there is a broader retreat from global cooperation and multilateralism. The crisis-related fiscal stimulus in many EMDEs has still not been fully unwound and, by 2018, fiscal balances have returned to 2007 levels in only one-quarter of EMDEs. Rising external, corporate, household, and government debt stocks, combined with wider fiscal and current account deficits, have increased the vulnerabilities of EMDEs to the ongoing and future shocks compared with 2007.

The global financial crisis and its aftermath provide a reminder that countercyclical fiscal and monetary policies can be crucial during periods of severe financial and economic stress—a lessons that was heeded in the global economic collapse of 2020 (World Bank 2020). The 2008-09 experience also demonstrates that international cooperation and coordination enhances the credibility, and hence the overall positive impact, of stimulative policies. At the same time, the post-crisis experience illustrates the difficulties of unwinding a large stimulus, and of the danger that this can leave countries with increased vulnerability to future shocks. The 2020 global recession will test EMDE policymakers' ability to put in place policy frameworks that ensure that vulnerabilities are unwound and the objectives of price, output, and financial stability can be targeted credibly.

References

- Abdelal, R. 2007. *Capital Rules: The Construction of Global Finance*. Cambridge, MA: Harvard University Press.
- Admati, A., and M. Hellwig. 2014. *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It?* Princeton, NJ: Princeton University Press.
- Adrian, T. 2018. "Policy Responses to Capital Flows." Speech at LIII Meeting of Governors of Latin America, Spain and the Philippines at the IMF-World Bank Annual Meetings in Bali, Indonesia, October 11.
- Adrian, T., D. Laxton, and M. Obstfeld. 2018. *Advancing the Frontiers of Monetary Policy*. Washington, DC: International Monetary Fund.
- Agur, I., M. Chan, M. Goswami, and S. Sharma. 2018. "On International Integration of Emerging Sovereign Bond Markets." IMF Working Paper 18/18, International Monetary Fund, Washington, DC.
- Aiyar, S., C. W. Calomiris, J. Hooley, Y. Korniyenko, and T. Wieladek. 2014. "The International Transmission of Bank Capital Requirements: Evidence from the UK." *Journal of Financial Economics* 113 (3): 368-382.
- Aiyar, S., C. W. Calomiris, and T. Wieladek. 2016. "How Does Credit Supply Respond to Monetary Policy and Bank Minimum Capital Requirements?" *European Economic Review* 82 (December): 142-165.
- Akerlof, G., O. Blanchard, D. Romer, and J. Stiglitz. 2014. *What Have We Learned? Macroeconomic Policy after the Crisis*. Cambridge, MA: MIT Press.
- Alfaro, L., G. Asis, A. Chari, and U. Panizza. 2017. "Lessons Unlearned? Corporate Debt in Emerging Markets." NBER Working Paper 23407, National Bureau of Economic Research, Cambridge, MA.
- Allen, F., and G. Giovannetti. 2011. "The Effects of the Financial Crisis on Sub-Saharan Africa." *Review of Development Finance* 1 (1): 1-27.
- Araujo, J., A. C. David, C. van Hombecq, and C. Papageorgiou. 2015. "Non-FDI Capital Flows in Low-Income Developing Countries: Catching the Wave?" IMF Working Paper 15/86, International Monetary Fund, Washington, DC.
- Arteta, C., M. A. Kose, F. Ohnsorge, and M. Stocker. 2015. "The Coming U.S. Interest Rate Tightening Cycle: Smooth Sailing or Stormy Waters?" Policy Research Note 2, World Bank, Washington, DC.
- Arteta, C., M. A. Kose, M. Stocker, and R. Taskin. 2018. "Implications of Negative Interest Rate Policies: An Early Assessment." *Pacific Economic Review* 23 (1): 8-26.
- Auerbach, A. W. Gale, and A. Krupkin. 2019. "If Not Now, When? New Estimates of the Federal Budget Outlook." Brookings Institution Working Paper, Washington, DC.

