

The Economics of Small Open Economies

BY PABLO GUERRON-QUINTANA

Countries, like families, incur deficits when expenditures exceed income. Countries around the world finance their deficits by issuing debt. This debt is bought by either domestic or foreign investors. The United States, Canada, Chile, Mexico, and South Korea are a few examples of countries that borrow in international markets.¹ The difference between, say, the United States and Mexico is that the latter has little or no control over the premium it pays on its international debt. In contrast, the price of debt issued by the United States depends to a large degree on its own characteristics, such as its domestic wealth, households' preferences, and technology. This distinction between how much control a country has over the interest rate on its debt determines whether a country is called a small open economy. If, as in the case of Chile or South Korea, the price of debt is determined by international markets, then economists refer to these countries as small open economies. In the next few pages, the reader will be introduced to the main economic characteristics of this class of countries.

One of the defining features of small open economies is that households and firms in these countries can borrow and lend at an interest rate determined by international markets.² But not all small open economies are alike. Take, for example, our neighboring countries Canada and Mexico. Historically, economic fluctuations in Mexico have been more volatile than those in Canada. Furthermore, consumption

displays more variability than gross domestic product (GDP). That is, for each percentage point that production changes in Mexico, its consumption tends to move by more than 1 percent.

Small open economies that share Mexico's business cycle features described in the previous paragraph are often referred to as *developing* small open economies. Canada and other small open economies with similar aggregate fluctuation patterns are known as *developed* small open economies.

Another important difference between developing and developed small open economies is that whereas the former have defaulted in the past few decades on their international debt

obligations, the latter countries have consistently met their outstanding borrowing claims.

The recent developments in several European countries, such as Spain and Portugal, make studying small open economies timely. It is important to draw similarities with (and possibly learn lessons from) the experiences of countries traditionally considered to be developing small open economies.

DEVELOPED VERSUS DEVELOPING COUNTRIES

Economists usually discuss the problem of international indebtedness in terms of the interest rate on debt rather than the price.³ Roughly speaking, price and interest rates are inversely related. To understand this relationship, consider a 10-year Treasury bond.⁴ Holding this bond is attractive because it pays a fixed interest rate every six months plus its face value at maturity, that is, 10 years after issuance. Suppose you hold a bond that was issued last year that pays an interest rate of, say, 3 percent. If the government issues a new bond today with an interest rate of 4 percent, then your bond suddenly looks less attractive because it pays less. As a consequence, people prefer the new bond over yours, which leads to a decline in the demand for bonds issued last year. Less demand, in turn, implies that the price of the old bond has to decline.

¹ One reason countries borrow in international markets is to smooth consumption. For details, see the *Business Review* article by George Alesandria.

² See the lecture notes by Stephanie Schmitt-Grohe and Martin Uribe.

³ With international indebtedness, I refer to total international borrowing by a country, i.e., debt issued by the government and the private sector.

⁴ In the finance jargon, this bond is called a 10-year Treasury note.



Pablo Guerron-Quintana is an economic advisor and economist at the Federal Reserve Bank of Philadelphia. The views expressed in this article are not necessarily those of the Federal Reserve. This article and other Philadelphia Fed reports and research are available at www.philadelphiafed.org/research-and-data/publications.

The interest rate that a country pays on its debt can be analyzed as the sum of a country-specific component and an international element. By definition, the former depends entirely on the country's (economic, political, and geographical) features. For instance, by limiting people's savings choices to domestic instruments, a government can influence the country-specific component of the interest rate on its debt.⁵ In contrast, the international element is determined by the collective borrowing and lending decisions of participants in international debt markets around the world. Examples of these players include, among others, individual investors, banks, multinationals, hedge funds, and pension funds.

To put it simply, a country is considered a small open economy when it takes as given the interest rate on its debt. In principle, the small open economy can issue as much debt as it desires as long as the country accepts the interest rate and its debt remains within the country's borrowing limits. Figure 1 plots the interest rate on debt on the vertical axis and the quantity of debt on the horizontal axis. In this figure, the supply of debt is decreasing because for each dollar the small open economy borrows from the world, it has to pay a higher interest rate on it.⁶

