

Emerging Market Macroeconomic Resilience to External Shocks: Today versus Pre-Global Crisis

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ABSTRACT

How resilient are emerging market economies to potentially tougher external conditions, especially if they become prolonged? This paper takes the view that initial economic conditions before the eruption of an adverse external shock matter, and they matter a lot. In particular, the literature shows that policy decisions taken in the pre-crisis period played a major role in explaining a country's macroeconomic performance during the global financial crisis. With that as the starting point I first identify the relevant variables that need to be assessed to determine emerging markets' macroeconomic resilience to adverse external shocks. Using a sample of 21 countries, I compare the values of the identified variables in 2007 (the pre-global financial crisis year) with the respective values at the end of 2014. Next, I use the identified variables to construct an indicator of relative macroeconomic resilience for emerging market economies. The ranking does not deliver good news for Latin America. Macroeconomic performance in four of the six countries in the sample is less resilient now than in 2007. India and Malaysia positions have also deteriorated significantly. In contrast, the Philippines and Korea are among the strongest countries. Despite some limitations, the indicator of macroeconomic resilience to external shocks might provide useful information for emerging markets' policymakers.

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The current debate regarding economic prospects in advanced economies in 2015–16 is quite heated, with two camps supporting rather divergent views on key economic variables such as growth and inflation. While disagreements of this nature are nothing new, a peculiarity of current conditions is that both alternative scenarios for advanced economies pose important risks for stability and growth in emerging markets.

Under the first scenario, the burden deflationary pressures pose to global growth is significantly exacerbated. In this scenario, the European Central Bank's recent expansionary monetary policy, through a large expansion of its asset purchase program, does not succeed in revitalizing the euro-zone economies and reversing deflation (negative inflation).

Combined with a sustained decline in commodity prices, notably oil, this brings about a period of global deflation. The concern, markedly raised by Summers (2014, 2015), is that if expectations of future deflation increase in advanced economies, including the United States, global aggregate demand would decline as households and firms postpone their spending—on expectations of further reduction in prices—fueling further the deflation spiral and a decline in global economic activity. The longer the slowdown in global demand, the more severe the effect on emerging markets' economic stability and growth prospects.

Under a second, less pessimistic scenario for advanced economies, supported by a number of market analysts, the recovery in the US accelerates and supports a global growth recovery.¹ In this scenario, lacking serious deflationary concerns, the Federal Reserve Board starts a process of monetary policy *normalization* with increases in the policy interest rate in 2015. Although US growth is good news for the world, including emerging markets, the short- and medium-term threat for the latter is that the US monetary policy normalization might lead international investors to significantly reduce (or even reverse) capital inflows to these economies as they reassess the risk-return characteristics of their financial portfolios.² The quicker and less anticipated the interest rate hikes be, the larger their impact on capital flows and on financing costs for emerging markets. The literature on financial difficulties in

¹ See, for example, https://institutional.deutscheawm.com/content/media/The_House_View-2015.pdf and <http://www.goldmansachs.com/our-thinking/outlook/2015/video/global-video.html>

Also, although the International Monetary Fund (2015) has revised downwards its projections for global growth for 2015-16, the revised forecasts implies higher growth rates for advanced economies in 2015-16 in comparison to 2013-14.

² The Institute for International Finance (2015) estimates that capital inflows to emerging markets declined from a record high of \$1.35 trillion in 2013 to about \$1.1 trillion in 2014. A large proportion of this decline has been attributed to the collapse in flows to Russia and to an overall increase in investors' risk aversion at year-end associated with the intensification of the Russian conflict and the further decline in oil prices.

emerging markets is rich with examples showing the adverse effects a sharp contraction of capital flows have had on the financial and economic stability of these economies.³

These potential headwinds add to the already deteriorated external environment emerging market economies are currently facing. For example, worsened terms of trade (associated with the decline in commodity prices) are a major adverse shock for some; geopolitical and economic problems caused by the Russia-Ukraine conflict for others and increased uncertainties in international capital markets for all.

How resilient are emerging market economies to potentially tougher external conditions, especially if they become prolonged? This paper, based on work of mine and other analysts for the period of the global financial crisis, takes the view that *initial economic conditions* before the eruption of an adverse external shock matter, and they matter a lot.⁴ In particular, the literature shows that policy decisions taken in the pre-crisis period played a major role in explaining a country's performance, in terms of financial stability and economic growth, during the global financial crisis. With that as the starting point, the rest of this essay is organized in two sections. In the first, I identify the relevant variables that need to be assessed to determine emerging markets' economic and financial resilience to adverse external shocks. Using a sample of 21 emerging market economies, I compare the values of the identified variables in 2007 (the pre-global financial crisis year) with the respective values at the end of 2014. In the second section, I use the identified variables to construct an indicator of relative resilience for emerging market economies. Despite some limitations, this indicator identifies how a country ranks against its peers and whether its relative ability to withstand external shocks has increased or decreased since the global financial crisis.

The Determinants of Emerging Markets' Macroeconomic Resilience to Adverse External Shocks

Macroeconomic resilience is broadly defined here. A country is said to be highly resilient to adverse external shocks if the event does not result in a sharp contractions of economic growth, a severe decline in the rate of growth of real credit and/or the emergence of deep instabilities in the financial sector. In contrast to my previous work (see Montoro and Rojas-Suarez, 2012), in this essay I do not provide a specific measurement of macroeconomic

³ See, for example, Calvo et. al. (2004)

⁴ See, for example Cecchetti et. al. (2011) and Montoro and Rojas-Suarez (2012)

performance. Instead, based on the literature, I focus on the behavior of variables that have shown to affect macroeconomic performance.

