

Do Middle-Income Countries Continue  
to Have the Ability  
to Deal with the Global Financial Crisis?

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## Abstract

This paper introduces an “index of macroeconomic space”—demonstrating the ability of a country to run a countercyclical fiscal policy or a fiscal stimulus at any point in time—to show how a sample of 20 mostly middle-income countries had entered the 2008 global financial crisis with different initial conditions that, in turn, determined their ability to respond to this crisis. Since 2008, many have implemented expansionary fiscal policies and have used up available macroeconomic space. Most have had to resort to increased borrowing by the public sector, both externally and domestically.

Can the middle-income countries restore their pre-2008 macroeconomic space (to the level given by historical averages of key macroeconomic variables) or contain it from further deterioration in the medium term? In an endeavor to address this question, this paper shows, through illustrative scenarios, that the room to maneuver for some countries is somewhat limited unless they embark on severe, unprecedented fiscal adjustments or they may need more time to do so than current projections seem to suggest.

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This paper—a product of the Economic Policy and Debt Department, Poverty Reduction and Economic Management Network—is part of a larger effort in the department to assess the impact of the global financial crisis on the a country's sovereign debt and macroeconomic situations and its implications for inclusive growth. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The authors may be contacted at [rvandoorn@worldbank.org](mailto:rvandoorn@worldbank.org), [vsuri@worldbank.org](mailto:vsuri@worldbank.org) or [sgooptu@worldbank.org](mailto:sgooptu@worldbank.org).

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# **Do Middle-Income Countries Continue to Have the Ability to Deal with the Global Financial Crisis?**

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## 1. Introduction

At the eve of the September 2008 global financial crisis that was triggered by the Lehman collapse, most middle-income countries had been facing favorable market conditions and were at a stage where they themselves had improved their debt management capacity, reduced inflation, improved fiscal and current account balances, and accumulated foreign exchange reserves, in part due to sustained implementation of prudent macroeconomic policies between 2002 and 2007 and appropriate structural reforms. However, the crisis revealed differences among them: a number of middle-income countries were in a better condition than in the late 1990s-early 2000s to cope with the impact of the global crisis, while others were left weaker due to internal and external imbalances that emerged and were thus hit harder. This, in turn, affected their ability to respond in 2008 and 2009 and perhaps in the medium term if the global recovery is weak.

This paper aims to highlight these differences among a sample of 20 middle-income countries (MICs) with a view to stimulate debate about the way forward in dealing with the ongoing global financial crisis (Table 1).<sup>2</sup> The 20 countries in the sample are all MICs, except Hungary, which has recently graduated from the MICs, but where the impact of the global financial crisis and aftermath warrants a similar type of analysis. The sample covers both manufactured goods and commodity exporters<sup>3</sup> to ensure that the different initial conditions and transmission channels of the commodity boom-and-bust and the global financial crisis are covered.

The range of countries in this sample is wide—with populations ranging from 10 million (Hungary) to over 1 billion (China and India), GDP from \$100 million (Peru) to \$3.3 trillion (China) and GDP per capita from \$1,700 (Egypt) to \$14,000 (Hungary). At the same time, there are important similarities among these countries. Namely, all these countries have tapped international capital markets; they have attracted large amounts of short-term external financing; and are eligible for funding from the non-concessional window of the World Bank (i.e. IBRD) and other multilateral institutions. They are typically linked to high-income countries by both trade and financial market channels, and the global financial crisis impacted them directly via capital flow reversals, exchange rate pressures, increased borrowing

**Table 1. List of MICs analyzed<sup>(1)</sup>**

<b>Lower middle-income</b>	<b>Upper middle-income</b>	<b>High-income</b>
China	Argentina <sup>(3)</sup>	Peru
Egypt	Brazil <sup>3</sup>	Poland
India	Chile <sup>(3)</sup>	Russia <sup>(3)</sup>
Indonesia <sup>(3)</sup>	Colombia	South Africa
Nigeria <sup>(3)</sup>	Malaysia	Turkey
Philippines	Mexico	
Thailand		
Ukraine		

(1) According to World Bank's July 2009 classification. (2) Hungary was considered an upper middle-income country until mid-2008. (3) Considered commodity exporter in this paper.

<sup>2</sup> The World Bank currently classifies countries according to the Gross National Income (GNI) per capita using the Atlas method as low-income (\$975 or less), lower middle-income (\$976-\$3,855), upper middle-income (\$3,856-\$11,905) and high-income countries (\$11,906 or more) (<http://go.worldbank.org/K2CKM78CC0>).

<sup>3</sup> Although many countries export some commodities, this paper consider as commodity exporters, those countries where the dependence on commodity sector manifested itself in a significant improvement of the fiscal balance made a large improvement in 2002-07 compared to 1995-01. So Argentina, Brazil, Chile, Indonesia, Nigeria and Russia are included, but Mexico is excluded.

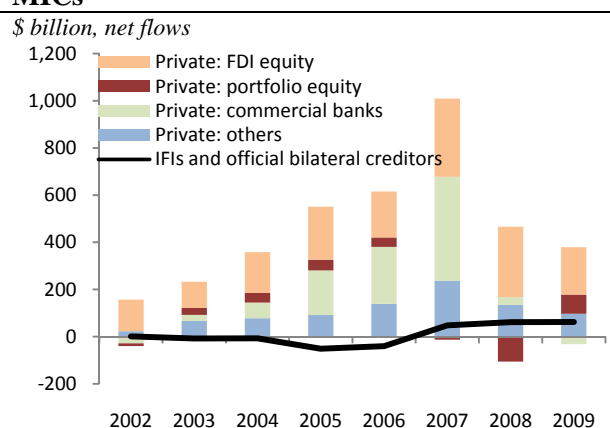
spreads in international credit markets, and indirectly, via commodity prices, exports, portfolio and foreign direct investment (FDI) flows and workers' remittances.<sup>4</sup>

Section 2 describes the main global and country-specific developments from 2002 to 2007. Section 3 assesses macroeconomic space at the onset of the crisis and the direct impact and response. Section 4 then assesses medium-term fiscal challenges and fiscal adjustment strategies under a number of scenarios. Section 5 concludes.

## 2. Developments from 2002 to 2007

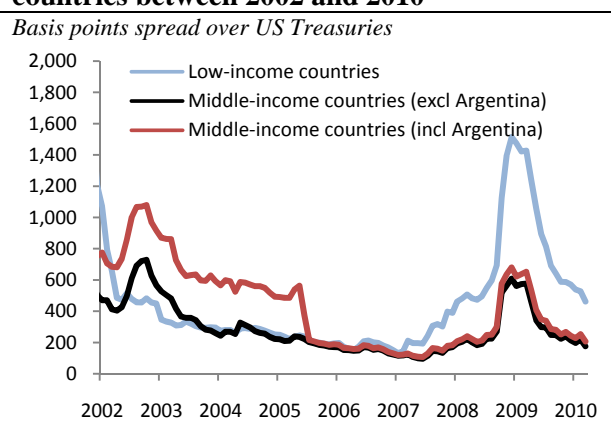
Thanks to favorable international market conditions during the period 2002 to 2007 coupled with prudent domestic macroeconomic management most of these MICs were successful in reducing inflation, improving their fiscal and current account balances and building-up foreign exchange reserves. Some countries switched to inflation targeting, and others implemented a well-designed fiscal responsibility framework.<sup>5</sup>

**Figure 1. Private and official capital flows to MICs**



Note: Besides the 20 MICs of this paper, the sample also includes Bulgaria, Czech Republic, Ecuador, Lebanon, Morocco, Romania, Saudi Arabia, South Korea, UAE and Venezuela  
Source: Institute of International Finance

**Figure 2. Spreads in low- and middle-income countries between 2002 and 2010**



Note: Unweighted average of LICs (Belize, Georgia, Ghana, El Salvador, Sri Lanka, Pakistan and Vietnam) and MICs (Argentina, Brazil, Chile, China, Colombia, Egypt, Indonesia, Mexico, Malaysia, Nigeria, Peru, Philippines, Poland, Russia, Turkey, Ukraine and South Africa). There is a structural break in Argentina's data on spreads in 2005, when it restructured part of its external debt.  
Source: JP Morgan Emerging Market Bond Index Plus, World Bank

<sup>4</sup> On the other hand, low-income countries (LICs) have been typically hit only via indirect channels such as commodity prices, exports, FDI flows and remittances (only a few have access to international capital markets). Given the typically larger share of income spent on food in LICs compared to MICs, the food and fuel price boom that occurred just before the global financial crisis had a larger and broader impact than in MICs, and weakened their position. Some have benefitted from debt relief, and they rely mostly on long-term concessional funding and grants from multilateral and official bilateral creditors.