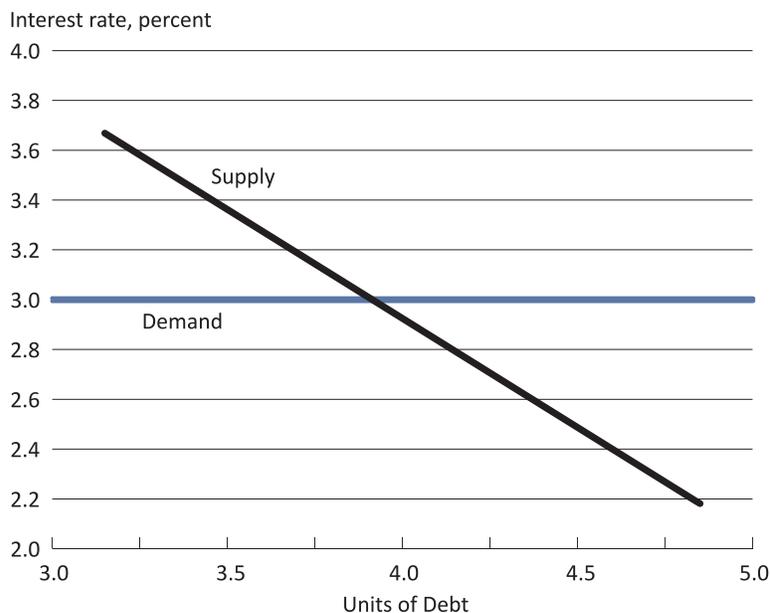
In the same figure, the demand for the country's debt is flat at some given interest rate. This means that international markets are willing to buy the small open economy's debt as long as they receive their desired interest payments. Equilibrium happens at the point at which supply equals demand. In our example, this equilibrium level dictates that the small open economy

⁵ This type of saving limitation was commonplace in the first part of the 20th century, but it has fallen out of favor since then.

⁶ Think about your credit card. The higher the monthly interest rate, the less attractive it is for you to borrow.

FIGURE 1

Supply and Demand in Debt Markets



issues about four units of debt and pays an interest rate of 3 percent.

To be precise, Figure 1 is a snapshot of the country's debt market. That the demand line is flat at 3 percent does not necessarily mean that it will be at that level next month. In fact, demand will most likely change over time. In small open economies, these fluctuations are, to a large extent, independent of the country's economic fundamentals, such as productivity or its labor market. This is because demand depends on foreign investors' view of not only the small open economy but also of international markets.

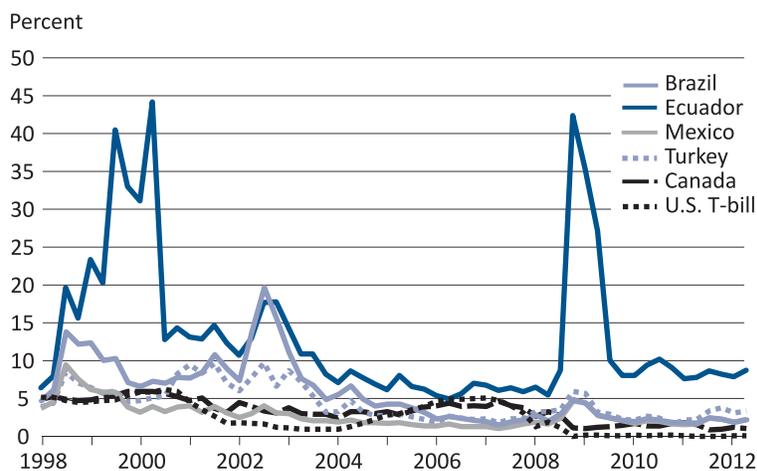
An important feature of debt markets in small open economies is that the demand schedule moves because of domestic as well as foreign considerations. For example, following the Asian crisis in 1998, international markets became more cautious and demanded less sovereign debt around the world.⁷ This means that Mexico, say, had to pay a larger interest rate to sell its debt. What is surprising about

this situation is that the spike in interest rates is unrelated to the Mexican economy. In Figure 1, this external component in Mexico's debt market would be reflected as an upward jump in the demand schedule.

Figure 2 displays the interest rate premiums paid by some developing small open economies (Brazil, Ecuador, Mexico, and Turkey). This premium corresponds to the Emerging Markets Bond Index (EMBI) calculated by J.P. Morgan and is expressed in annualized percentages. It is a rough measure of how much foreign lenders request on top of the prevailing international rate to lend to emerging countries.⁸ In January 1998, Brazil's EMBI was 5.82 and the three-month Treasury bill rate

⁷ Sovereign debt refers to bonds issued by a national government in order to finance its expenditures.

⁸ Two measures of the international interest rate typically used in the literature are the LIBOR (London interbank offered rate) or the three-month Treasury bill rate.