- BCBS (Basel Committee on Banking Supervision). 2019. *Sixteenth Progress Report on Adoption of the Basel Regulatory Framework*. Basel: Basel Committee on Banking Supervision.
- Beck, T., and L. Rojas-Suarez. 2019. *Making Basel III Work for Emerging Markets and Developing Economies. A CDG Task Force Report*. Washington, DC: Center for Global Development.
- Bernanke, B. S. 2007. "Globalization and Monetary Policy," Speech at the Fourth Economic Summit, Stanford Institute for Economic Policy Research, Stanford, CA. March 2.
- . 2009. "Financial Reform to Address Systemic Risk." Speech at the Council on Foreign Relations, Washington DC. March 10.
- Ben Naceur, S., A. Hosny, and G. Hadjian. 2019. "How to De-Dollarize Financial Systems in the Caucasus and Central Asia?" *Empirical Economics* 56 (6): 1979–99.
- Binici, M., and M. Yörükoğlu. 2011. "Capital Flows in the Post-Global Financial Crisis Era: Implications for Financial Stability and Monetary Policy." BIS Paper 57, Bank for International Settlements, Basel.
- BIS (Bank for International Settlements). 2009. *79th Annual Report, 2008/09*. Basel: Bank for International Settlements.
- Blanchard, O. 2019. "Public Debt and Low Interest Rates." *American Economic Review* 109 (4): 1197-1229.
- Blanchard, O., H. Faruquee, and M. Das. 2010. "The Initial Impact of the Crisis on Emerging Market Countries." *Brookings Papers on Economic Activity* 41 (1): 263-323.
- Blanchard, O., R. Rajan, K. Rogoff, and L. Summers. 2016. *Progress and Confusion: The State of Macroeconomic Policy*. Cambridge, MA: MIT Press.
- Borensztein, E., and L. S. Ye. 2018. "Corporate Debt Overhang and Investment: Firm-Level Evidence." Policy Research Working Paper 8553, World Bank, Washington, DC.
- Borio, C. 2014. "Monetary Policy and Financial Stability: What Role in Prevention and Recovery?" BIS Working Papers 440, Bank for International Settlements, Basel.
- Briault, C., E. Feyen, I. Gonzalez Del Mazo, J. Rademacher, B. Yee, and I. Skamnelos. 2018. "Cross-Border Spillover Effects of the G20 Financial Regulatory Reforms: Results from a Pilot Survey." Policy Research Working Paper 8300, World Bank, Washington, DC.
- Bruno, V., and H. S. Shin. 2015. "Capital Flows and the Risk-taking Channel of Monetary Policy." *Journal of Monetary Economics* 71 (April): 119-132.
- Budnik, K., and J. Kleibl. 2018. "Macroprudential Regulation in the European Union in 1995-2014: Introducing a New Data Set on Policy Actions of a Macroprudential Nature." Working Paper 2123, European Central Bank, Frankfurt.
- Carney, M. 2015. "Inflation in a Globalised World." Remarks at the Economic Policy

- Symposium, Federal Reserve Bank of Kansas City, Jackson Hole. August 29.
- Carstens, A. 2019. Speech at the Basler Bankenforum, Basel, Switzerland. September 4.
- Cerutti, E, S. Claessens, and L. Laeven. 2017. "The Use and Effectiveness of Macroprudential Policies: New Evidence." *Journal of Financial Stability* 28 (February): 203–224.
- Cheung, Y., and X. Qian. 2009. "Hoarding of International Reserves: Mrs. Machlup's Wardrobe and the Joneses." *Review of International Economics* 17(4): 824–43.
- Claessens, S. 2014. "An Overview of Macroprudential Policy Tools." IMF Working Paper 14/214, International Monetary Fund, Washington, DC.
- Claessens, S., and M. A. Kose. 2018. "Frontiers of Macrofinancial Linkages." BIS Papers 95, Bank for International Settlements, Basel, Switzerland.
- Collard, F., H. Dellas, B. Diba, and O. Loisel. 2017. "Optimal Monetary and Prudential Policies." *American Economic Journal: Macroeconomics* 9 (1): 40–87.
- Cottarelli, C, P. Gerson, and A. Senhadji. 2014. *Post-crisis Fiscal Policy*. Cambridge, MA: MIT Press.
- Cukierman, A. 2013. "Monetary Policy and Institutions Before, During, and After the Global Financial Crisis." *Journal of Financial Stability* 9 (3): 373–384.
- Darvas, Z. 2012. "Real Effective Exchange Rates for 178 Countries: A New Database." Bruegel Working Paper 2012/06, Brussels, Belgium.
- de Haan, J., C. Bodea, R. Hicks, and S. Eijffinger. 2018. "Central Bank Independence Before and After the Crisis." *Comparative Economic Studies* 60(2): 183-202.
- de Luna-Martinez, J., and C. Vicente. 2012. "Global Survey of Development Banks." Policy Research Working Paper 5969, World Bank, Washington, DC.
- Dijkman, M. 2015. "Monitoring Financial Stability in Developing and Emerging Economies: Practical Guidance for Conducting Macroprudential Analysis." Policy Research Working Paper 7248, World Bank, Washington, DC.
- ECB (European Central Bank). 2010. "Euro area Fiscal Policies and Crisis." Occasional Paper Series 109, European Central Bank, Frankfurt.
- EU (European Union). 2007. *Treaty of Lisbon Amending the Treaty on European Union and the Treaty Establishing the European Community*. Lisbon.
- Fernández, A., M. W. Klein, A. Rebucci, M. Schindler, and M. Uribe. 2016. "Capital Control Measures: A New Dataset." *IMF Economic Review* 64 (3): 548-574.
- Feyen, E., and I. Zuccardi. 2019. "The Sovereign-Bank Nexus in EMDEs: What is It, is It Rising and What are the Policy Implications?" Policy Research Working Paper 8950, World Bank, Washington, DC.
- Fidrmuc, J., M. Hake, and H. Stix. 2013. "Households' Foreign Currency Borrowing in Central and Eastern Europe." *Journal of Banking & Finance* 37 (6): 1880–97.