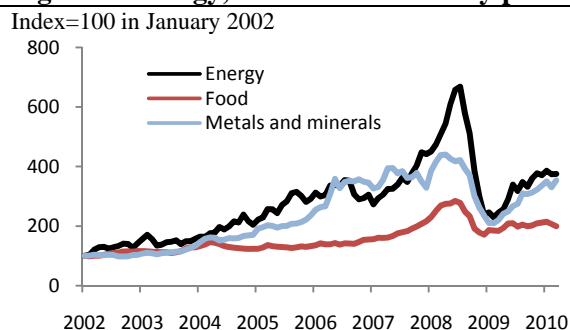
<sup>5</sup> Between 1999 and 2006, 11 countries in the sample had moved to inflation targeting: Brazil, Chile, Poland (1999), Colombia, South Africa, Thailand (2000), Hungary, Mexico (2001), Peru, Philippines (2002) Indonesia (2005), Turkey (2006) (Rose, 2006). Also, since 2000, 11 countries in the sample, namely, Argentina, Brazil, Chile, Hungary, India, Indonesia, Mexico, Nigeria, Pakistan, Peru and Poland, have implemented fiscal rules. These fiscal rules were either in the form of debt limits, balanced-budget rules, expenditure and revenue rules (See IMF, 2009). These rules also varied by level of government, enforcement, and degree of flexibility accorded by the center to sub-national entities.

Many countries were able to issue bonds in both foreign and domestic currency, as investors were looking for profitable opportunities (Figure 1). This led to record-low spreads on their bond issuances over comparable U.S. Treasuries (Figure 2). For some this relatively loose financing environment led to a large build-up of public and private external debt, thereby leading to internal and external imbalances and vulnerabilities down the road.

This period also witnessed commodity price hikes, which disproportionately benefitted commodity exporting MICs. But as food and fuel prices started to reach record highs in late-2007 to mid-2008 (Figure 3), a significant gap in the external and fiscal positions between commodity exporters and other countries began to appear. Commodity producing MICs were therefore in a better position to weather the crisis when it struck in 2008.

These favorable market conditions and policy improvements contributed to the observed pre-crisis improvements in domestic indicators in most of these countries. For instance, average inflation came down in most countries, especially, Argentina, Russia, Turkey and Ukraine (Figure 4). In several countries, financial sector development increased the access of its residents to credit. The increase in credit as share of GDP was especially large Hungary and Ukraine (Figure 5). Many countries increased their average fiscal and primary balances (e.g. Chile, Nigeria and Russia). Turkey improved its fiscal balance.

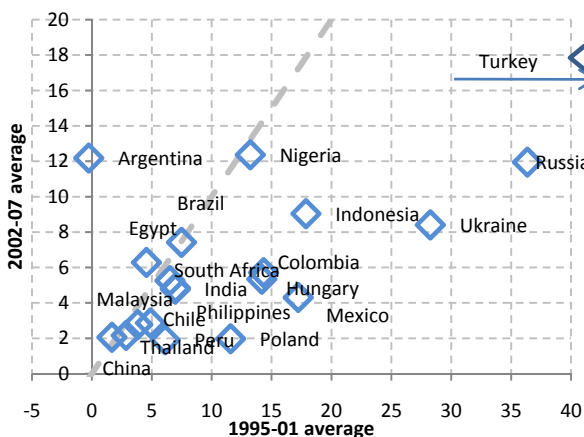
**Figure 3. Energy, food and commodity prices**



Source: World Bank Global Economic Monitor

**Figure 4. Inflation**

% year-on-year change, average of 1995-01 versus 2002-07

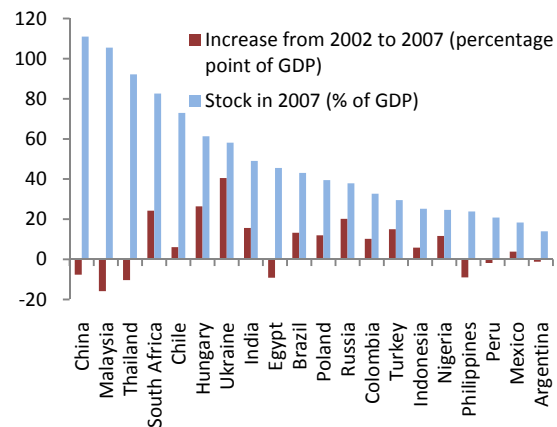


Note: Any point above the dashed line indicates higher average inflation in 2002-07 than in 1995-01. Turkey is off the chart, but average inflation was reduced from 71 percent in 1995-01 to 18 percent in 2002-07.

Source: IMF WEO, World Bank

**Figure 5. Credit to private sector**

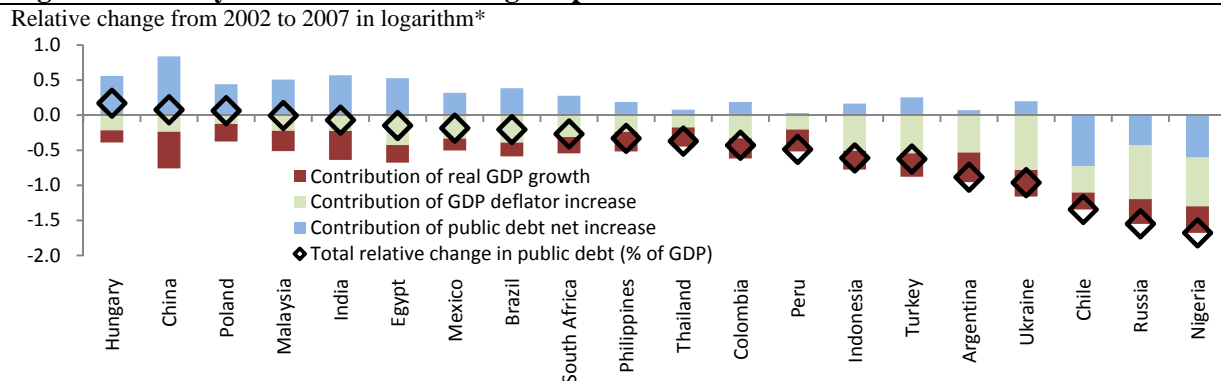
% of GDP



Source: IMF WEO and IFS, World Bank

This period also saw a decline in gross public indebtedness of these countries (as a share of GDP), partly due to rapid GDP growth.<sup>6</sup> Figure 6 shows the public debt dynamics of the sample of 20 middle-income countries that are examined in this paper.

**Figure 6. Debt dynamics: Relative change in public debt from 2002 to 2007**



Note: domestic and external public debt. \* This chart decomposes public debt (% of GDP) into three components (public debt (local currency), nominal GDP in constant prices and the GDP deflator) and shows the relative contribution of each component in logarithmic terms. Definition: Public debt (% of GDP) = Public debt (local currency)/[GDP (local currency, constant) x GDP deflator]. In relative changes in logarithm:  $\text{Log}[1+\% \text{change in public debt (\% of GDP)}] = \text{Log}[1+\% \text{change in public debt (local currency)}] - \text{Log}[1+\% \text{change in GDP (local currency, constant)}] - \text{Log}[1+\% \text{change in GDP deflator}]$

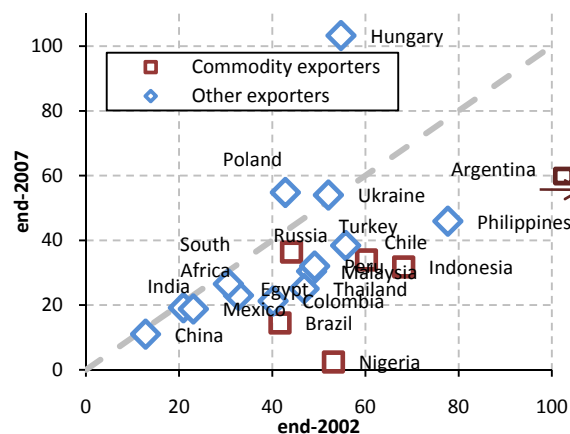
Note: General government net debt for Argentina; gross debt for all other countries.