FIGURE 2**Interest Rate Premiums on Short-Term Debt**

was 5.00. Together, these numbers imply that international markets charged at least 10.82 percent for short-term (three months or less) loans to Brazil. We can observe that as the Asian crisis unraveled in 1998, the EMBIs for all countries in our sample moved up, even though these countries were located in different regions of the world (Brazil's EMBI reached 14.56 basis points in January 1999). This is a clear example of how spreads in emerging economies depend on external factors.

In contrast, interest rates in large-scale economies such as Japan and the United States are determined by their domestic markets. In other words, the demand curve for Japanese or U.S. debt is upward sloping. The higher the amount of debt in the market, the higher the interest rate international markets demand in exchange. More important, the interest rate is dictated by the country's fundamentals such as productivity, households' preferences, attitudes toward risk, and technology. This means that unless these factors change, the demand schedule does not change. To further visualize this effect, Figure 2 also plots the yields on short-

term sovereign debt in Canada and the U.S. during the last several years. In sharp contrast to the yields of some other countries' short-term debt, U.S. and Canadian yields barely moved during the Asian crisis or more recently during the 2008 financial crisis.

Another interesting feature of some large economies is that exports and imports play a small role in economic activity. A traditional measure of openness (how much a country trades with the rest of the world) is the ratio of exports plus imports to GDP. A higher number is usually interpreted as a sign of a more open (in the trade sense) country. This number is also a rough indicator of how much a country's finances rely on international trade. The more a country imports and exports, the more dependent the country is on international markets. By the end of 2011, this ratio was around 0.30 for the U.S. and 0.65 for Canada. These numbers indicate that the latter country traded more heavily with the rest of the world.

Table 1 presents our measure of trade openness for several countries around the world. Whereas Japan and

the U.S. are relatively closed economies, Sweden and Germany depend on international trade. Among large economies, Germany is the only one that is open. In contrast, economies considered small (Australia, Canada, Chile, Mexico, and Sweden) trade substantially with the rest of the world.

To further illustrate the distinction between small and large economies, Table 1 presents the ratio between the country's GDP and world GDP in 2011. One can see that while large economies like the U.S. and Japan each accounted for more than 10 percent of world GDP, small countries like Canada or Chile accounted for only a small share of the total world output in 2011.

Although small open economies share the feature of being price-takers in international bond markets — that is, they do not influence prices in the marketplace — they differ substantially in other dimensions. Consequently, economists sort these countries into two types: developed (or industrialized) economies and developing (or emerging) economies. This classification was originally proposed in the 1980s by World Bank economist Antoine van Agtmael. A country is considered to be developing or emerging if it is in the early stages of economic development characterized by lower income per capita and lower life expectancy compared with developed countries.⁹

In spite of this deceptively simple classification, there is no consensus about where the distinction between developed and developing vanishes. Indeed, there are many lists of emerging and developed economies compiled by institutions like the International

⁹ On average, emerging economies have one-fifth the income per capita of developed economies and a life expectancy that is at least eight years shorter than that in developed countries (World Bank's World Development Report 2000-01).

TABLE 1**Trade Openness and GDP in 2011**

	Australia	Canada	Chile	Germany	Japan	Mexico	Sweden	U.S.
Trade openness	0.42	0.65	0.73	0.84	0.31	0.65	0.94	0.30
GDP	0.013	0.021	0.003	0.05	0.119	0.017	0.007	0.276

Trade openness is defined as the ratio of exports plus imports to output; GDP is the country's output as a fraction of world output, both computed using constant 2000 U.S. dollars.

Source: International Financial Statistics

Monetary Fund (IMF), Columbia University's Emerging Market Global Project (EMGP), Standard and Poor's (S&P), and *The Economist*.¹⁰

To avoid these conflicting views about the definition of emerging countries, we rely on more concrete quantitative measures based on the business-cycle properties of these economies. To this end, one useful concept is the standard deviation (volatility) of GDP in a country. This statistical concept is typically expressed in percentage units and measures how much the variable in question fluctuates over time around its mean. Higher standard deviation translates into higher dispersion.

We also rely on a second concept: correlation. The correlation between, say, interest rates and output measures how much the two variables co-move over time. The correlation takes values between -1 and 1 . A positive value means that the two variables (in our example, output and interest rates) move in the same direction over time. In contrast, a negative correlation indicates that they move in opposite directions: Output is increasing, and interest rates are declining.

¹⁰ To have an idea of the disagreement, whereas the IMF and EMCP classify Argentina as an emerging economy, *The Economist* and S&P exclude Argentina from their emerging markets lists.

With these definitions in place, we are ready to discuss developed and developing small open economies.