- Fiszbein, A., D. Ringold, and S. Srinivasan. 2011. "Cash Transfers, Children, and the Crisis: Protecting Current and Future Investments." Social Protection Discussion Paper 1112, World Bank, Washington, DC.
- FSB (Financial Stability Board). 2018. "Implementation and Effects of the G20 Financial Regulatory Reforms: Fourth Annual Report." Financial Stability Board, Basel, Switzerland.
- . 2019. "Implementation of G20/FSB financial reforms in other areas: Summary of Key Findings Based on the 2018 FSB Implementation Monitoring Network (IMN) Survey." Financial Stability Board, Basel, Switzerland.
- FSB-IMF-BIS (Financial Stability Board, International Monetary Fund, and Bank for International Settlements). 2011. "Macroprudential Tools and Frameworks." Update to G20 Finance Ministers and Central Bank Governors.
- Furman, J., and L. Summers. 2019. "Who's Afraid of Budget Deficits: How Washington Should End Its Debt Obsession." *Foreign Affairs* 2019 (March/ April).
- Gallagher, K. 2011. "Losing Control: Policy Space for Capital Controls in Trade and Investment Agreements." *Development Policy Review* 29 (4): 387-413.
- . 2015. *Ruling Capital: Emerging Markets and the Reregulation of Cross-Border Finance*. New York: Cornell University Press.
- García-Cicco, J., and E. Kawamura. 2014. "Central Bank Liquidity Management and 'Unconventional' Monetary Policies." *Economía* 15 (1): 39-87.
- Ghosh, A., J. Ostry, and M. Qureshi. 2017. *Taming the Tide of Capital Flows*. Cambridge, MA: MIT Press.
- Goldstein, M., and D. Xie. 2009. "The Impact of the Financial Crisis on Emerging Asia." In *Asia and the Global Financial Crisis*, edited by R. Glick and M. Spiegel, 27-80. Federal Reserve Bank of San Francisco.
- Gordy, M., and B. Howells. 2006. "Procyclicality in Basel II: Can We Treat the Disease without Killing the Patient?" *Journal of Financial Intermediation* 15 (3): 395-417.
- Gourio, F., A. Kashyap, and J. Sim. 2018. "The Trade Offs in Leaning Against the Wind." *IMF Economic Review* 66 (1): 70-115.
- Grabel, I. 2015. "The Rebranding of Capital Controls in an Era of Productive Incoherence." *Review of International Political Economy* 22 (1): 7-43.
- Gürkaynak, R. S., Z. Kantur, M. A. Taş, and S. Yildirim. 2015. "Monetary Policy in Turkey After Central Bank Independence." CESifo Working Paper 5582, Center for Economic Studies and Ifo Institute, Munich.
- Ha, J., M. A. Kose, and F. Ohnsorge, eds. 2019. *Inflation in Emerging and Developing Countries: Evolution, Drivers, and Policies*. Washington, DC: World Bank.
- IMF (International Monetary Fund). 2010a. *Coping with the Global Financial Crisis*:

- Challenges Facing Low-Income Countries*. Washington, DC: International Monetary Fund.
- . 2010b. *Impact of the Global Financial Crisis on the Gulf Cooperation Council Countries and Challenges Ahead*. Washington, DC: International Monetary Fund.
- . 2012. *The Liberalization and Management of Capital Flows: An Institutional View*. Washington, DC: International Monetary Fund.
- . 2016. “Capital Flows—Review of Experience with the Institutional View.” Policy Paper, International Monetary Fund, Washington, DC.
- . 2018a. *The IMF’s Institutional View on Capital Flows in Practice*. Washington, DC: International Monetary Fund.
- . 2018b. “Challenges for Monetary Policy in Emerging Markets as Global Financial Conditions Normalize.” Chapter in *World Economic Outlook*, October. Washington, DC: International Monetary Fund.
- . 2019. “Frontier Issues in Central Banking—An Assessment of IMF Contributions.” Independent Evaluation Office Background Paper 19-01/07, International Monetary Fund, Washington, DC.
- IILS (International Institute for Labour Studies). 2011. “A Review of Global Fiscal Stimulus.” EC-IILS Joint Discussion Paper Series 5, International Institute for Labour Studies, Geneva.
- Jara, A., R. Moreno, C. E. Tovar. 2009. “The Global Crisis and Latin America: Financial Impact and Policy Responses.” *BIS Quarterly Review*, Bank of International Settlement, Basel.
- Jiménez, G., S. Ongena, J. L. Peydró, and J. Saurina. 2017. “Macroprudential Policy, Countercyclical Bank Capital Buffers, and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments.” *Journal of Political Economy* 125 (6): 2126-2177.
- Kose, M. A., S. Kurlat, F. Ohnsorge, and N. Sugawara. 2017. “A Cross-Country Database of Fiscal Space.” Policy Research Working Paper 8157, World Bank, Washington, DC.
- Kose, M. A., P. Nagle, F. Ohnsorge, and S., Naotaka. 2020. “Can This Time Be Different? Policy Options in Times of Rising Debt,” Policy Research Working Paper Series 9178, World Bank, Washington, DC.
- Kose, M. A., F. Ohnsorge, and N. Sugawara. 2018. “Fiscal Space: Concept, Measurement, and Policy Implications,” Research and Policy Brief 132195, World Bank, Washington, DC.
- Kose, M. A., and F. Ohnsorge. 2019. *A Decade After the Global Recession: Lessons and Challenges for Emerging and Developing Economies*. Washington, DC: World Bank.
- Kose, M. A., F. Ohnsorge, and N. Sugawara. 2020. “Benefits and Costs of Debt : The Dose Makes the Poison,” Policy Research Working Paper Series 9166, World Bank, Washington, DC.
- Krishnamurti, D., and Y. Lee. 2014. *Macroprudential Policy Framework: A Practice Guide*. Washington, DC: World Bank.
- Kuttner, K., and I. Shim. 2013. “Can Non-Interest Rate Policies Stabilize Housing Markets?”