Source: IMF WEO, World Bank

When looking at their external accounts, in the majority of these countries the current account deficits of 1995-01 turned into surpluses in 2002-07. Total external debt, i.e., public and publicly guaranteed (PPG) and private non-guaranteed (PNG) external debt, decreased in most countries relative to GDP between 2002 and 2007. For example, in Nigeria, Brazil, China and Argentina external debt fell (% of GDP) the most relative to the 2002 level. While in Hungary, Poland and Ukraine external debt grew relative to 2002. In Hungary total debt rose from 55 percent of GDP in 2002 to 103 percent of GDP in 2007, but this also includes a rapid increase in banking and intercompany loans<sup>7</sup> (Figure 7).

**Figure 7. Total external debt**

% of GDP, end-2002 versus end-2007



Note: Public and publicly guaranteed and private non-guaranteed debt. Any point above the dashed line indicates higher external debt at end-2007 than at end-2002. Argentina is off the chart, but debt was reduced from 172 percent of GDP at end-2002 to 70 percent of GDP at end-07.

Source: IMF WEO, World Bank

<sup>6</sup> Most countries reduced their gross public debt. Notably, Argentina decreased its debt from 170 percent of GDP in 2002 (as a result of the devaluation in 2002) to 70 percent of GDP in 2007, thanks to fast nominal growth, while the stock of debt hardly changed. Nigeria benefitted from debt reduction in 2005. In October 2005, it reached an agreement with Paris Club creditors to cancel or repay almost all of the outstanding claims against Nigeria (IMF, 2006).

<sup>7</sup> IMF (2010a).

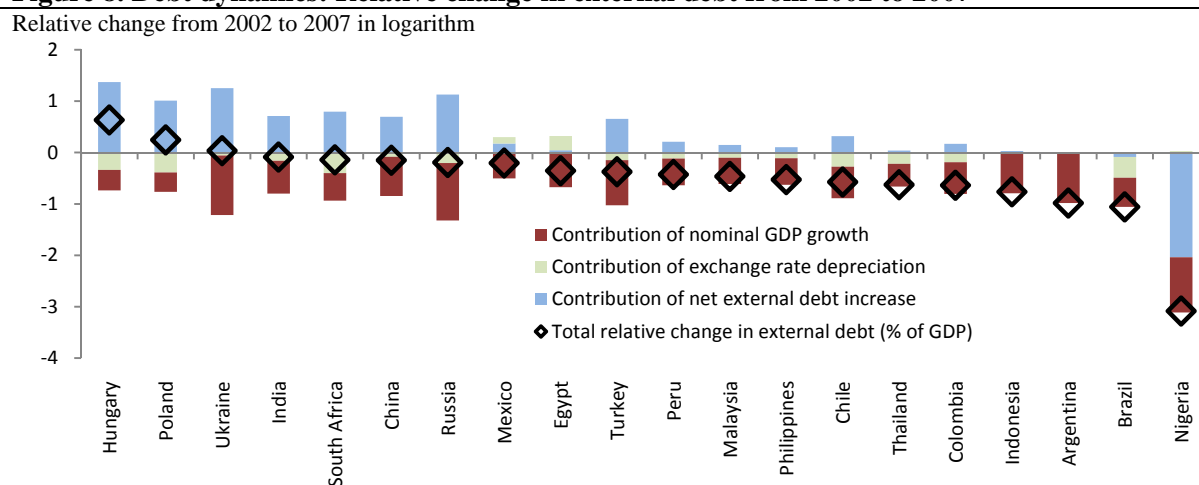
Looking at the debt dynamics for external debt in these countries, we find that for those countries where external debt decreased between 2002 and 2007, it was mainly due to rapid nominal GDP growth, with only a minor role for exchange rate appreciation.<sup>8</sup> In countries that saw a large increase in external debt, it was primarily due to increased borrowing so that debt stocks grew at a faster rate than nominal GDP growth. Here again, the role of exchange rate movements in changes in external debt was somewhat limited. Figure 8 shows the decomposition of the change in external debt for each country in the sample (as a % of GDP) into its three components (namely, external debt (\$), nominal GDP (local currency) and the exchange rate) and identifies the relative contribution of each component in logarithmic terms. Specifically, the following definitions are used:

$$\text{External debt (\% of GDP)} = [\text{External debt (\$)} \times \text{exchange rate}] / \text{GDP (in local currency)}.$$

To compute relative changes in a logarithmic scale:

$$\text{Log}[1 + \% \text{ change in external debt (\% of GDP)}] = \text{Log}[1 + \% \text{ change in external debt (\$)}] + \text{Log}[1 + \% \text{ change in exchange rate}] - \text{Log}[1 + \% \text{ change in GDP (local currency)}]$$

**Figure 8. Debt dynamics: Relative change in external debt from 2002 to 2007**



Note: public and publicly guaranteed and private non-guaranteed external debt.  
Source: IMF WEO, World Bank

Given the favorable developments that they experienced during the pre-crisis period (2002-2007), the available “macroeconomic space” improved for many countries.<sup>9</sup> In order to compare countries in this regard, we computed an “index of macroeconomic space” for each country for each year. Details on how this was computed are provided in Box 1.

<sup>8</sup> In Egypt and Mexico, exchange rate depreciation was offset by rapid GDP growth. Meanwhile Nigeria benefitted from a large reduction in external debt in 2005.

<sup>9</sup> Analogous to Heller (2005), who defines fiscal space as the space for the government to implement a counter-cyclical fiscal policy or even a fiscal stimulus program, without jeopardizing the sustainability of its financial position or the stability of the economy.



### **Box 1. The Index of Macroeconomic Space**

This index of macroeconomic space summarizes variables that have the most influence on a country's ability to implement a countercyclical fiscal policy or a fiscal stimulus program. In order to be able to implement a countercyclical fiscal policy or a fiscal stimulus, it is neither a necessary nor a sufficient condition to have low fiscal deficits and low public debt. External or domestic conditions could be a support or constraint on fiscal policy.

For example, if a country already has high inflation, a current account deficit, low reserves, high external debt, or fast growth in credit to the private sector, a fiscal expansion might destabilize the economy. On the other hand, even if a country has been running fiscal deficits and has a high public debt, it might still be able to run a fiscal expansion, as long as markets are confident that the country's debt level will remain on a sustainable path, and that macroeconomic stability is not jeopardized. The non-fiscal components of the index represent some of the variables that markets regularly monitor.

In countries that have low public and external debt, large FX reserves, enjoy low inflation, moderate credit growth, positive or only moderately negative current account and fiscal balances this fiscal expansion will probably have positive macroeconomic benefits (supporting growth, while maintaining internal and external balances). These countries are thought to have macroeconomic space.

In a country with high credit growth to the private sector, the increase in domestic demand might lead to an acceleration in inflation, while it is also a leading indicator for perhaps future calls on fiscal resources due to building up of contingent liabilities in the financial sector. The increase in external demand will lead to deterioration in the balance of payments and might put the exchange rate under pressure. Under a fixed exchange rate, the country will lose FX reserves. These countries are thought to have limited macroeconomic space.

However, in most countries there will be mix of these positive and negative indicators. A country might have a fiscal surplus, but it might still be constrained by high inflation, or low FX reserves and a current account deficit. On the other hand, a prudent country with low inflation and current account surpluses, might be able to (temporarily) sustain higher fiscal deficits and enjoy confidence from the markets.