DEVELOPED SMALL OPEN ECONOMIES

Developed small open economies have several salient features. First, their business-cycle volatility (as measured by the standard deviation of their GDP growth) is usually comparable in size to that seen in large and wealthy nations such as Germany, Japan, and the U.S.

The second characteristic of developed small open economies is that their consumption follows paths that are smoother than those followed by output. In such cases, economists say that consumption is smoother than output. Consumption smoothing is possible in developed economies because people have access to financial markets. For example, suppose a person is laid off. Access to those markets implies that this person can, in principle, borrow to smooth out his decline in income. This means that consumption does not drop by as much as the contraction in income. By the same token, if this person's income increases, he will save part of the extra income for the future. Access to financial markets facilitates saving the additional income. Overall, consumption moves less than output.

Another interesting feature of developed small open economies is that interest rates are procyclical. This means that, for example, an increase in economic activity is usually associated with an increase in interest rates today and in the near future.

Table 2 lists some developed and some emerging small open economies. To facilitate comparison, the table also contains some features of the data for the U.S.¹¹

DEVELOPING SMALL OPEN ECONOMIES

In contrast to developed small open economies, emerging small open economies experience substantially more volatile business cycles. For example, the volatility of GDP in Mexico (an emerging small open economy) is around 3 percentage points. The volatility of Canada's GDP is about half of Mexico's.

Consumption in most emerging economies displays fluctuations that are larger than those of output. As a

¹¹ It should be noted that the proposed classification is not perfect, either. Norway is a rich and developed economy by any measure. For instance, its GDP per capita in 2011 was about 30 percent larger than that in the U.S. Yet, Norway has a consumption profile that is more volatile than its output. Hence, Norway meets one of the criteria to be classified as a developing economy.

TABLE 2

Business Cycles Around the World

	Small Open Economies						United States
	Emerging Economies			Developed Economies			
	Argentina	Mexico	Philippines	Australia	Canada	New Zealand	
Standard deviation of output	4.22	2.98	1.44	1.19	1.39	1.99	1.59
Standard deviation of consumption to standard deviation of output	1.08	1.21	0.93	0.84	0.74	0.82	0.77
Standard deviation of investment to standard deviation of output	2.95	3.83	4.44	4.13	2.91	3.32	4.10
Standard deviation of net exports to GDP	0.34	0.76	2.30	0.86	0.55	0.66	0.64
Correlation of output and net exports to GDP	-0.89	-0.87	-0.40	-0.59	-0.01	-0.06	-0.48
Correlation of output and interest rate	-0.63	-0.49	-0.53	0.37	0.25	0.07	0.18

Source: Neumeayer and Perri (2005) for Small Open Economies and Fernandez-Villaverde et al. (2012) and Corsetti et al. (2008) for the U.S.

consequence, the volatility of consumption is greater than the volatility of output. For instance, the volatility of consumption in Mexico is 1.21 times that of output. In contrast, this number is about 0.74 for Canada.

A third important characteristic of emerging countries is that the interest rate on their debt experiences abrupt movements over time. As shown in Figure 2, yields on Brazilian debt jumped about 5 percentage points in a matter of months during the 1997-98 Asian crisis. Most developed small open economies have never seen such an abrupt change in their interest rates (at least until the recent European crisis; I will get back to this in the final section).

Related to the previous point, interest rate hikes (arising, for example, from contagion in international markets) in emerging economies are typically followed by a contraction in economic activity; that is, output, consumption, and investment con-

tract. These opposing movements in output and the interest rate are captured by the negative correlations reported in Table 2 for our three emerging economies.¹²

Other features of emerging economies are also often emphasized. In their book, Paul Krugman and Maurice Obstfeld stress that, in addition to the characteristics discussed above, these countries tend to have high inflation and weak financial systems; their exchange rates are, to a large extent, influenced by their local government; and their economies rely heavily on commodities (natural and/or agricultural resources).

Finally, it seems that there is no

¹² The decline in fortune following the spike in interest rates is typically accompanied by a rise in imports and a collapse of exports. See the study by Guillermo Calvo, Alejandro Izquierdo, and Luis Mejia. An example of this behavior is the decline in production that Brazil experienced following the Asian crisis.

clear difference regarding the evolution of net exports. According to Table 2, net exports have been less volatile than output in both developing and developed economies. The exception is the Philippines, which displays more volatility in net exports. A closer look at the data, however, reveals that developing countries display on average a strong negative correlation between net exports and output. Furthermore, emerging economies tend to run large trade deficits (imports are larger than exports) prior to crises. Subsequently, the trade account turns into a surplus as the emerging economy reduces its imports from abroad and the weakening of its currency boosts exports. In contrast, developed countries have run persistently large trade deficits, e.g., Canada and the U.S.¹³

¹³ See the study by James Nason and John Rogers for a discussion of the trade account.