Under this *broad concept*, a country's macroeconomic resilience to external shocks can be characterized as having two dimensions: its capacity to *withstand* the impact of an adverse external shock and its capacity to rapidly implement policies to counteract the effects of the shock on economic and financial stability (Montoro and Rojas-Suarez 2012). In this section, I identify a set of variables that measures these two dimensions and compare the behavior of each variable in 2007 (the pre-global financial crisis year) with that at the end of 2014 for a sample of 21 emerging market economies. This exercise helps identify which determinants of macroeconomic resilience to external shocks have worsened since the global financial crisis. The countries the sample are of three regions: Latin American (Argentina, Brazil, Chile, Colombia, Mexico, and Peru), Emerging Asia (China, India, Indonesia, South Korea, Malaysia, Philippines, and Thailand), and Emerging Europe (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, and Romania). The criterion for including countries is the availability of comparable data.

The First Dimension of Macroeconomic Resilience: Cost and Availability of External Financing

Increased cost and reduced availability of external financing are well-known outcomes resulting from external shocks affecting emerging market economies. An adverse external shock can deteriorate a country's perceived growth performance and economic and financial stability, leading international investors to be less willing to finance projects or invest. This effect holds whether the external shock is of a financial nature (say, a significant increase in the US rates) or of a trade nature (say, a sharp decline in external aggregate demand for the country's exports). While financial shocks directly press for increases in the cost of external financing, a trade shock indirectly leads to similar pressures as funding costs are influenced by investors' perception of increased risk. Although highly open financial economies tend to be more *directly* vulnerable to external financial shocks, the global financial crisis demonstrated that economies highly open to trade are also quite vulnerable to this type of shock, to the extent that trade finance is a key source of funding for trade transactions.

The potential destabilizing effects of an adverse external shock on the macroeconomic performance of an emerging market economy will depend, among other factors, on a country's need for external financing and its external solvency and liquidity positions. The

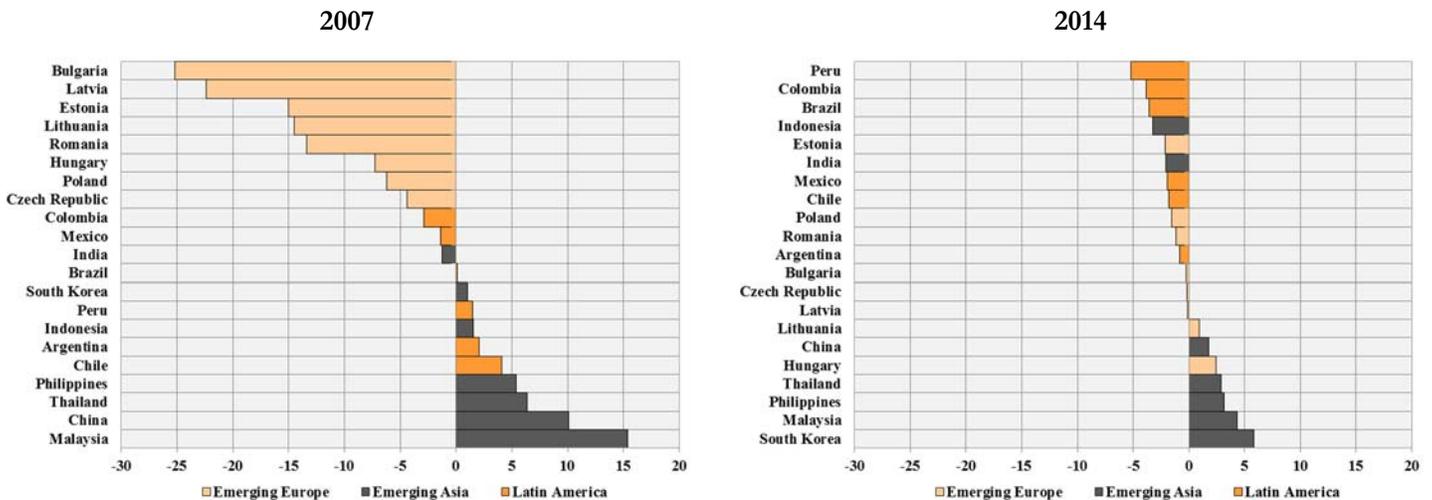
following variables are used here as indicators of a country's external position in the period previous to an external shock:

1. The current account balance as a ratio of GDP

The current account balance as a ratio of GDP represents a country's external financing needs. Large current account deficits need to be financed either with net capital inflows or the utilization of international reserves.

A comparison of countries' current account balances in 2007, the year before the global financial crisis year, and the most recent data available (2014) indicates sharp differences in the evolution of external financing needs between regions. As shown in chart 1, Emerging Europe was poorly positioned in 2007 to face the collapse of external financing that took place during the global financial crisis. A number of factors, notably unrealistic expectations about a rapid entrance to the euro area, led to excessive debt-related risk-taking by the private and public sectors. This was reflected in large current account deficits and, as shown below, huge ratios of external debt to GDP. In contrast, countries in Emerging Asia and most Latin American countries displayed current account surpluses.

Chart 1: Current account balance / GDP (in percentages)



Source: IMF

The current situation has changed markedly. The economic slowdown in Emerging Europe, as well as the policy adjustments implemented in these countries to deal with the crisis, is reflected in the balance of payments accounts. By 2014, countries in the Emerging Europe area displayed low current account deficits and some (Lithuania and Hungary) even had

current account surpluses. In contrast, all countries in Latin America reported current account deficits in 2014. This result reflects a combination of overconfident behavior and the resulting lack of economic reforms during the post-crisis years, and bad luck. While the sharp decline in the prices of commodity exports in 2013–2014 was certainly a development out of the region’s control, the lack of reforms to overcome the deficiency of savings over investment was not. The *good years* of high commodity prices were not used to protect these countries from sharp declines in commodity prices. On an overall basis, countries in Emerging Asia are currently best positioned regarding financing needs than other emerging market economies. However, current account surpluses have declined in all of them, with India and Indonesia displaying deficits.