The index of macroeconomic space consists of the unweighted sum of the seven standardized variables in the table below. These variables have been normalized with the sample mean and standard deviation of the particular year. This means that the distribution of each variable across the sample in 2007 and 2009 is centered around zero with a unit standard deviation. This standardization prevents variables with a typically high numerical value to dominate the index. Also, the exchange rate and domestic interest rate are not included explicitly as variables in this index to account for any endogeneity that may exist among these and the seven standardized variables in the index. *This index of macroeconomic space thus tracks a country's ability to conduct a countercyclical fiscal policy or even a fiscal stimulus program relative to the sample in any given year.*<sup>10</sup>

**Box Table 1. Components of the index of macroeconomic space**

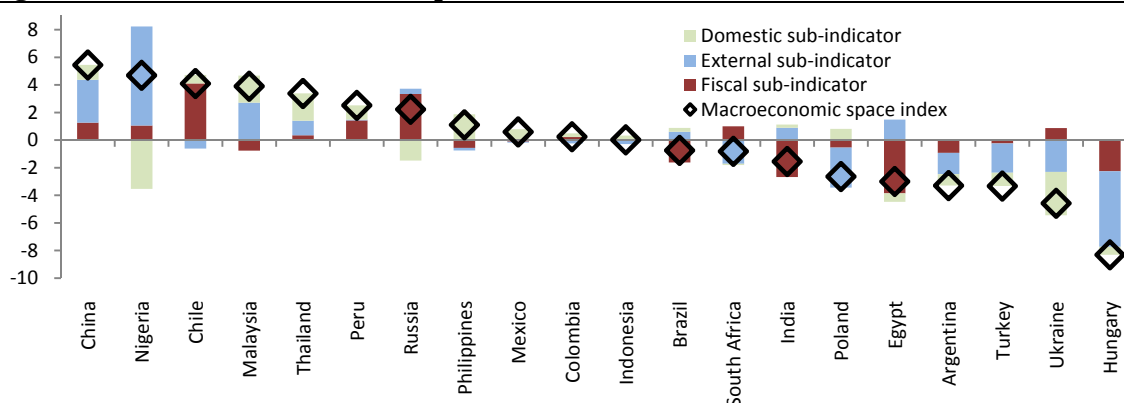
Sector	Sub-Indicator	Negative impact on space if	Positive impact on space if
Domestic	Credit to private sector (% of GDP, % yoy change)	High	Low
	CPI inflation (% change)	High	Low
External	Current account (% of GDP)	Deficit	Surplus
	External debt (% of GDP)	High	Low
	Log FX reserves-to-short-term debt ratio	Low	High
Fiscal	Fiscal balance (% of GDP)	Deficit	Surplus
	Gross public debt (% of GDP)	High	Low

<sup>10</sup> For instance, the fiscal space in 2007 is normalized by the 2007 sample average and standard deviation. It allows one to rank the countries by their fiscal space at any point in time relative to other countries.

### 3. How much “macroeconomic space” did the MICs have at the onset of the 2008 global financial crisis?

Box 1 discusses the “index of macroeconomic space” that is computed for each country in the sample. This index, which is based on three sub-indicators, shows that the macroeconomic space of most countries in the sample has increased between 2002 and 2007. China enjoyed the largest macroeconomic space in the sample, thanks to strong external sub-indicators and favorable fiscal and domestic sub-indicators. Nigeria’s macroeconomic space on the other hand was mostly thanks to its favorable external sub-indicators, such as current account surpluses, high reserves and low debt, offsetting its fast growth of credit to the private sector relative to GDP that might be lead eventually to higher inflationary pressure. Chile’s macroeconomic space was almost entirely thanks to its prudent fiscal policy. On the other hand, Hungary had the least macroeconomic space, mainly due to its relatively weak external and fiscal sub-indicators. In Ukraine, high inflation and weak external sub-indicators were more important, despite having a fiscal sub-indicator that was actually more positive than a few other countries. These were followed by Turkey and Argentina, which had suffered a financial crisis in 2002 (Figure 9).

**Figure 9. Index of macroeconomic space for selected countries at end-2007**



Note: Normalized by 2007 sample averages and standard deviations.  
Source: IMF WEO, World Bank

#### *After an initial panic that hit all countries markets quickly became more discerning...*

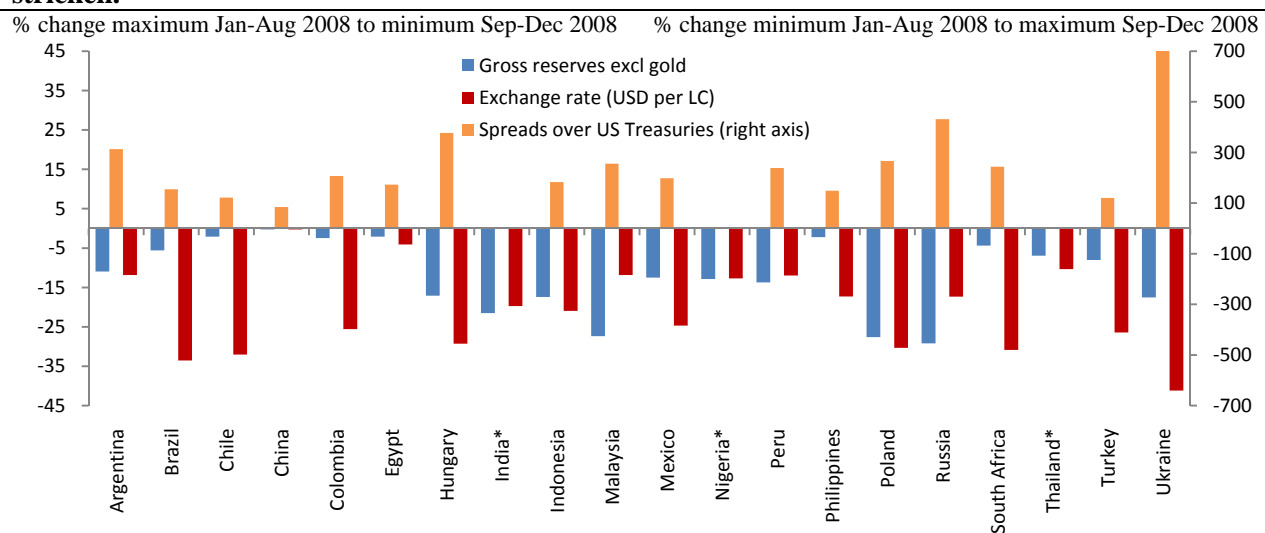
When the financial crisis became global in September 2008 after the collapse of Lehman Brothers, the immediate market reaction hit all these MICs across the board via multiple channels. However, data for the quarter that followed showed that markets become more discriminating in their risk assessments across countries as demonstrated by spreads, exchange rates and FX reserves. GDP growth has also suffered in most of these countries and their external debt burdens have increased due to the exchange rate movements.

In September 2008, spreads on sovereign bonds<sup>11</sup> over comparable U.S. Treasuries shot up immediately across this sample of MICs. This was especially so for Argentina, Hungary, Russia and Ukraine. At the

<sup>11</sup> Data from the J.P. Morgan Emerging Markets Bond Index Global (EMBI Global), which tracks total returns for US dollar denominated debt instruments issued by emerging market sovereign and quasi-sovereign entities.

same time, with portfolio capital flows reversing, the balance of payments came under pressure in many countries. Some countries, such as Brazil, Chile, Colombia, Philippines and South Africa, immediately let their exchange rates adjust while preserving FX reserves. Other countries tried to resist depreciation pressure in vain, while losing FX reserves (Figure 10).

**Figure 10. Immediate impact of the crisis on key market indicators was significant and panic stricken.**



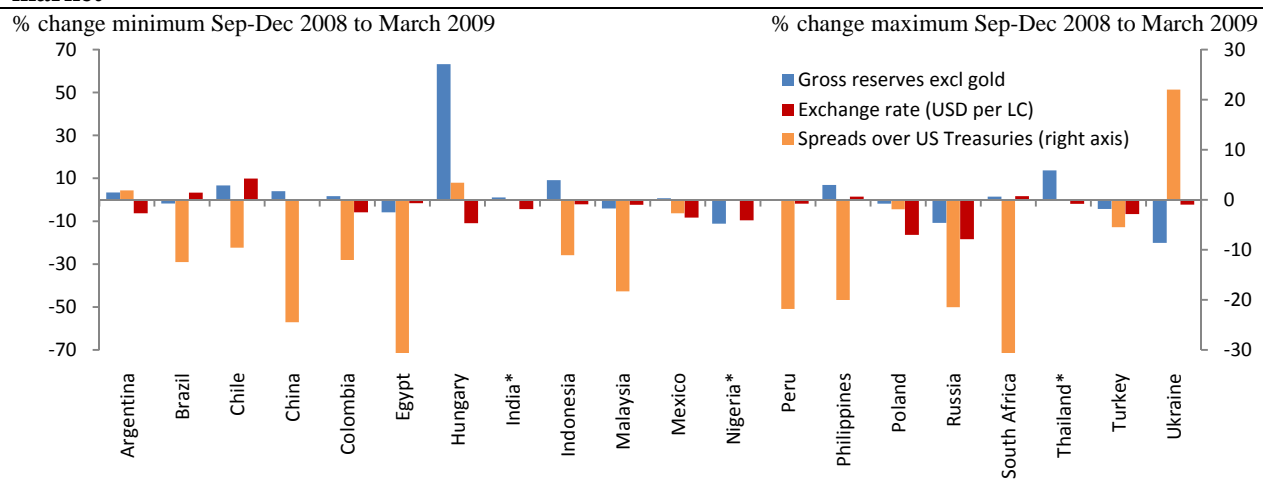
\* No spread data available for India, Nigeria and Thailand.