Evidence from a Panel of 57 Economies.” BIS Working Paper 433, Bank for International Settlements, Basel, Switzerland.

Laeven, L., and F. Valencia. 2018. “Systematic Banking Crises Revisited.” IMF Working Paper 18/206, International Monetary Fund, Washington, DC.

Lane, T. 2016. “Monetary Policy and Financial Stability—Looking for the Right Tools.” Speech by the Deputy Governor of the Bank of Canada, Montreal.

Leduc, S., and D. Wilson. 2014. “Infrastructure Spending as Fiscal Stimulus: Assessing the Evidence.” *Review of Economics and Institutions* 5 (1): 1-24.

Lombardi, D., and M. Moschella. 2017. “The Symbolic Politics of Delegation: Macroprudential and Independent Regulatory Authorities.” *New Political Economy* 22 (1): 92-108.

Lombardi, D., and P. L. Siklos. 2016. “Benchmarking Macroprudential Policies: An Initial Assessment.” *Journal of Financial Stability* 27 (December): 35-49.

Meeks, R. 2017. “Capital Regulation and the Macroeconomy: Empirical Evidence and Macroprudential Policy.” *European Economic Review* 95 (June): 125-141.

Mishkin, F. S. 2011. “Monetary Policy Strategy: Lessons from the Crisis.” In *Monetary Policy Revisited: Lessons from the Crisis*, edited by M. Jorocinski, F. Smets, and C. Thimann, 67-118. Frankfurt: European Central Bank.

Nanto, D. K. 2009. *The Global Financial Crisis: Analysis and Policy Implications*. Washington, DC: Congressional Research Service.

Ocampo, J. A. 2009. “Latin America and the Global Financial Crisis.” *Cambridge Journal of Economics* 33 (4): 703-724.

OECD (Organisation for Economic Co-operation and Development). 2009. *OECD Economic Outlook Interim Report*. Paris: OECD.

Ohnsorge, F., and S. Yu. 2016. “Recent Credit Surge in Historical Context.” Policy Research Working Paper 7704, World Bank, Washington, DC.

Osakwe, P. N. 2010. “Africa and the Global Financial and Economic Crisis: Impacts, Responses and Opportunities.” In *The Financial and Economic Crisis of 2008-2009 and Developing Countries*, edited by S. Dullien, D. J. Kotte, A. Márquez, and J. Priewe, 203-222. Geneva: United Nations.

Ostry, J., A. Ghosh, K. Habermeier, M. Chamon, M. Qureshi, and D. Reinhart. 2010. “Capital Inflows: The Role of Controls.” IMF Staff Position Note 10/04, International Monetary Fund, Washington, DC.

Ostry, J., A. Ghosh, K. Habermeier, M. Chamon, M. Qureshi, L. Laeven, and A. Kokenyne. 2011. “Managing Capital Inflows: What Tools to Use?” IMF Staff Discussion Note 11/06, International Monetary Fund, Washington, DC.

Portes, R. 2009. “Global Imbalances.” In *Macroeconomic Stability and Financial Regulation:*

Key Issues for the G20, edited by M. Dewatripont, X. Freixas, and R. Portes. London: Centre for Economic Policy Research.

Ramey, V. 2019. "Ten Years After the Crisis: What Have We Learned from the Renaissance in Fiscal Research?" *Journal of Economic Perspectives* 33 (2): 89-114.

Ranciere, R., A. Tornell, and A. Vamvakidis. 2010. "A New Index of Currency Mismatch and Systemic Risk." IMF Working Paper 10/263, International Monetary Fund, Washington, DC.