WHY ARE DEVELOPED AND DEVELOPING COUNTRIES SO DIFFERENT?

To explain the marked differences between emerging and developed small open countries, economists have advanced several theories.

One theory argues that international markets take a dimmer view of debt in emerging economies. As a

consequence, investors demand higher returns to hold debt from developing small open economies.¹⁴ Moreover, investors' risk appetite for these securities tends to change quickly as the small open economy's fundamentals such as technology and conditions in

¹⁴ See the study by Andy Neumeier and Fabrizio Perri.

other emerging countries also change. This changing attitude results in abrupt movements in interest rates that the emerging countries have to pay. To the extent that the country meets its debt obligations, a sudden increase in interest rates implies that fewer resources are available to consume and invest. If the labor supply cannot sufficiently adjust in response to the shock,

The Cost of Default

T

he decision to repay debt issued by both emerging and developed countries depends entirely on the country's willingness to do so. Default happens when the country decides to stop repaying its debt.^a

Historically, developing countries have tended to default on their international borrowing obligations. For instance, Chile, Brazil, and Ecuador have defaulted nine times since 1800. Over that same time span, Greece and Spain have defaulted five and 13 times. In contrast, Australia and Canada have dutifully paid their obligations during the same period.^b These observations raise the interesting question of why some countries default and others repay.

Intuitively, a country (like a household) might opt to default whenever its income is not sufficient to cover its outlays (one of which is debt repayment). However, if a country defaults, it is typically excluded from the international market, which means that it cannot borrow from abroad. As a consequence, defaulting is an intertemporal (dynamic) decision in which present and future considerations matter. This temporal aspect of default makes it an interesting (and difficult) problem to analyze.

More specifically, a country may choose to default during periods of low economic activity to redirect resources from foreign debt repayment to domestic consumption and investment. However, if a country stops repaying its foreign obligations, it will be excluded from international capital markets. This means that in the foreseeable future, it will not secure loans from foreigners. This exclusion is problematic during periods of high productivity when the small open economy wants to borrow to consume and invest more (to take advantage of the good times).

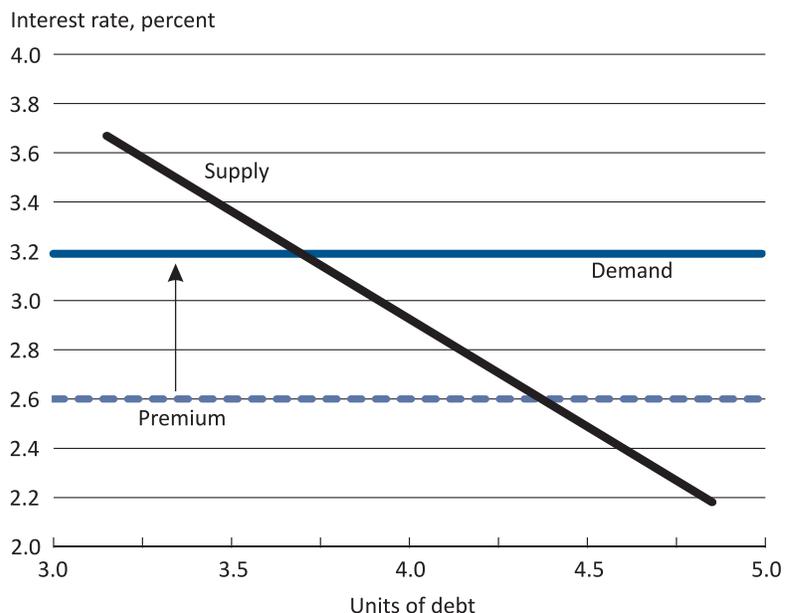
Economists have found that countries are more likely to default if 1) countries are impatient; that is, they care less about the future; 2) the burden of debt is large relative to the country's gross domestic product; and 3) the interest rate at which international markets willingly buy the country's debt is high; the likelihood of default also depends on how productive the country is in the period when it's considering default.^c

^a For additional details, the interested reader can consult the article by Burcu Eyigungor in this issue of the *Business Review*.

^b See the 2008 paper by Reinhart and Rogoff.

^c See the article by Cristina Arellano.