Source: IMF IFS for reserves, Reuters for exchange rates and JP Morgan Emerging Market Bond Index Plus for spreads, World Bank

However, as the initial wave of panic subsided, markets became more discerning, and started to look at the fundamentals of the countries. Spreads started to decrease for most countries, although by March 2009, they had not yet returned to their pre-crisis levels. In Argentina, Hungary and Ukraine, spreads in March 2009 had increased further. Meanwhile, exchange rates had become more stable and some countries' FX reserves had increased again. Hungary's recovery of reserves is thanks to the IMF program in November 2008, which allowed it to increase FX reserves (Figure 11). Figure 12 highlights the slowdown in real GDP growth that was experienced in the aftermath of the 2008 crisis. Comparing pre-crisis average peak to trough GDP growth (real year-on-year between Q3 2008 and Q3 2009) all countries in the sample were hit by a slowdown. This was especially so for commodity exporters such as Chile and Russia, and Hungary, Mexico, Turkey and Ukraine. For developing countries as a whole, their economic downturn has been deeper and more broadly based than during previous recessions.<sup>12</sup>

<sup>12</sup> World Bank (2010), page 3, Figure O.3.

**Figure 11. Impact on key market indicators after initial panic showed risk differentiation by market**



\* No spread data available for India, Nigeria and Thailand.

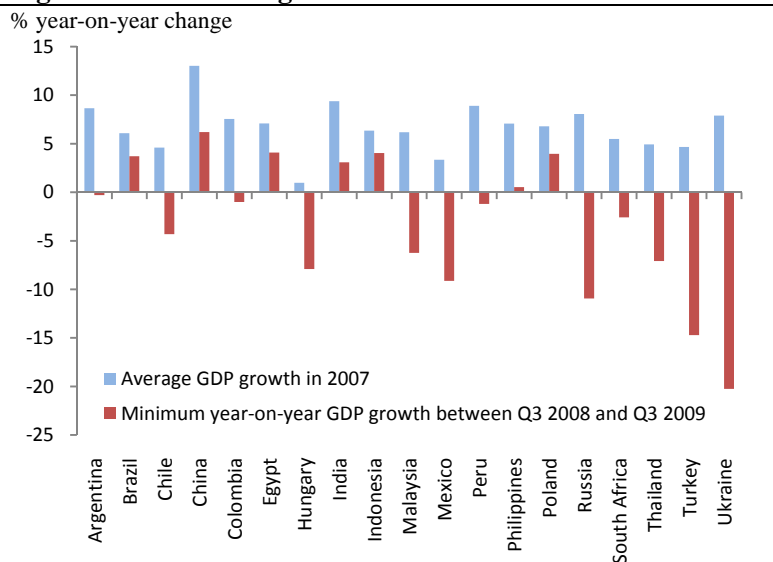
Source: IMF IFS for reserves, Reuters for exchange rates and JP Morgan Emerging Market Bond Index Plus for spreads, World Bank

*... while fiscal responses varied across countries*

Faced with the impact of the global financial crisis, countries responded with a range of policy measures, amongst others, countercyclical fiscal policy, monetary policy (interest rate reductions), bank credit expansion, and international liquidity support facilities.<sup>13</sup>

The cyclically adjusted primary balances for 2007 and 2009, show deterioration in all countries, except Hungary, where a Fund-supported fiscal consolidation program was quickly put in place after the crisis hit (Figure 13).<sup>14</sup>

**Figure 12. Real GDP growth fell**



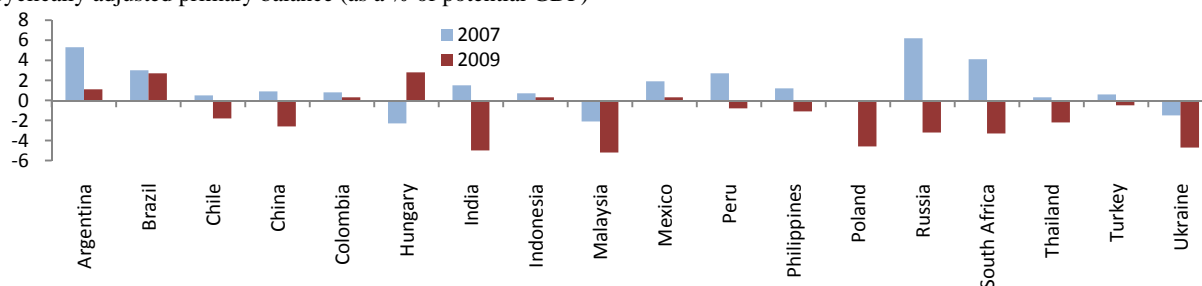
Source: Thomson Datastream Advance, World Bank

<sup>13</sup> In October 2008, the Federal Reserve arranged dollar liquidity swaps with the central banks of Brazil and Mexico (<http://www.federalreserve.gov/newsevents/press/monetary/20081029b.htm>). In April 2009, Colombia, Mexico and Poland requested a Flexible Credit Line with the IMF. The ASEAN countries together with China, Japan, and South Korea expanded the Chiang Mai Initiative's swap lines.

<sup>14</sup> IMF (2010b). See also Appendix 1 of this document for updated information on crisis-related discretionary fiscal stimulus programs in the G20 countries based on a survey of the respective IMF country desks.

**Figure 13. Cyclically adjusted primary (non-interest) balances deteriorated**

Cyclically adjusted primary balance (as a % of potential GDP)

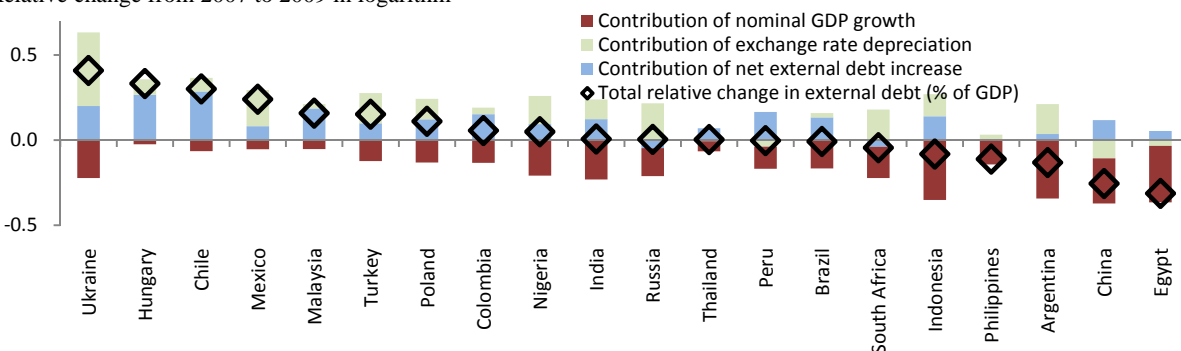


Source: IMF (2010c)

Countries with a relatively large amount of macroeconomic space at end-2007 typically increased their non-interest expenditure in 2008-09 the most, both as a share of GDP and in real terms.<sup>15</sup> Chile and Russia, which had healthy fiscal sub-indicators, showed the largest increase in non-interest expenditure as a share of GDP. China, on the other hand, showed primarily strong external sub-indicators, but showed a large increase in real non-interest expenditure.<sup>16</sup> While, the increases in fiscal expenditure have certainly helped counteract the drop in other components of aggregate demand, in most cases however, it was unable to prevent a downturn. The new borrowing in response to the crisis, combined with the growth slowdown and exchange rate depreciation, reversed some of the earlier gains from a reduction of external and public debt (as a share of GDP) that these countries had experienced in previous years. Between 2007 and 2009, external debt increased relative to GDP in eleven countries in this sample (up from three countries between 2002 and 2007 (Figure 14)).

**Figure 14. Debt dynamics: Relative change in external debt from 2007 to 2009**

Relative change from 2007 to 2009 in logarithm\*



\* See Figure 8 for explanation of method.