Reinhart, C. M., and K. S. Rogoff. 2008. "Is the 2007 US Sub-Prime Financial Crisis So Different? An International Historical Comparison". *American Economic Review: Papers & Proceedings* 98 (2): 339-344.

Rey, H. 2015. "Dilemma Not Trilemma: The Global Financial Cycle and Monetary Policy Independence." NBER Working Paper 21162, National Bureau of Economic Research, Cambridge, MA.

Stems, F. 2013. "Financial Stability and Monetary Policy: How Closely Interlinked?" *Sveriges Riksbank Economic Review* 3: 121–60.

Summers, L. 2014. "Reflections on the 'New Secular Stagnation Hypothesis.'" In *Secular Stagnation: Facts, Causes and Cures*, edited by C. Teulings and R. Baldwin. London: CEPR Press.

Svensson, L. 2017. "Cost-benefit Analysis of Leaning against the Wind." *Journal of Monetary Economics* 90 (October): 193-213.

Taylor, J. 2014. "The Role of Policy in the Great Recession and the Weak Recovery." *American Economic Review* 104 (5): 61–66.

U.S. Department of Treasury. 2013. "The Financial Crisis: Five Years Later—Response, Reform and Progress." Washington DC: U.S. Department of Treasury.

Vandenbussche, J., U. Vogel, and E. Detragiache. 2015. "Macroprudential Policies and Housing Prices: A New Database and Empirical Evidence for Central, Eastern, and Southeastern Europe." *Journal of Money, Credit and Banking* 47 (S1): 343-377.

World Bank. 2009. *Global Monitoring Report: A Development Emergency*. Washington, DC: World Bank.

———. 2014. *China Economic Update*. October. Washington, DC: World Bank.

———. 2015. *Global Economic Prospects: Having Fiscal Space and Using it*. January. Washington, DC: World Bank.

———. 2017. *Global Economic Prospects: A Fragile Recovery*. January. Washington, DC: World Bank.

———. 2018. *Commodity Markets Outlook: Oil Exporters: Policies and Challenges*. April. Washington, DC: World Bank.

———. 2019a. *Global Economic Prospects: Heightened Tensions, Subdued Investment*. June.

Washington, DC: World Bank.

———. 2019b. *Global Economic Prospects: Darkening Skies*. January. Washington, DC: World Bank.

———. 2019c. *Global Financial Development Report 2019/2020: Bank Regulation and Supervision A Decade After the Global Financial Crisis*. Washington, DC: World Bank.

———. 2020. *Global Economic Prospects: Pandemic, Recession: The Global Economy in Crisis*. June. Washington, DC: World Bank.

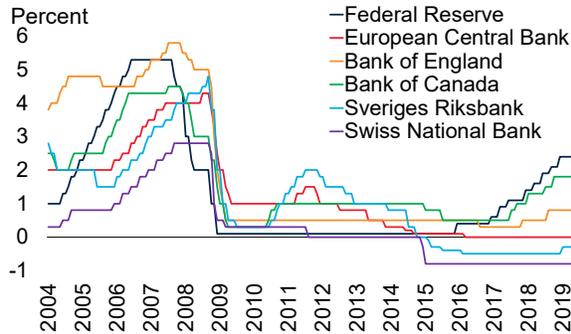
Yellen, J. L. 2014. "Monetary Policy and Financial Stability." Speech by Chair of the Federal Reserve Board of Governors, Michel Camdessus Central Banking Lecture, International Monetary Fund, Washington, DC.

Zeev, N. 2017. "Capital Controls as Shock Absorbers." *Journal of International Economics* 109 (November): 43–67.

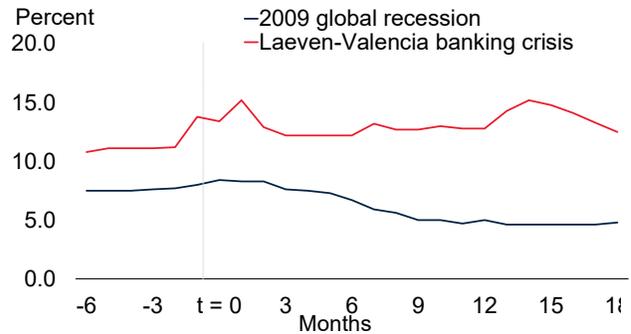
Zhang, L., and E. Zoli. 2016. "Leaning Against the Wind: Macroprudential Policy in Asia." *Journal of Asian Economics* 42 (February): 33-52.