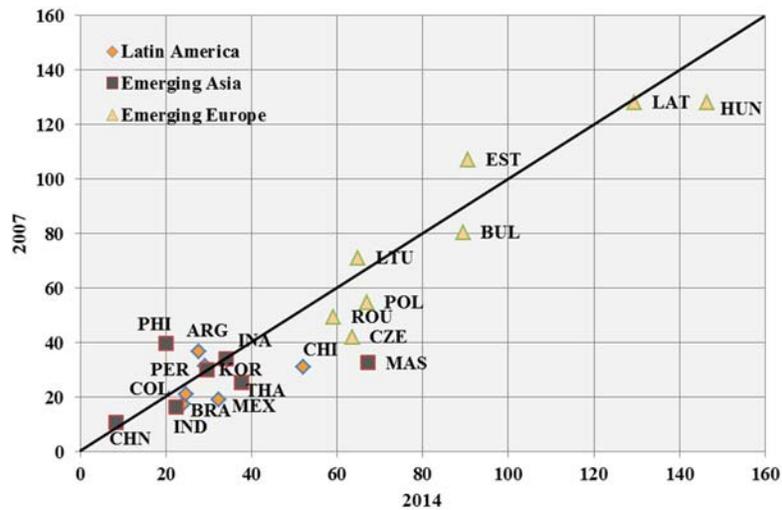
2. The ratio of total external debt to GDP

The ratio of total external debt to GDP is used as an indicator of a country’s overall capacity to meet its external obligations. Both public and private debts are included. This variable can be taken as a *solvency* indicator.

Chart 2 compares the behavior of this variable in 2007 and 2014. Countries above the 45-degree line are those whose ratios of external indebtedness have declined in the period since the global financial crisis. Those below the 45-degree line have an increased external indebtedness ratio, and, therefore, according to this indicator, their macroeconomic performance is more vulnerable to adverse external shocks. Changes in this ratio are mostly relevant for highly indebted countries.⁵ By reducing their dependence on external debt, such countries can reduce their vulnerability to a severe external shock that lowers their income growth and, therefore, their capacity to make good on their external obligations. Highly indebted countries positioned below the line are more vulnerable in this regard.

⁵ It is important to clarify that the discussion in this paper does not imply that emerging markets entities should not issue debt in the international capital markets. Countries can indeed benefit from access to these markets. The message is that *high* indebtedness ratios can expose countries to shocks that reduce their capacity to service their outstanding obligations. While there is abundant debate on what constitutes *excessive indebtedness*, I do not take a position regarding a *threshold* since there are many factors affecting a country’s indebtedness capacity. It is concerning, however, when external debt ratios increase at *fast rates* and reach levels that are sustainable for advanced economies (since their debt obligations can be issued in the currency they issue), but not for emerging market economies (whose currencies lack deep markets as they are not highly traded internationally)

Chart 2: Total external debt / GDP (in percentages)



Source: The World Bank - Quarterly External Debt Statistics

There are three main results from this indicator. First, in most countries external debt ratios have remained low or moderate, without significant changes from 2007 to 2014. One positive exception is the Philippines, which cut in half its external debt ratio (from around 40 percent in 2007 to around 20 percent in 2014). Second, Emerging Europe remains by far the region with the highest external debt ratios. Although current external financing needs, as reflected by the current account balances, have reduced significantly in this region, the *stock* of debt remains extremely high in most countries and is a large source of vulnerability, as indicated by recent reports from the International Monetary Fund. Third, Malaysia is rapidly moving toward joining the group of highly indebted countries. Its ratio of external debt to GDP, now close to 70 percent, has doubled since the global financial crisis. This development distinguishes Malaysia from other Emerging Asia countries and can be largely attributed to a sharp rise in private sector external indebtedness.

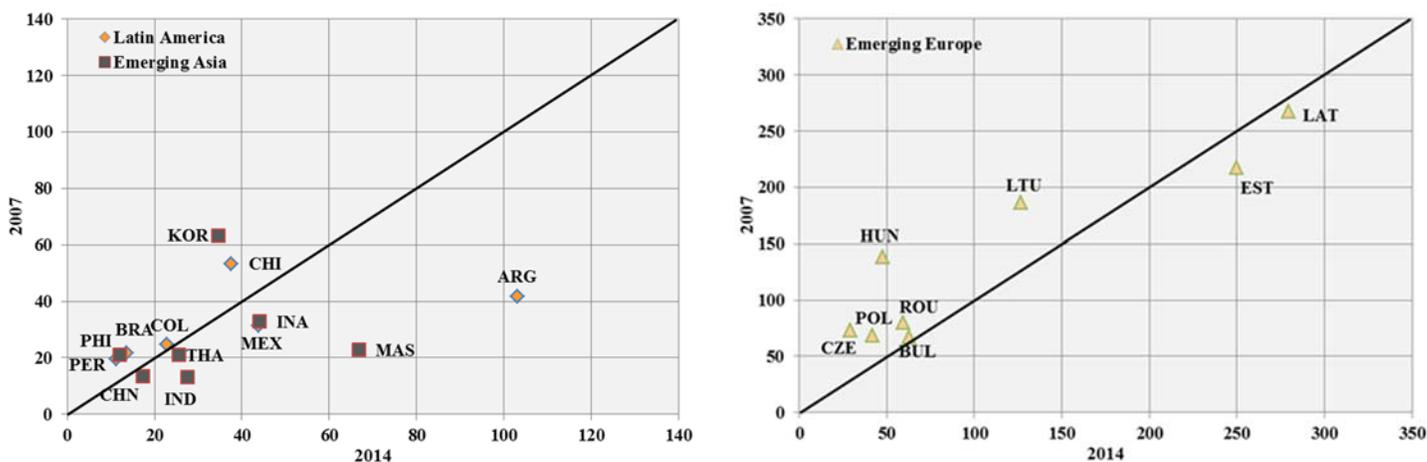
3. The ratio of short-term external debt to gross international reserves

The ratio of short-term external debt to gross international reserves captures the degree of liquidity constraints. Facing an adverse external shock, countries need to show that they have resources immediately available to make good on payments due in the period following the shock. The need to have *proof of liquidity* is essential for emerging markets since they cannot

issue *hard currencies*; that is currencies that are internationally traded in liquid markets. Thus, large accumulation of foreign exchange reserves and limited amounts of short-term external debt significantly help emerging markets maintain their international creditworthiness and, therefore, contain the impact of the shock on macroeconomic stability and economic growth. A point to emphasize here is that the liquidity constraint faced by emerging markets (and not by advanced economies which can issue hard currencies) cannot be resolved by full exchange-rate flexibility. The reason is that, facing an adverse external shock, even a sharp depreciation of the exchange rate cannot generate sufficient resources (through export revenues) fast enough to meet external amortizations and interest payments due. This explains: (a) the huge accumulation of international reserves by most emerging markets and (b) the choice of *increased but not fully flexible* exchange rate regimes followed by a number of emerging market economies.