Source: IMF WEO, authors' calculations

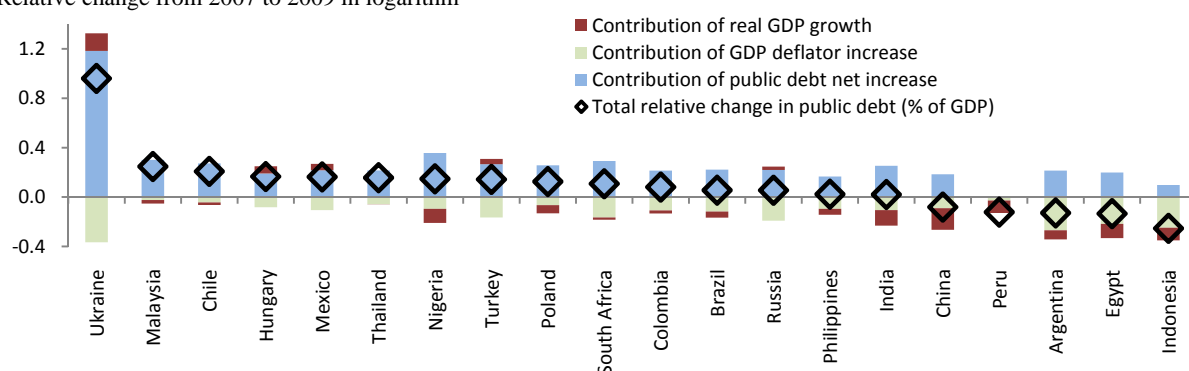
<sup>15</sup> The correlation between the overall macroeconomic index at end-2007 (fiscal, external and domestic sub-indicators), and the percent change in real non-interest expenditure between 2007 and 2009 is 46 percent, while the correlation of the fiscal sub-indicator alone with the percent change in real non-interest expenditure between 2007 and 2009 is much lower at 20 percent. This shows that non-fiscal variables do play an important role in determining macroeconomic space.

<sup>16</sup> It should be noted that only a small portion of China's fiscal stimulus package is visible in the budget data, as most is reflected in bank lending (Vincelette, *et al.*, 2010); domestic credit to the private sector surged from 108 percent of GDP in 2008 to 134 percent of GDP in 2009. This represents both the largest increase and the highest level of private credit in the sample, which potentially reduces China's fiscal space to act down the road.

The fiscal policy response in 2008 and 2009, and the external support packages that were put together for these countries, have led to higher public (Figure 15) and external debt in several countries. In some countries, such as Hungary, which built up more external debt relative to domestic debt, they now face increased foreign exchange risk. For others, such as Brazil, India, Egypt, which built up more domestic debt relative to external debt, their exchange rate risks are less. This shows that countries would do well to monitor the financial structure and composition of their debt portfolios (Figure 16).

**Figure 15. Debt dynamics: Relative change in public debt from 2007 to 2009**

Relative change from 2007 to 2009 in logarithm\*

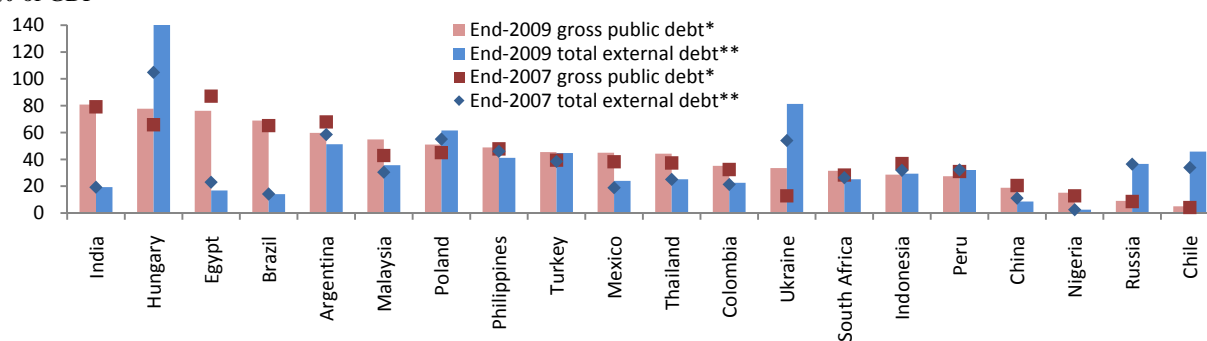


\* See Figure 6 for explanation of method.

Source: IMF WEO, authors' calculations

**Figure 16. In some countries public debt is mostly domestic, whereas other countries have substantial external public and private sector liabilities**

% of GDP



\* Total gross domestic and external public debt. \*\* Total public and publicly guaranteed (PPG) and private non-guaranteed (PNG) external debt

Source: IMF WEO, World Bank

Looking back, one can arrive at the logical observation that *those countries that had macroeconomic space at the onset of the crisis in late 2008 were able to rapidly respond by increasing their fiscal spending*. One observes a negative correlation between the macroeconomic space at end-2007 and the change in the primary balance that was seen between 2007 and 2009. However, at the end of 2009, most countries ended up with less macroeconomic space after the initial impact of the global financial crisis. The relative ranking of countries along the macroeconomic space index also changed, reflecting the relative amount of space that had been “used up” as a consequence of the crisis. Note, however, that

countries such as Argentina and Hungary while improving their relative ranking still have very low fiscal space (Figure 17).

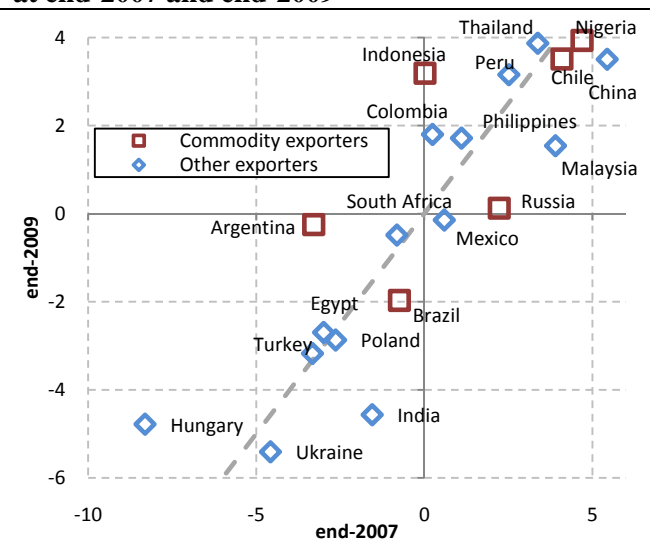
Looking at the macroeconomic space index at the end of 2009, Nigeria, Thailand, Chile, China are observed to have the largest room to respond to a more prolonged crisis, in Nigeria thanks to its strong external sub-indicator, whereas in the other countries thanks to a more balanced mix of indicators.<sup>17</sup> Hungary, Ukraine were seen to have the least amount of fiscal space in this sample, reflecting both a weak starting point as well as large negative impacts of the crisis.

#### 4. Looking Ahead

Given these elevated levels of debt after the initial crisis response, the attention of policy makers and capital market participants should shift to the medium term. The World Bank's *Global Economic Prospects 2010* concludes that the 2008 global crisis will have a lasting impact on financial markets, raising borrowing costs and lowering levels of credit and international capital flows. It projects that, as countries adjust to tighter global financial conditions, growth of potential output in developing countries may be reduced by between 0.2 and 0.7 percentage points annually over the next five to seven years. Given the depth of the recession and relative weakness of the expected recovery, one may very well see significant spare capacity, high unemployment, and weak inflationary pressures in both high-income and developing countries for some time.<sup>18</sup>

Key questions that emerge in as a result include: What will happen to public debt if there is no adjustment to the primary balance in the medium term? What kind of fiscal adjustment will the countries need to make in order to either reduce their public debt stock or stabilize it? If the adjustment is deemed too large to be politically credible, what will be the effect of a more gradual adjustment? This section of the paper endeavors to address some of these questions by reporting on the results of four illustrative simulations: a baseline scenario and three alternative scenarios.<sup>19</sup>

**Figure 17. Ranking of macroeconomic space index at end-2007 and end-2009**



Note: The macroeconomic space of 2007 consists of variables normalized by the 2007 sample average and standard deviation and similarly for 2009. Therefore, a country above the dashed line has moved up in the ranking of macroeconomic space from 2007 to 2009.

Source: IMF WEO, authors' calculations

<sup>17</sup> For China, a combination of fiscal and external indicators, for Thailand domestic and external indicators and for Chile fiscal and domestic indicators.

<sup>18</sup> Source: World Bank *Global Economic Prospects 2010*.