Figure 1 Monetary policy since the 2009 global recession

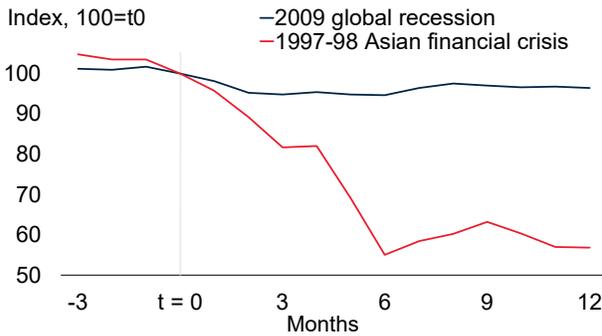
A. Monetary policy in advanced economies



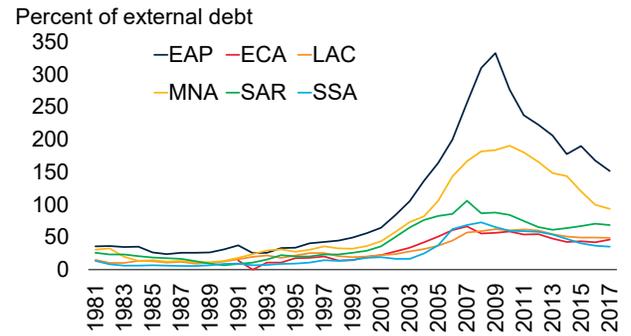
B. Policy interest rates in EMDEs around previous crises



C. Nominal effective exchange rates in East Asia around crises



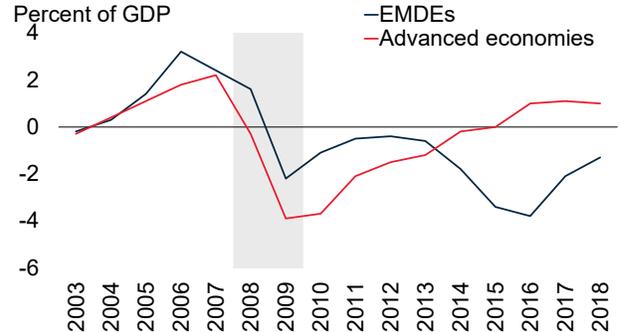
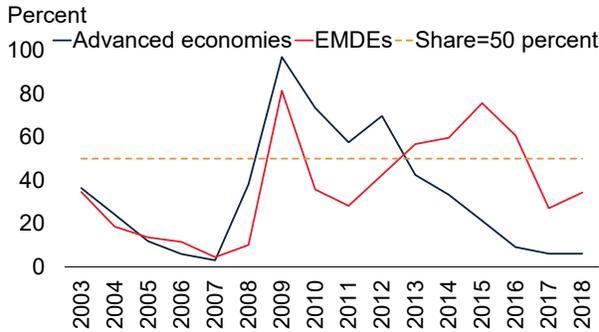
D. Foreign reserves



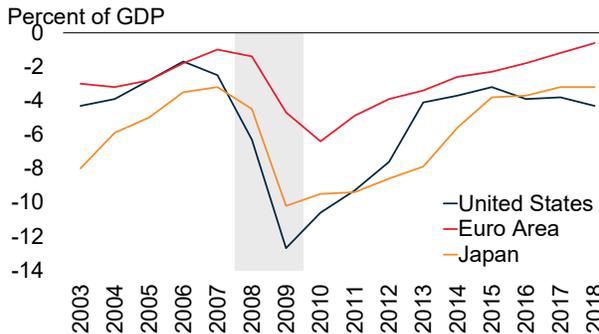
Source: Bank for International Settlements, Darvas (2012), Laeven and Valencia (2018), Haver Analytics, World Bank.
 Note: EAP = East Asia and Pacific, ECA = Europe and Central Asia, LAC = Latin America and the Caribbean, MNA = Middle East and North Africa, SAR = South Asia, SSA = Sub-Saharan Africa, EMDEs=Emerging market and developing economies.
 B. Median policy rates. The country sample (based on data availability) in the Laeven-Valencia banking crisis episodes consists of Argentina, Bulgaria, Colombia, Croatia, Czech Republic, Hungary, Malaysia, Philippines, Russia, and Vietnam. The starting dates ($t=0$) are defined by Laeven and Valencia (2018). The country sample in the 2009 global recession consists of 26 EMDEs. $t=0$ for the 2009 global recession is September 2008.
 C. A decline denotes nominal effective depreciation. The East Asian countries are Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand. $t=0$ for the crisis episodes (and global recession) are July 1997 and September 2008.

Figure 2 Fiscal policy since the 2009 global recession

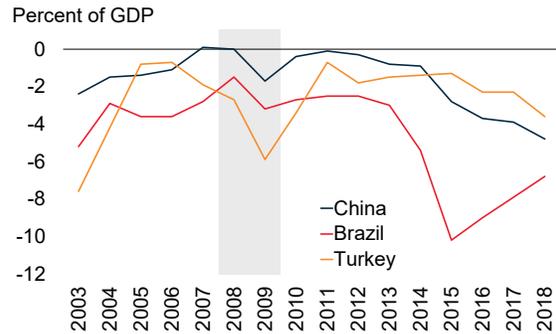
A. Share of EMDEs with debt on rising trajectories **B. Fiscal balance**