Similar to the previous chart, according to this indicator, countries below the 45-degree line in chart 3 show an increased macroeconomic vulnerability to an external shock. Changes in the ratio of short-term debt to international reserves are extremely relevant for all emerging market economies and not only for the highly indebted countries. Even if a country's total external debt ratio is low, it might face significant roll-over risks if most of its debt is short-term and an external shock that curtails access to the international capital markets hits the economy. Under these circumstances, availability of international reserves to substitute for the loss of access to external liquidity can make all the difference regarding perceptions of default risk.

Chart 3: Short-term external debt / Gross international reserves (in percentages)



Source: *The World Bank - Quarterly External Debt Statistics, IMF*

Because of large differences in scale, chart 3 is divided in two subpanels. The panel in the right displays countries in Emerging Europe, while the panel in the left displays all the rest of emerging market economies in the sample. ⁶Noteworthy in this chart is that South Korea, and Chile to a lesser extent, has significantly improved its ratio of short-term debt to international reserves. Some analysts have criticized the large accumulation of reserves by emerging market economies on the grounds that these resources could have been used to fund more productive activities.⁷ However, while international reserves have been increasing in *absolute* terms, chart 3 shows that, *relative* to short-term external debt, they have actually declined in many countries since the global financial crisis! In my view, countries' investments in self-insurance against the vagaries of international capital markets, while not the most efficient insurance mechanism (a topic for another paper), is certainly a highly productive investment in long-term financial stability.

An additional observation is that Malaysia and Argentina stand out for their significant increase in macroeconomic and financial vulnerability to external shocks, but for different reasons. In Malaysia, the large increase in total external debt (shown in chart 2) has taken place through short-term indebtedness. A new adverse shock leading to a sharp depreciation of the ringgit can lead to large capital outflows due to elevated concerns among foreign currency debt holders about the capacity of Malaysian private sector to service the large amount of maturing external obligations. In Argentina, which lacks access to international capital markets, the deterioration of the ratio is explained by the large loss of international reserves experienced in recent years. Inadequate management of domestic policies is the main reason behind the downturn in Argentina's fortunes.

The Second Dimension of Macroeconomic Resilience: Ability to Respond

A country's ability to quickly react to an adverse external shock largely depends on its authorities' capacity to implement countercyclical fiscal and monetary policy. Therefore, the variables included here relate to a country's fiscal and monetary position. The fiscal position is characterized by two variables: the fiscal balance as a ratio to GDP (a flow variable) and the ratio of government debt to GDP (a stock measure). The monetary position is

⁶ Since adhesion to the Eurozone contributes to the resilience of individual countries in Emerging Europe to external shocks, the contributions of foreign reserve assets by Estonia and Latvia to the European Central Bank (on January 2011 and January 2014, respectively) have not been subtracted from these countries' international reserves.

⁷ See, for example, Summers (2006)

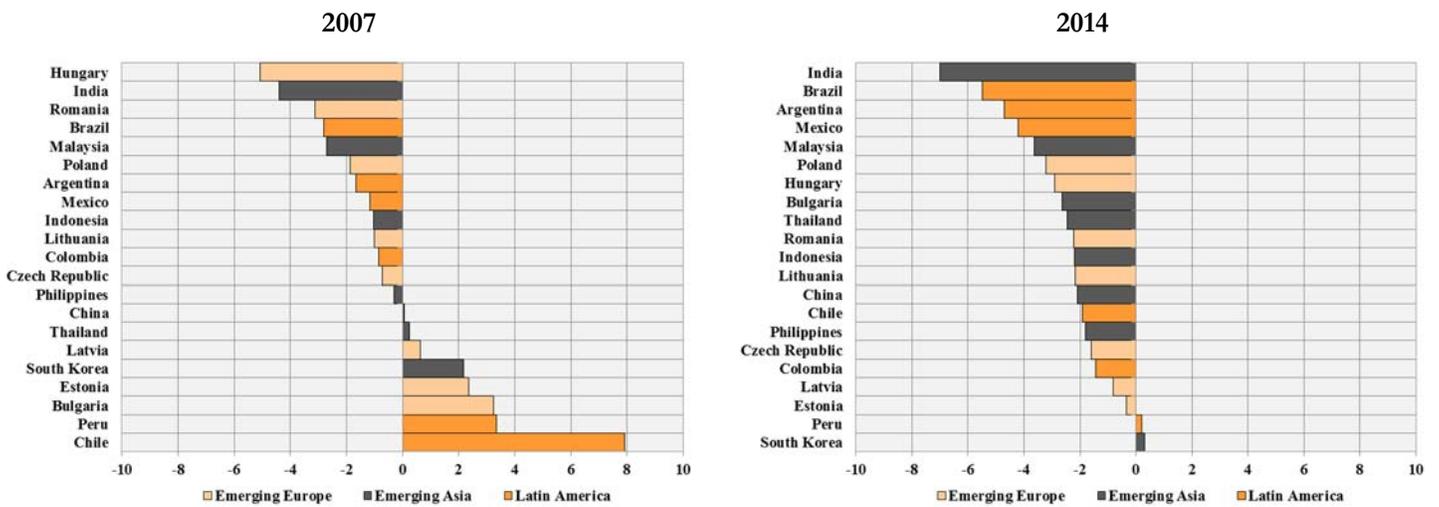
characterized by two variables that I explain further below: *the squared value of the deviation of inflation from its announced target* and *a measure of financial fragilities*, which evaluate whether the desired monetary stance is consistent with price and financial stability.