<sup>19</sup> All four simulations use projections from the IMF's World Economic Outlook (April 2010). The nominal medium-term growth rate is that average projected growth rate from 2010-14. The historical primary balance is the average primary balance from 2002-07. For commodity exporters however the average primary balance was very high thanks to the commodity price boom, and they may not be able to achieve these surpluses in the medium term. A similar rationale applies to Colombia, Peru and Turkey. Therefore, for those countries the (lower) average from 1996-01 is used. The nominal interest rate-growth rate differential (r-g) is chosen to 1pp for each country. However, using market-data-based country-specific values from Topalova and Nyberg (2010) does not make a significant difference.

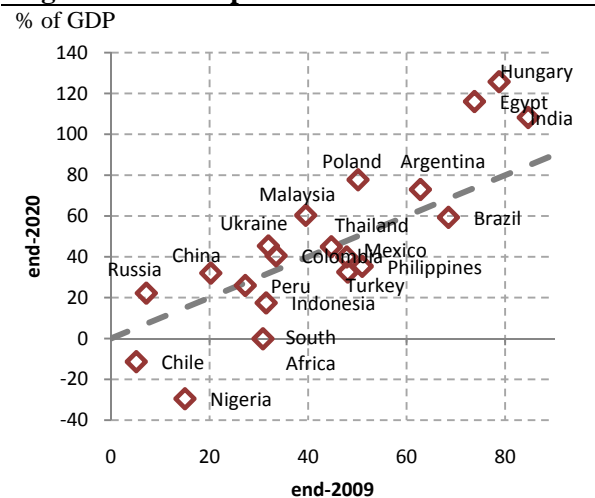
- The baseline scenario fixes the primary balance at its historical value and takes the growth rate projections from the IMF's *World Economic Outlook* (WEO) database. This WEO database already assumes that after the crisis the growth rates are permanently lower than before the crisis.
- Scenario 1 calculates the required primary balance if the countries try to reach a debt target. These debt targets are: (i) to reduce its debt to 40 percent of GDP by 2020 if debt stock is above 40 percent of GDP at end-2009, or (ii) to permanently stabilize its debt-to-GDP ratio if the debt is already below 40 percent of GDP at end-2009.<sup>20</sup> Comparing the required primary balances going forward to the country's historical values shows the extent to which a country needs to adjust its primary balance to reach its desired debt target.
- Scenario 2 is similar to scenario 1, but it assumes that the crisis will be prolonged further and these countries will need to continue to implement expansionary policies as they did in 2007-09 period, thereby leading to additional debt accumulation. It then estimates the required primary balance if a country still aims to achieve the same debt target as under scenario 1 but this time by the year 2020.
- Scenario 3 examines a more gradual approach towards adjusting the primary balances in each country so as to reach their debt target (as specified under scenario 1). This may be necessary for some countries if the required fiscal adjustment under the earlier two scenarios may be very large and/or might not be politically feasible to implement (or might fuel further instability and, perhaps, a new downturn because of insufficient aggregate demand without such stimulus programs).

### Baseline

Under the baseline scenario, with the primary balance set to the historical average, public debt in 2020 is expected to increase further for a number of countries, in particular in the countries with the highest public debt at end-2009, Egypt, Hungary, India. Despite using a lower primary balance for Chile and Nigeria, public debt will decline and become negative during the projection period - which could be interpreted as an accumulation of fiscal assets (Figure 18).

In the cases of Colombia, Peru and Turkey, although these countries are not among the major commodity exporters, their average primary surplus during the period 2002-07 was much higher than what they have achieved between 1996 and 2001. Although this might indeed signal fiscal policy improvements, a key question will be whether these countries will be able to maintain such fiscal surpluses in a post-crisis world if commodity prices and global growth declines. Hence, for the baseline scenario for those countries, the historical primary fiscal balance is assumed to be represented by their 1996-2001 average primary fiscal balance.

**Figure 18. Gross public debt**



Note: Negative numbers can be interpreted as fiscal assets. Any point above the dashed line indicates that public debt at end-2020 is higher than at end-2009.  
Source: IMF WEO, authors' calculations

<sup>20</sup> The 40 percent of GDP target corresponds to the sample median of the 2004-07 average public debt level of the MICs, see also IMF (2010b).



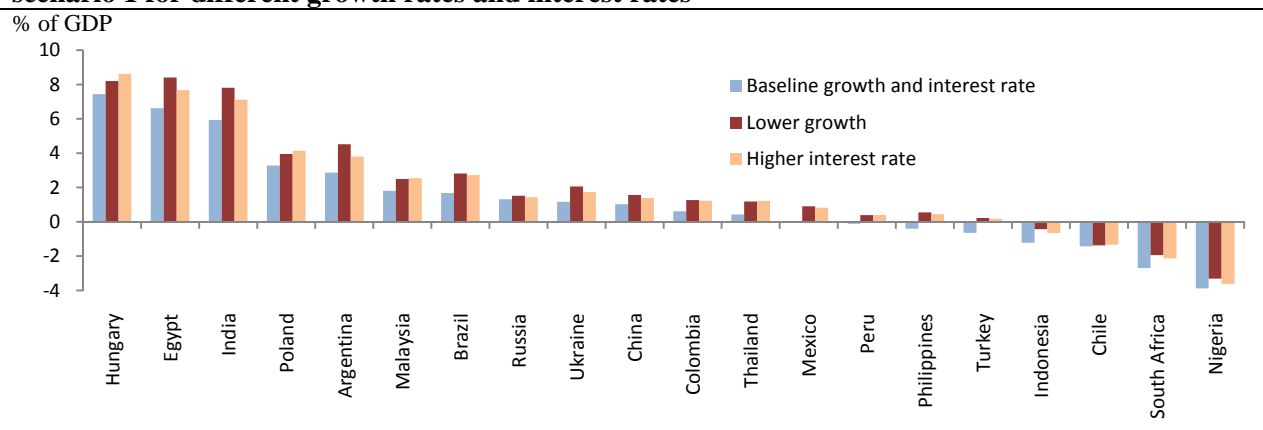
### Scenario 1: 2020 debt target

Under this scenario, the countries decide to set a specific public debt target to be achieved by 2020. The reason one may want to do this might be to account for the effect of the political cycle on debt, to commit future governments to maintain debt sustainability, or to benefit from the “announcement effect” with a view to assure capital markets that their debt is sustainable and that the crisis response programs are indeed temporary. In particular, under this scenario these selected countries are assumed adopt one of two debt targets: (i) reduce debt to 40 percent of GDP by 2020, if the end-2009 debt is larger than 40 percent of GDP; or (ii) stabilize debt at the end-2009 level, if end-2009 debt is already below 40 percent of GDP. Under this target Chile, China, Colombia, Indonesia, Malaysia, Nigeria, Peru, Russia, South Africa and Ukraine will face the stabilization target. The remaining countries will face the debt reduction target.

Under the baseline growth projection, the primary fiscal balance required to achieve the target is lower than the historical primary balance for Chile, Indonesia, Mexico, Nigeria, Peru, Philippines, South Africa and Turkey. Hence, no unusual fiscal adjustment would be needed for those countries. China would have to achieve a higher primary balance than its historical balance, but given its low level of public debt at end-2009, its debt would still be below 40 percent of GDP if it continued to achieve its historical primary balance. Large adjustments of the primary balance are needed in Argentina, Egypt, Hungary, India and Poland.

Although a permanently lower GDP growth rate and higher world interest rates would increase the required adjustment, their effect on the required adjustment is smaller than the debt target itself.<sup>21</sup> However, these shocks would mean that for countries like Mexico, Peru, Philippines and Turkey, they will now have to adjust their primary fiscal balances to achieve the debt target (Figure 19).

**Figure 19. Required primary balance adjustment relative to historical primary balance under scenario 1 for different growth rates and interest rates**



Source: IMF WEO, World Bank

How can this fiscal adjustment take place? Each country will have to choose between cutting public spending or increasing government revenue, or both. A lot will depend on the pace of recovery of fiscal revenues in each country, which in turn will depend on GDP growth; how high international interest rates

<sup>21</sup> The lower growth rate case is  $\frac{3}{4}$  of the baseline growth rate, while keeping the interest rate unchanged; and the higher interest rate case is 2 percentage points higher than the baseline, leading to an interest rate-growth rate differential of 3 percentage points.