Figure A: An Increase in Demand for Bonds



consumption follows a more volatile pattern. Furthermore, the collapse of domestic demand (consumption plus investment) induces producers to cut production, which leads production and interest rates to move in opposite directions. That theory provides an explanation behind the negative correlation reported in Table 2.

A second theory proposes that the

disturbances buffeting developed and developing economies are different in nature.¹⁵ For the former countries, the argument goes, shocks tend to be predominantly short-lived; that is, their impact washes away after a few quarters. In contrast, shocks persist for sev-

¹⁵ See the study by Mark Aguiar and Gita Gopinath.

eral quarters or even years in emerging countries. As a result, households in these economies have to significantly adjust their consumption in response to these shocks. This is because households understand that the decline in income will be highly persistent and hence fewer resources will be available to consume in the future. The opposite arises in developed economies: Shocks

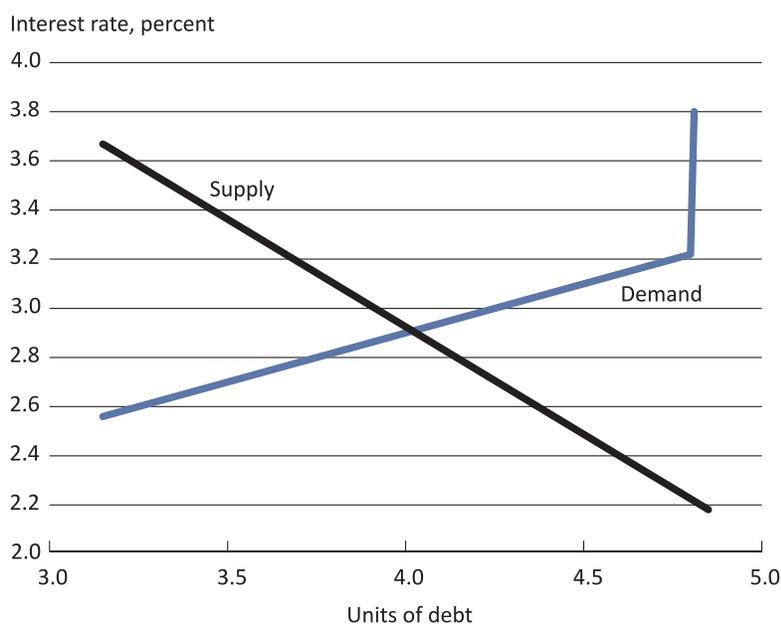
The risk of default changes the dynamics between borrowers and lenders in sovereign markets. International markets are no longer willing to take debt from the small open economy at the international interest rate. Indeed, when buying sovereign debt, foreign investors demand an interest rate that includes a premium that depends on how likely it is that the small open economy will default. In other words, this premium is a compensation that lenders demand, on top of the international risk-free rate, to cover the loss arising when the sovereign country reneges on its obligations. More pointedly, if a country experiences a downturn (perhaps due to a bad crop or the collapse of commodity prices) and suddenly there are fewer resources with which to repay debt, investors will likely charge a higher interest rate to purchase new debt issued by the small open country.

Let's consider the case in which foreign investors charge the small open economy a constant premium. Figure A shows the vertical displacement in the demand schedule for sovereign debt (the dotted line corresponds to the case in which there is no premium). Note that lenders happily buy debt as long as they receive their desired interest rate, which is 3.2 percent in our example. Since the interest rate is higher than before, the small open economy finds it more expensive to issue debt, and hence it sells only a small amount.

The more realistic situation corresponds to the one in which foreign markets charge a variable interest rate. In particular, let's consider the case in which investors demand interest rate payments that are increasing in relation to the amount of outstanding debt (see Figure B). Under this new situation, if the sovereign country wants to sell more

debt in foreign markets, it has to be ready to pay an increasing premium. As stressed before, the intuition is that foreign lenders worry that the country's ability to repay its obligations decreases with new debt issuance. Hence, lenders charge a higher premium to recover their loans more quickly. Eventually, debt issuance by the sovereign reaches a point that is beyond the country's ability to repay. Beyond this point, the interest rate is too high for the sovereign to sell debt. This is captured by the vertical line in Figure B for a debt level of 4.8.

Figure B: An Upward Sloping Demand for Bonds



have a short duration, so households can borrow resources from abroad to smooth out the impact of the changes in consumption resulting from the shocks. A drawback to this theory is that it is silent about the negative correlation between production and interest rates.