1. The ratio of general government fiscal balance to GDP.⁸

Countries with strong fiscal accounts *before* an external shock will be in a better position to undertake countercyclical policies than those with large fiscal deficits. Once again, this argument is significantly more important for emerging market economies than for advanced economies. While the latter have the capacity to finance deficits through placement of government debt in domestic liquid capital markets, the former lack such an advantageous option.

Chart 4 shows a dramatic turn of events in fiscal positions since the global financial crisis. In 2007, a significant number of countries were able to face the crisis with strong fiscal positions. Chile stood out by its large fiscal surplus which served the country well, as it was able to undertake a significant increase in government spending during the global crisis, without compromising macroeconomic stability.

Chart 4: General government fiscal balance / GDP (in percentages)



Source: IMF

⁸ A broad concept of the fiscal stance is chosen because of significant differences in aggregations of the fiscal accounts across countries.

In contrast, with the exception of Hungary and Romania, all emerging market economies displayed weaker fiscal positions by the end of 2014. Only South Korea and Peru showed fiscal surpluses, but these were much smaller than the corresponding surpluses in 2007. The fiscal positions in India and Brazil, two of the largest emerging market economies, are particularly noteworthy and a source of concern by authorities in both countries.

The broad fiscal deterioration can be partly explained by adverse external factors already hitting emerging markets: the decline in growth in advanced economies and, therefore, the slowdown in global aggregate demand has contributed to a decline in economic activity and tax collection in many countries. In some countries, the income effect has been reinforced by a price effect as the decline in commodity prices has exacerbated the impact on fiscal revenues. However, as discussed above, lack of needed reforms at the national level is also haunting fiscal balances at a time when the external environment is not favorable for growth. For example, in the last three years, the government of India has been reducing capital expenditure to meet fiscal deficit targets. Since capital expenditure is growth promoting, India has been undertaking procyclical fiscal policies. Further delaying a tax reform (especially the introduction of the goods and services Tax (GST)), might force India to continue and even exacerbate its procyclical fiscal policies if a new adverse external shock materializes.

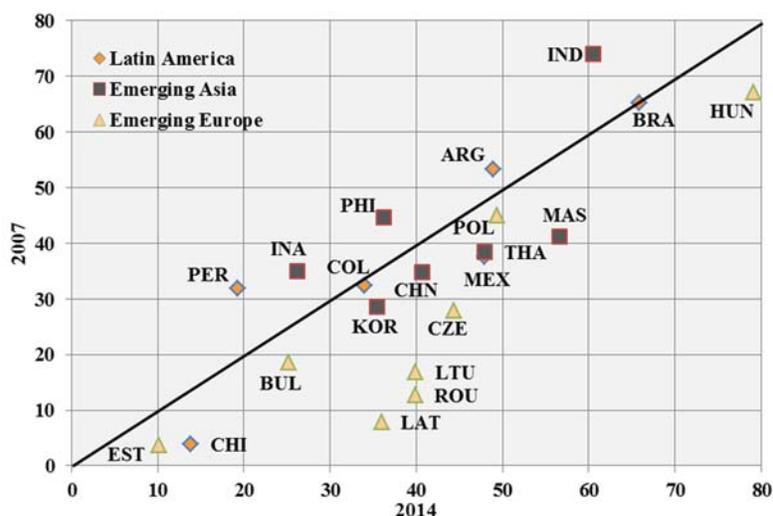
2. The ratio of government debt to GDP

The ratio of government debt to GDP also signals a government's ability to undertake countercyclical fiscal policies. Even if the fiscal balance is strong, authorities may be reluctant to undertake net fiscal expansions to counteract the contractionary effect of an external shock on the economy, if the outstanding stock of debt is significantly large, as the expansion might aggravate the debt problem.

As with the other debt variables discussed here, countries below the 45-degree line in chart 5 signal an increase in macroeconomic vulnerability to external shocks relative to 2007, according to this indicator. Consistent with the deterioration in fiscal balances, most governments in the sample have increased their debt ratios. Indeed, countries that displayed the highest ratio of government debt to GDP in 2014 (Hungary, India, Brazil, Argentina,

Malaysia, Poland, Thailand, and Mexico) are among the countries with the highest fiscal deficits in that year (chart 4).⁹

Chart 5: General government debt / GDP (in percentages)



Source: IMF

The case of Malaysia deserves some attention. As discussed above, this country stands out because of its significant increase in short-term *external indebtedness*, which is mostly attributed to *private sector* activities. As shown in chart 5, the public sector has also significantly increased their indebtedness ratio, but, in contrast to the private sector, this has taken place through issuance of *domestic debt*. Thus, relative to 2007, not only is Malaysia's macroeconomic and financial performance more vulnerable to an external shock since the shock would affect the private sector repayment capacity of external debt, but the high ratio of domestic government debt (together with the deterioration in the fiscal balances) is imposing important limits to this country's ability to implement countercyclical fiscal policies to deal with a potential shock.

On the positive side, reductions in the government debt to GDP ratio in Philippines, Indonesia, and Peru placed these countries among those with relatively low ratios in 2014.

⁹ In spite of India's reduction in its government debt ratio since the global financial crisis, India's government continues to be positioned among the highest indebted governments in the sample.