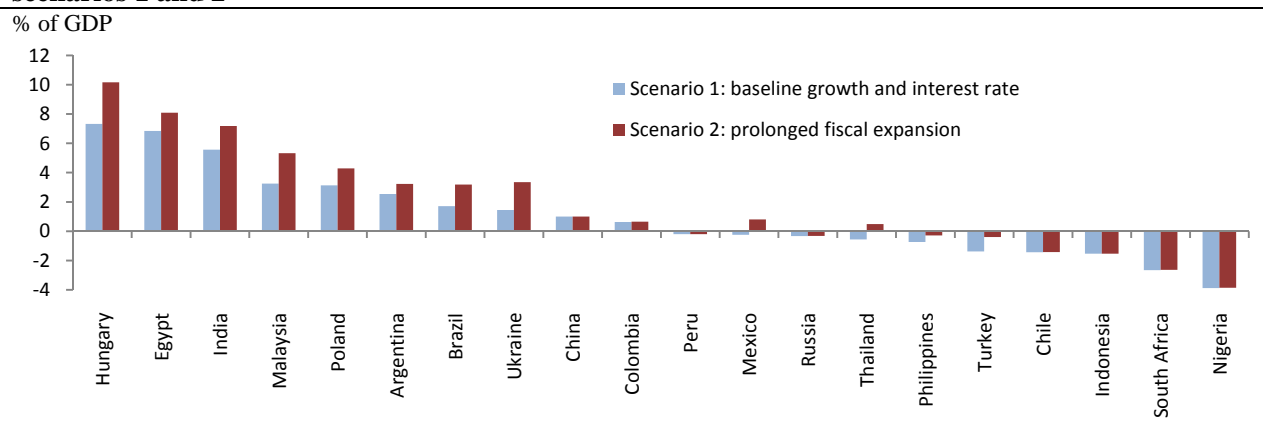
and exchange rates will be, how much pressure the ongoing higher social safety net expenditures by the governments (e.g. social security and health care spending) are already putting on their budgets; and the political feasibility of cutting key recurrent spending items in the budget. Uncertainties also remain for developing countries on the extent to which private sector consumption and investment demand will respond to the fiscal and monetary stimulus efforts and the inventory cycle. If the response is weaker than envisaged or should they be prematurely withdrawn, the recovery could stall.<sup>22</sup>

### **Scenario 2: Prolonged fiscal expansion to 2012**

Under this illustrative scenario, the fiscal stimulus spending of 2008 and 2009 is continued for an additional two years (i.e. until 2012), and the respective countries are assumed to respond to it endogenously in the same way as they had responded immediately after the crisis (2008 and 2009). After 2012, when this additional fiscal spending stops, countries are assumed to still aim to reach the same debt targets in 2020 as under scenario 1, with the same baseline GDP growth and interest rate assumptions. Specifically, under this scenario, if a country's public debt as a share of GDP increased in 2008 and 2009, it will continue to increase by the same amount as a share of GDP from 2010 to 2012 (all countries except Argentina, Egypt, Indonesia, Peru and Russia). However, if it decreased in 2008 to 2009, then from 2010 to 2012, it will be kept constant as a share of GDP.

The additional debt accumulation in some countries and no decline in debt levels in the other countries in this sample, it will clearly become more difficult for most countries to achieve their 2020 targets under this scenario. Malaysia and Ukraine's debt target would switch from public debt stabilization under scenario 1 (as public debt was below 40 percent of GDP at end-2009) to debt reduction under this scenario. Mexico, Philippines and Turkey would now need to adjust their primary balances further relative to their historical efforts, whereas under scenario 1 no adjustment was needed (Figure 20).

**Figure 20. Required primary balance adjustment relative to historical primary balance under scenarios 1 and 2**



Source: IMF WEO, World Bank

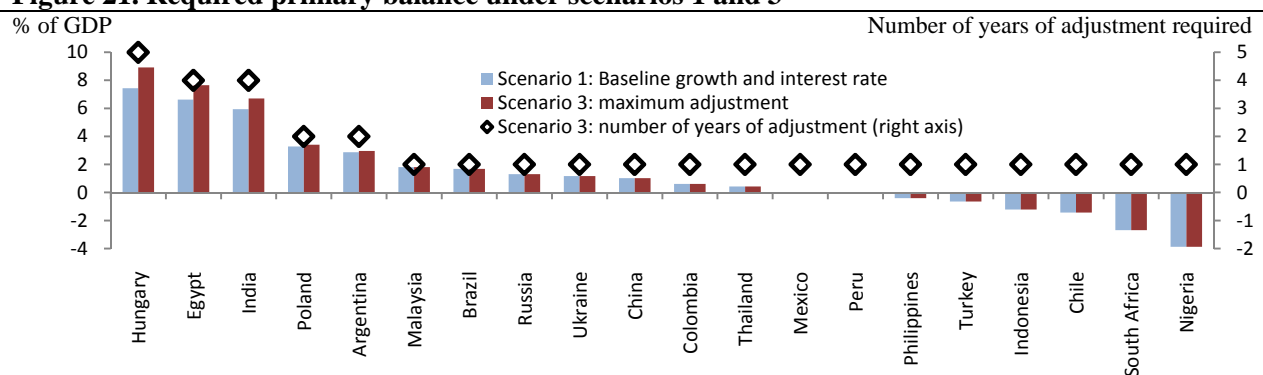
<sup>22</sup> World Bank (2010).

### Scenario 3: Gradual fiscal adjustment

For some countries, the difference between the historical primary balance and the required primary balance to reach the debt target may be deemed by policy makers to be very large so as to make it politically difficult (or perhaps credible) to implement. Fears that a further fiscal contraction in an already fragile macroeconomic and growth environment may fuel a new economic downturn in some countries could postpone these much needed efforts as well. Hence, under illustrative scenario 3, countries are assumed to take a more gradual approach to adjusting their primary balances so as to reach the same target in 2020 as under scenario 1. Specifically, the fiscal adjustment is now assumed to be limited to 2 percentage points of GDP each year.

Results suggest that for the majority of the countries in the sample, the required adjustment in the primary balance under scenario 1 is less than 2 percent of GDP. These countries can then adjust their primary balance entirely in 2010 and debt will be on a downward trajectory or stabilize immediately. For Hungary, India, Egypt, Argentina and Poland, the required adjustment is larger than 2 percent of GDP, so a gradual adjustment would take 5, 4, 4, 2 and 2 years respectively. In Egypt, Hungary and Poland debt would first increase during the adjustment (as their historical primary balance is very negative), and peak in 2010 or 2011 before declining (Figure 21). The downside is that for a number of years these countries will have to borrow significant amounts to finance their deficits. Debt and fiscal sustainability will therefore need to be carefully monitored going forward. How much and at what terms these market access countries will be able to obtain financing will depend on the conditions of the financial markets for MICs, the credibility of their adjustment strategy, and the effective communication of this strategy to the market participants in a timely and credible manner.

**Figure 21. Required primary balance under scenarios 1 and 3**



Source: IMF WEO, World Bank

## 5. Conclusions

Favorable global conditions and policy improvements up to 2007 have strengthened the macroeconomic space of a large number of middle-income countries, especially commodity exporters, by accumulating foreign exchange reserves, reducing external and public debt, achieving low inflation and low fiscal deficits. Other countries were already weakened by 2007 due to high debt, high inflation or persistent deficits. This determined, in large part, the extent to which these countries responded to the global financial crisis.

The most acute phase of the crisis may be behind us, but if the fiscal interventions that were undertaken in the aftermath of the crisis are to continue, in the face of high debt levels and slow recovery in the high-income countries, and with the possibility of increasing world interest rates and shortening maturities for developing country new borrowings, the MICs need to pay careful attention to the sustainability and composition of their debt levels (domestic and external). Monitoring and managing the risks associated with their debt portfolios (interest rate, currency and commodity price risks) on a continuous basis will be crucial. Finally, they need to maintain a credible debt management and financing strategies to support their fiscal spending and post-crisis fiscal adjustment intentions. While traditional external debt sustainability analyses will continue to be an important ingredient of the analytical toolkit, it needs to be supplemented by a closer examination of public debt (domestic and external) and medium-term fiscal sustainability analyses by the respective authorities on an ongoing basis. Special attention should also be given to monitoring and managing the fiscal risks posed by the array of contingent liabilities incurred by governments in the context of their recent response to the global financial crisis. This will minimize the risk to governments, who may have made commendable efforts to rein in their primary balances towards achieving their prudent debt targets to better manage unforeseen calls on fiscal resources due to some contingent liability from a source that may be “too big to fail”.

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