C. Fiscal balance in selected major advanced economies



D. Fiscal balance in selected major EMDEs

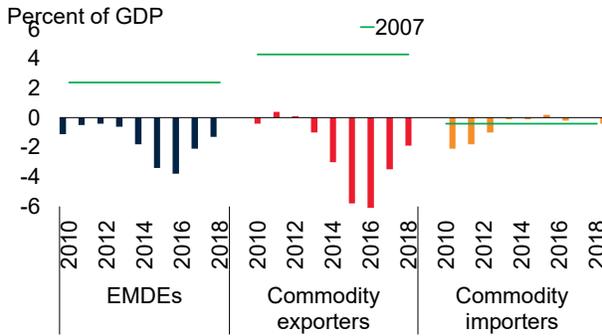


Source: European Central Bank, Kose et al. (2017), World Bank.
Notes: EMDEs=Emerging market and developing economies.

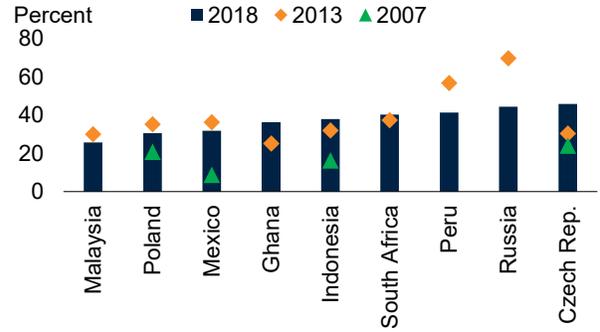
A. Chart shows the share of EMDEs with sustainability gaps below -1 percent of GDP, i.e., government debt on a clearly rising trajectory even at current low interest rates. Lines reflect GDP-weighted averages for corresponding country groups. The sustainability gap is the difference between the actual primary balance and the debt-stabilizing primary balance at current interest and growth rates.
B. Lines show simple averages for corresponding country groups.

Figure 3 Fiscal vulnerabilities in EMDEs since the 2009 global recession

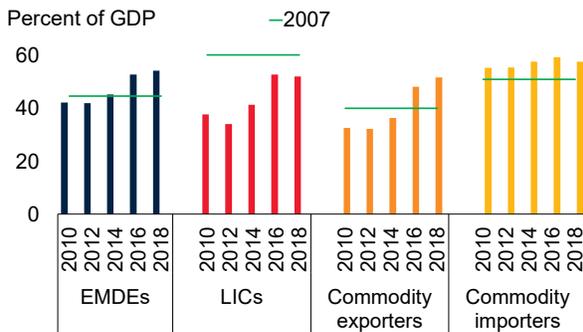
A. Fiscal balance



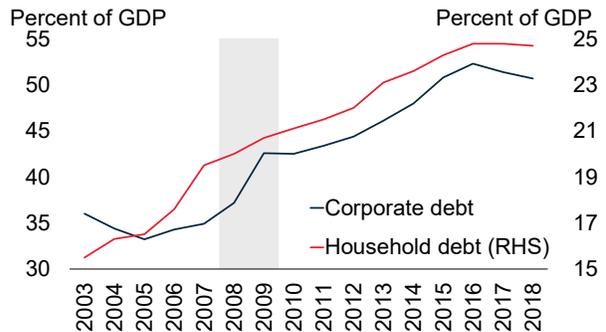
B. Nonresident share of local government bonds



C. Government debt



D. EMDE corporate and household debt



Source: AsianBondsOnline, Haver Analytics, Institute of International Finance, World Bank.

Notes: EMDE(s)=Emerging market and developing economy(ies).

A.D. Unweighted averages.

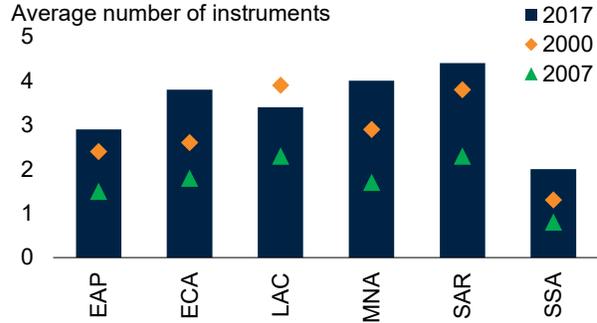
C. Unweighted averages. LICs = Low-income countries.