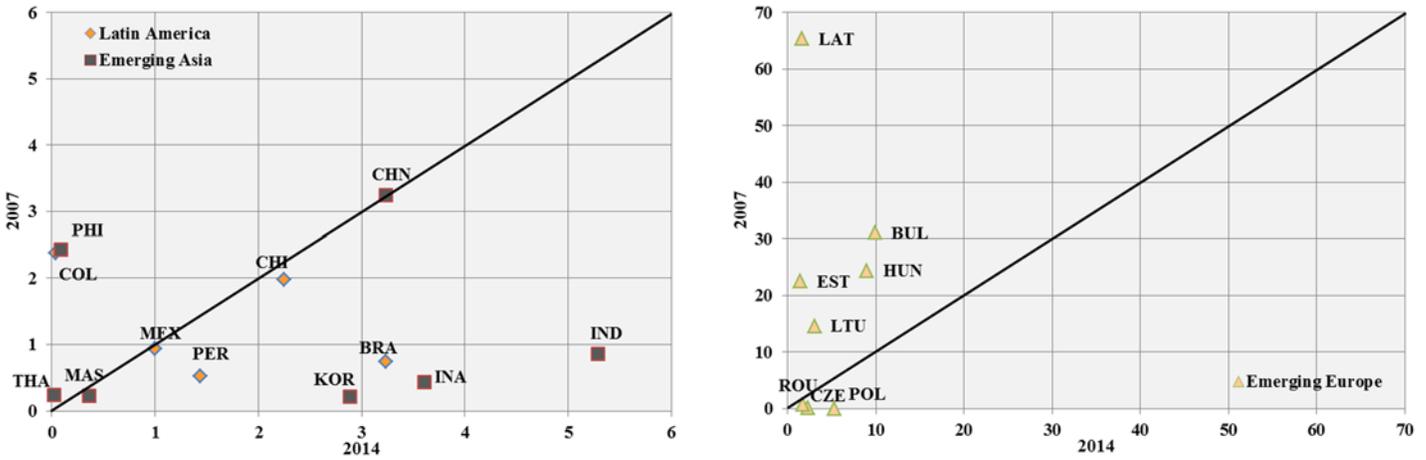
3. The squared value of the deviation of inflation from its announced target

Deviation of inflation from its announced target captures the constraints imposed on the implementation of countercyclical monetary policy when the economy is facing inflationary or deflationary pressures *at the time of the shock*. For example, if the adverse external shock is manifested in a shortage of bank liquidity and a reduction in the expansion of domestic real credit, central bankers might wish to reduce their policy rate. This policy, however, might not be chosen if the economy is facing high inflation rates since the reduction in interest rates would fuel inflationary pressures further. Likewise, the external shock might call for an increase in the interest rate; but this policy action might not be executed if the economy is facing significant deflationary pressures.

To measure inflationary (or deflationary) constraints faced by central banks to conduct countercyclical monetary policies, I first estimate the deviation of observed inflation from its announced target and then calculate the squared value of the deviation. This has limitations, but higher values of this variable impose greater constraints on central banks' capacity to undertake countercyclical monetary policies. That is, large deviations, positive or negative, from the announced inflation target are considered equally pernicious for the implementation of countercyclical policies.

Chart 6 presents the results of these calculations and compares countries' position in the pre-crisis period (2007) and at the end of 2014. Countries positioned below the 45-degree line have greater deviation from inflation targets now than in 2007. Countries in Emerging Europe are displayed on a separate panel (on the right) because of the differences in scale compared to the rest of emerging market economies in the sample.

Chart 6: Deviation of inflation from its target (Squared) 1/



1/ Excludes Argentina

Source: Goldman Sachs Global Macro Research, national central banks, IMF and own elaboration

The first noticeable development is the sharp correction of inflation by countries in Emerging Europe that were experiencing high inflation in 2007 (Bulgaria, Estonia, Hungary, Latvia, and Lithuania). Adjustment programs and reforms supported the decline in inflation in the post-crisis period. However, a clarification is needed with respect to the chart's results for these countries. While observed inflation in 2014 was *closer* to the targets than in 2007 (and hence, these countries are above the 45-degree line), inflation rates in 2014 were extremely low and even in negative territory (inflation ranged from -1.15 in Bulgaria to 1.2 in Romania). This is a limitation of the chart, since it is not properly capturing the sharp turn of these countries from high inflation to deflation. The importance of knowing specific country characteristics is highlighted in this example.

For the rest of emerging market economies in the sample, the most noticeable results are as follows. First, because of the extremely high level of inflation observed in Argentina in 2014 (23.9 percent according to the authorities,¹⁰ but close to 40 percent according to market estimates), it is not included in the Chart (however, the inflation variable is included in the calculation of the overall resilience indicator below). If it were, it would be positioned far to the right below the 45-degree line. Second, India's rise in inflation in the post-crisis period has increased its vulnerability according to this indicator. Brazil and Indonesia follow in

¹⁰ As reported by INDEC (Instituto Nacional de Estadísticas y Censos)

terms of increased vulnerability; the former because inflation almost doubled from 2007 to 2014 and the latter because of a combination of raising inflation and a reduction in the target.¹¹ Third, deflationary pressures in South Korea (inflation in 2014 only reached 0.8 percent) has significantly increased the deviation of inflation from its target. This calls for an expansionary monetary policy through interest reductions, which is expected in 2015. However, as reported by the authorities, concerns about a rapid rate of growth of credit are constraining the Bank of Korea's policy actions. If an external adverse shock were to reduce global liquidity in the short to medium term, the bank might be in less solid footing than it was during the global financial crisis to implement counter-cyclical monetary policies. The good news in the case of South Korea, however, is that the authorities have a number of nonconventional monetary tools at their disposal to deal with external shocks.¹² Moreover, its strong current account balance position (chart 1) supports the stability of the won in the presence of external shocks. Finally, Philippines and Colombia stand out for their much improved performance on inflation in 2014 relative to 2007. In both countries, recent inflation has been within its announced target.¹³

How do the different determinants of macroeconomic resilience/vulnerability discussed in this paper combine to provide a better sense of overall resilience will be apparent in the next section.

4. A measure of financial fragilities characterized by the presence of credit booms (excessive expansion of credit) or busts (collapse in the rate of growth of real credit)

Financial-sector fragilities, manifested either by an unsustainable credit expansion (credit *boom*) or a significant lack of credit to support economic activity (credit *bust*), are a major constraint in the conduct of monetary policy. For example, an adverse external shock, even if temporary, might expose existing financial vulnerabilities in the banking sector associated with an excessive credit expansion (a credit boom) and, as a result, severe banking problems might emerge. As resolving banking difficulties is a long process, the central bank might be pressed to reduce interest rates and keep them low for a significant period of time (to contain the increase of nonperforming loans). This is even when, in the absence of banking

¹¹ See, <http://www.bi.go.id/en/moneter/inflasi/bi-dan-inflasi/Contents/Penetapan.aspx>

¹² For example, during the global financial crisis, the BoK directly injected foreign exchange liquidity to the financial sector.