A third theory conjectures that information is less readily available in emerging economies.¹⁶ Hence, when a developing country is hit by a new disturbance, it is difficult to disentangle the nature of the shock, namely, whether it is temporary or persistent. Households tend to overreact to this lack of information by excessively contracting or expanding consumption. To see this point, let's suppose a worker is granted a wage increase this year. The increase is likely to be permanent, but it is not guaranteed. If the worker believes the increase in wages is permanent, she will borrow and consume more than the wage increase. This is because she believes more income will be available down the road. However, if the spike in wages turns out to be temporary, the worker will be forced to decrease her consumption. In fact, consumption will be lower than before the wage increase, since the worker has to repay the loans she took out to fund the extra consumption. Clearly, consumption is very volatile in this environment.

In contrast, information is more widespread in developed countries, which reduces the incentives to overreact. Going back to our example, if the worker knows that the increase in wages is permanent, she can plan accordingly. There is no excess consumption (when she receives the news about the increase) followed by a contraction (when she learns that the offer is temporary). Consumption follows a more stable pattern.

¹⁶ See the study by Emine Boz, Christian Daude, and Bora Durdu.

THE RECENT EUROPEAN CRISIS

Since the onset of the financial crisis in 2008, some European countries have run large deficits, and they pay large premiums on their debt. Hence, the lessons learned from the sovereign debt crises of developing economies will likely be relevant in the years to come.

Small open European economies are considered to be developed economies in the sense that they share business-cycle properties similar to those of Australia or Canada. Furthermore, small European economies enjoyed (until recently) easy access to international debt markets. As a consequence, demand for their debt involved relatively low premiums.

Yet, since the Great Recession (2007-09), public finances in countries such as Ireland, Spain, and Portugal have been under significant pressure. International markets are growing skeptical about the ability of those countries to repay their borrowing obligations.

Not surprisingly, the interest rate paid by those European countries spiked. Figure 3 displays the interest

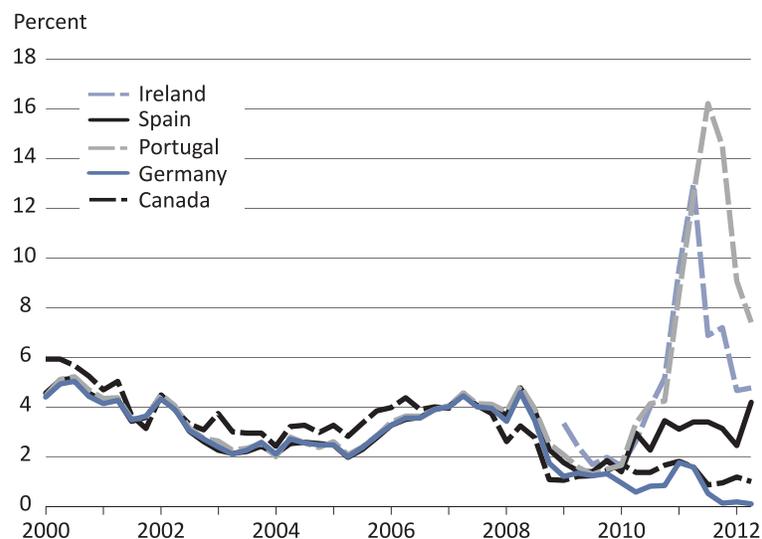
rates in annualized percentage points on two-year bonds in some European countries as well as Canada. It is immediately clear from this figure that the yields for Ireland and Portugal skyrocketed during the recent crisis. As an example, the interest rate on Portugal's debt shifted from 200 basis points in late 2009 to almost 1,700 basis points by mid-2011. This sudden spike is in sharp contrast to the declining interest rates in Germany and Canada. Ultimately, the already low economic activity in Ireland, Spain, and Portugal has been severely curtailed by the increasing burden of international debt.

It is surprising to see that unlike their European counterparts, small open economies in other regions, such as Latin America and Asia, have weathered the crisis quite well. For example, the country premiums in Brazil and Mexico have remained around 200 basis points over the last two years.

Interestingly, the recent events in European countries such as Portugal and Spain share many similarities with what happened during the Asian crisis

FIGURE 3

Interest Rate Premiums on Two-Year Bonds



in 1998 and the Latin American crisis of the early 1980s. As we noted above, premiums on sovereign debt in Portugal and Spain have reached levels not seen in recent history. The same spikes were seen in Latin America and Asia during their respective financial crises. The burden of debt in the small open European economies has been on the rise over the last five years. Emerging economies also faced an increasing burden from foreign obligations during periods of financial distress. Figure 4 displays the ratio of total public debt to output in different small open economies.¹⁷

¹⁷ Total public debt corresponds to debt issued at home and in international markets, as reported in the 2010 paper by Carmen Reinhart and Kenneth Rogoff.