Figure 4 Macroeprudential policy since the 2009 global recession

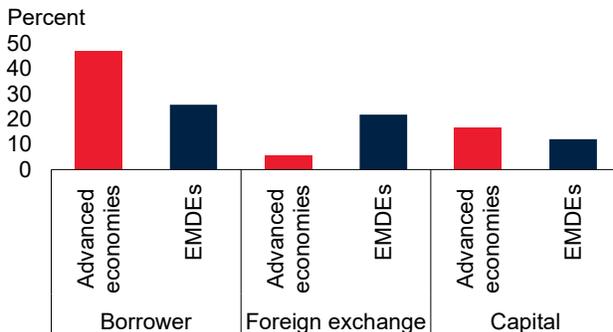
A. Google search term “macroprudential”



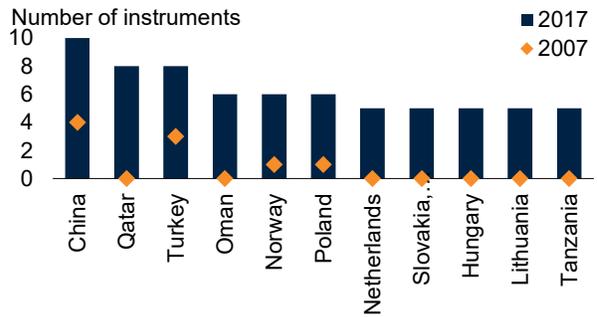
B. Average number of macroprudential tools in EMDEs



C. Use of macroprudential tools



D. Countries that used at least five macroprudential tools between 2007 and 2017



Source: Cerutti, Claessens, and Laeven (2017), Google Trends, World Bank.

Note: EAP = East Asia and Pacific, ECA = Europe and Central Asia, LAC = Latin America and the Caribbean, MNA = Middle East and North Africa, SAR = South Asia, SSA = Sub-Saharan Africa, EMDEs=Emerging market and developing economies.

A. Google trends data based on worldwide interest relative peak popularity (100) in the observed period. 6-month moving average.

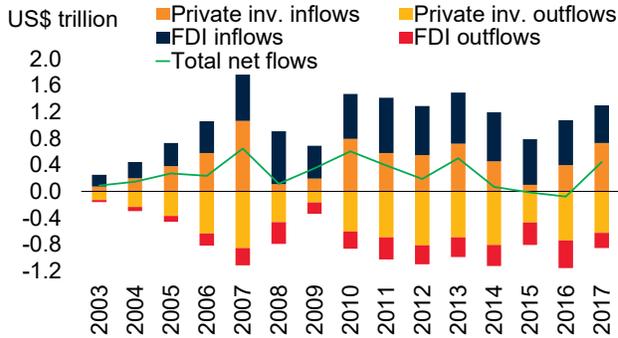
B. Bars show the average number of macroprudential tools per country in each EMDE region for 2017, with diamonds showing the number for 2000 and triangles for 2007.

C. Bars show the percent of countries in each country group that use certain macroprudential tools. Borrower-targeted tools include debt-to-income ratio and loan-to-value ratio; Foreign exchange-related tools include limits on foreign lending and foreign exchange reserve requirements; Capital-related tools include countercyclical capital requirements and dynamic loan loss provisioning.

D. Bars show the number of macroprudential tools in effect in 2017, while diamonds show the number of macroprudential tools in effect in 2007.

Figure 5 Capital flow management policies since the global recession

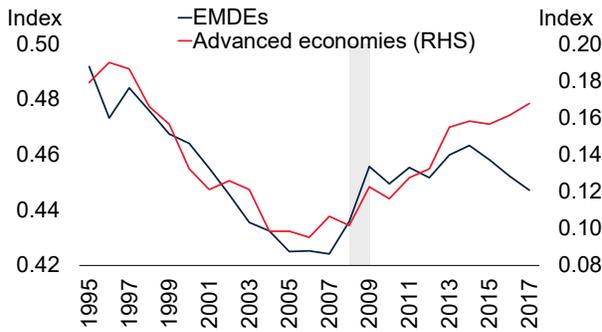
A. Capital flows to EMDEs



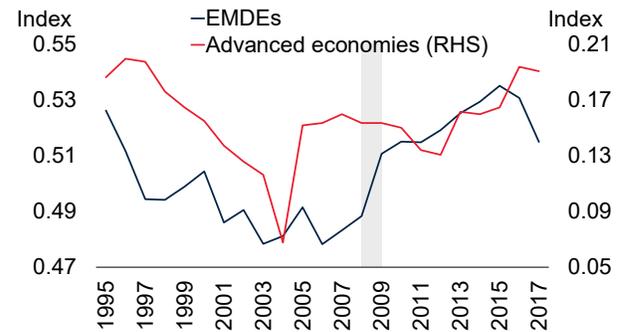
B. Interest rate differential between EMDEs and the United States



C. Capital controls on inflows



D. Capital controls on outflows



Source: Araujo et al. (2015), Bank for International Settlements, Fernández et al. (2016), International Monetary Fund, World Bank.

Note: EMDEs=Emerging market and developing economies. Gray area in B shows the period of the global financial crisis, while it captures the 2009 global recession in C and D.

A. Private investment flows include portfolio investment, other investment, and financial derivatives.

B. The line shows the differential between the central bank policy rates in EMDEs (group median) and the United States.

C. Lines show the overall inflow restrictions index (all asset categories), with a higher value suggesting more controls.

D. Lines show the overall outflow restrictions index (all asset categories), with a higher value suggesting more controls.