¹³ Thailand has kept inflation within targets both in 2007 and in 2014.

problems, adequate conduct of monetary policy would call for an increase in interest rates after a short period of time following the shock.

To capture the extent of this obstacle for the conduct of monetary policy, for each country in the sample, it is necessary to identify the thresholds on real credit growth that determine whether an observed growth in real credit can be associated with a *boom* or *bust*. For this purpose, the methodology of Mendoza and Terrones (2008) is followed.

An indicator of Financial Fragility: *FinFrag* is calculated according to the following formula:

$$FinFrag = (\Delta RC^{boom} - \Delta RC_t) * (\Delta RC_t - \Delta RC^{bust})$$

Where: ΔRC_t is the growth rate of real credit in period t ; ΔRC^{boom} is the threshold on credit growth for credit *boom* and ΔRC^{bust} is the threshold on credit growth for credit *bust*.¹⁴

If the economy is in neither a credit *boom* nor a *bust*, the observed growth rate of real credit (ΔRC_t) would be greater than the threshold for the *bust* (ΔRC^{bust}) and lower than the threshold for the *boom* (ΔRC^{boom}). In that case, the indicator *FinFrag* would take on a positive value.

If, instead, the economy is experiencing a credit boom, ΔRC_t would be greater than ΔRC^{boom} and *FinFrag* would take on a negative value.¹⁵

Alternatively, the economy might be in a credit bust. In that case, ΔRC_t would be lower than ΔRC^{bust} and *FinFrag* would take on a negative value.¹⁶

The estimation of this indicator for the countries in the sample for 2007 and 2014 is presented in Chart 7. According to the results, all countries where the indicator took a negative value were experiencing credit booms. Most countries in Emerging Europe

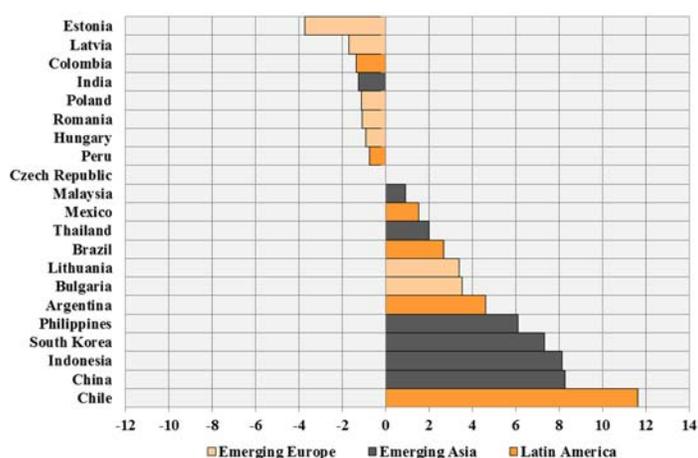
¹⁴ In order to compute thresholds, Mendoza-Terrones (2008, 2012) use the Hodrick-Presscott (HP) filter to calculate the cyclical component of the log of real credit. In this essay, the HP filter is used to calculate the cyclical component of the growth rate of real credit. The thresholds for credit booms and busts for each country are then defined as the standard deviation of this cyclical component for the entire sample period, multiplied by 1.5 and -1.5 respectively. For each country, the sample period to calculate the thresholds goes from the first quarter of 1991 to the first quarter of 2014, subject to data availability.

¹⁵ This hold true because by definition of credit *booms* and *busts*, ΔRC^{bust} is necessarily lower than ΔRC^{boom}

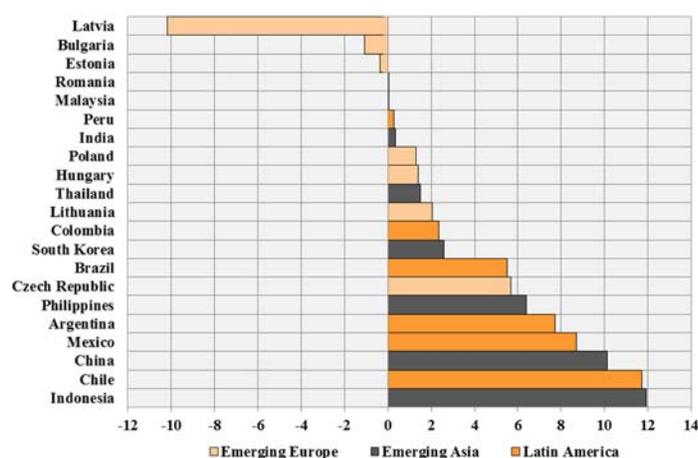
¹⁶ The same argument as footnote 11 follows.

belonged to this category. As discussed above, unrealistic expectations about a rapid entrance to the euro zone (and the associated expected increase in net worth) fueled a rapid expansion of real credit in these economies and weakened their financial positions. A few other countries, such as India and Colombia were also experiencing excessively fast real credit growth in the pre-global financial crisis year. Chile and most East Asian countries were the best performers, according to this indicator. Real credit was growing close to trend in the pre-crisis period and financial fragilities were absent. This greatly supported the countercyclical monetary policies implemented by these countries during the crisis.

Chart 7: Indicator of financial fragility 2/
2007



2014



2/ Negative number indicates the presence of a credit boom or bust

Source: own elaboration

By the end of 2014, credit conditions were quite different from those in 2007. The most vulnerable countries, from the perspective of this indicator, are still in Emerging Europe (Latvia, Bulgaria, and Estonia), but this time these economies were experiencing credit *busts* rather than *booms*. If an additional external shock bringing about further contractionary effects were to hit these economies, central banks might face serious difficulties for the implementation of necessary countercyclical policies as the impact of the shock would add to the already depressed real credit growth. The good news, however, is that in the large majority of emerging markets in the sample, the behavior of real credit growth is not worrisome and would not impose serious constraints to the implementation of countercyclical monetary policy if an adverse external shock were to materialize.

Putting the Pieces Together: An Overall Indicator of Resilience

Each of the seven variables discussed above presents a partial view regarding the macroeconomic resilience (broadly defined as discussed before) of emerging market economies to external shocks. Some countries showed improved strength in some variables, but not in others, in 2014 relative to the pre-crisis period. Yet, in other countries, many of the variables signal a deteriorated resilience. In this section, I construct an indicator that combines the seven variables to provide a better overall picture of *relative* macroeconomic resilience between countries.

The indicator is constructed using a simple methodology, also used in Montoro and Rojas-Suarez (2012). First, to make the seven variables within the indicator comparable, each variable is standardized, subtracting the cross-country mean and dividing by the standard deviation. Second, variables whose increase in value signals a reduction in resilience (an increase in vulnerability) are multiplied by -1 .¹⁷ Finally, the indicator is simply the average value of the standardized variables.¹⁸ This methodology, of course, implies that we analyze *relative* macroeconomic resilience among countries in the sample.

Table 1 presents the results from this exercise. The values of the indicator for 2007 and 2014 are presented as well as the country rankings in both years. According to this methodology, the greater the value of the indicator the more resilient a country's macroeconomic performance to external shocks is assessed to be.

¹⁷ Those variables are: total external debt to GDP, short-term external debt to gross international reserves, government debt to GDP and the squared deviation of inflation from its target.

¹⁸ Alternatively, the indicator could have been constructed by adding the values of the standardized variables (as in Gros and Mayer, 2010)

Table 1: Resilience indicator

	2007		2014	
	Value of the indicator	Country ranking	Value of the indicator	Country ranking
Latin America				
Argentina	-0.48	18	-2.08	21
Brazil	0.01	12	-0.35	15
Chile	1.21	1	0.53	4
Colombia	0.12	10	0.28	8
Mexico	0.20	9	0.10	10
Peru	0.39	5	0.34	6
Emerging Asia				
China	0.72	2	0.58	3
India	-0.27	15	-0.62	18
Indonesia	0.43	4	0.32	7
South Korea	0.56	3	0.71	2
Malaysia	0.28	8	-0.01	12
Philippines	0.37	7	0.74	1
Thailand	0.38	6	0.34	5
Emerging Europe				
Bulgaria	-0.33	16	-0.50	17
Czech Republic	0.03	11	0.11	9
Estonia	-0.68	19	-0.20	14
Hungary	-1.23	20	-0.92	20
Latvia	-1.38	21	-0.84	19
Lithuania	-0.40	17	-0.11	13
Poland	-0.26	14	-0.38	16
Romania	-0.18	13	0.01	11

Source: own elaboration

The country rankings for 2007 accurately reflect the observed effect of the global financial crisis on emerging markets. As has been widely documented, the countries, whose macroeconomic performance were most affected by the crisis (the least resilient) were those in Emerging Europe and that is precisely what the indicator reveals. According to the indicator, in 2007, five of the six lowest positions were occupied by countries in this region (Argentina was also among the lowest ranked). In contrast, most of the highest rankings were concentrated in Emerging Asia. As a region, Latin America ranked in the middle, but some countries also took high positions, notably Chile which ranked first.

Thus, the results from the exercise for 2007 supports my argument that conditions in the period *before* the eruption of an adverse external shock are central in determining the resilience of an emerging market economy to the shock. In 2007, an analyst studying a few variables in emerging markets would have been able to predict, with high accuracy, the relative economic and financial resilience of these countries to the global financial crisis.

At the beginning of 2015, when pessimism about the international environment and its effects on emerging markets prevail, it is relevant to ask a similar question: Based on the most recent available information, what countries macroeconomic performance can be assessed as relatively more resilient if the external environment deteriorates further? This paper provides a plausible answer to that question in the last column of Table 1. Countries marked in green are those that have improved their ranking since 2007 by two positions or more. Likewise, countries marked in red are those that have deteriorated their ranking by two positions or more.

The new ranking does not deliver good news for Latin America. Four of the six countries in the sample have deteriorated their positions in the ranking. This includes Argentina, which now holds the last position. As discussed throughout this paper, some bad luck in unfavorable terms of trade, but also the squandering of opportunity to implement needed reforms in the *good* post-crisis years are the main reasons behind this outcome.

In spite of the sharp improvement in the Philippines, which now occupies the first position in the ranking¹⁹, and the sustained strength of South Korea, the macroeconomic performance of Emerging Asia as a region is *relatively* not as resilient to external shocks as it used to be. India's position has deteriorated significantly and Malaysia has joined the group of relatively less resilient countries; the former due to recent excessive indebtedness both external (private sector) and domestic (public sector). In spite of recent weakening in fiscal conditions, China remains strong in third position overall.

Emerging Europe can be characterized as the *most improved* region in the ranking; and this is mainly because the region displayed huge economic imbalances in the pre-crisis period that are now being corrected. Notwithstanding improvements, however, the region still hosts

¹⁹ At the end of 2014, Moody's upgraded the Philippines sovereign rating. An important factor cited to explain this upgrade was the reduction in public debt ratios as in the context of improvements in fiscal management.

some of the least resilient countries in the sample. Four of the six lowest rankings are in Emerging Europe.

For emerging markets as an *asset class*, the important deterioration in relative (and absolute from the discussion above) macroeconomic resilience by Brazil and India, two of the largest countries in this investors' country-category is not good news. Just as the good performance of the BRICs supported investors' confidence in emerging markets' prospects, a lackluster performance can also reduce investors' enthusiasm for allocating resources to these countries.

The discussion in this paper should not be interpreted as a prediction for macroeconomic disaster for a number of countries if a severe adverse external shock hits emerging markets. The resilience indicator is just a rough index and suffers from more limitations than I can list here. Instead, my goal in this paper has been to emphasize that the lessons from the global financial crisis should not be forgotten. A key one is that initial conditions at the onset of a severe adverse external shock matter a lot. The good news is that, besides the commodity price shock, the most feared external shock: a sudden rise in interest rates in the US has not (yet) materialized. Time is still on the side of emerging markets' authorities.

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