A key difference between small open European economies and developing economies in previous crises is that some of the latter countries are commodity exporters. For instance, Chile (which defaulted in the 1980s) exports copper, and Ecuador (which defaulted in the late 1990s) exports oil. This is important because, upon default, the countries continued exporting commodities to mitigate the effects of being excluded from international capital markets. In contrast, since Greece does not export commodities, its attempts to repay its debt are more complicated.

A second important difference is that emerging economies have resorted to currency depreciations to make their exports cheaper in international

markets, albeit temporarily. The boost in exports partially alleviated the financial needs of these countries. Portugal and Spain use the euro as their official currency. Since the value of the euro is determined by an external and independent monetary authority (the European Central Bank), boosting exports via depreciations that lower real wages is a tool that is not available to those countries.

CONCLUSION

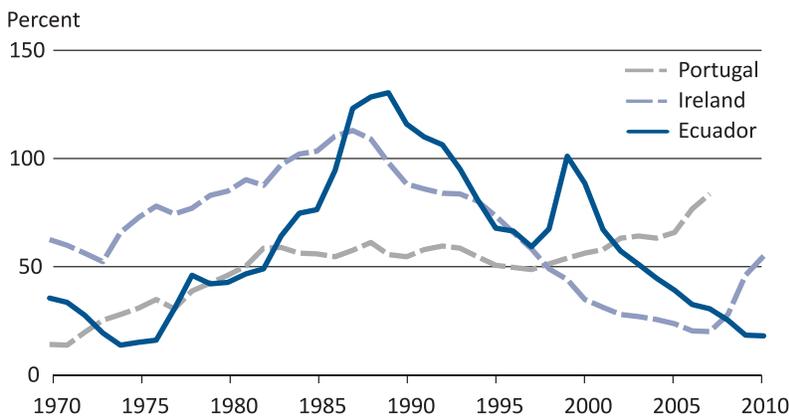
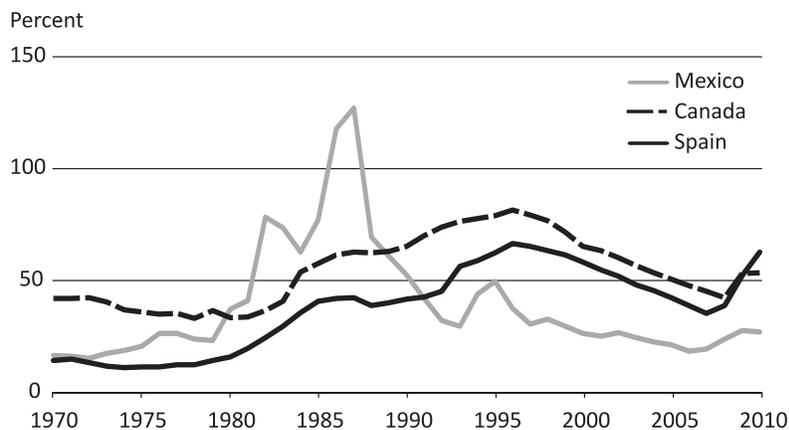
This article has introduced the reader to the concept of small open economies. It has done so by outlining the key differences between those countries that are considered emerging economies, such as Mexico and Turkey, versus those that are developed, such as Australia and Canada. Defaults and country premiums were also discussed.

Countries traditionally considered to be developing and default-prone (e.g., Brazil, Chile, and Mexico) weathered the 2007-09 international financial crises with surprising ease. Another important aspect in the recovery of these countries is that they had access to currency depreciations to boost their exports and hence improve their finances, at least in the short run.

In contrast, countries such as Greece, Ireland, Portugal, and Spain, once believed to pose very low or no risk of default, are now experiencing difficulties in meeting their debt obligations. The crises in these countries resemble, in part, episodes of financial distress in emerging economies. The situation is also different because the European economies do not have access to commodities and lack their own currencies, which have been crucial factors in the healing process post-crisis in several developing economies.

FIGURE 4

Debt-GDP Ratio in Small Open Economies



REFERENCES

Aguiar, Mark, and Gita Gopinath. "Emerging Market Business Cycles: The Cycle Is the Trend," *Journal of Political Economy*, 115 (2007) pp. 69-102.

Alessandria, George. "Trade Deficits Aren't as Bad as You Think," Federal Reserve Bank of Philadelphia *Business Review* (First Quarter 2007).

Arellano, Cristina. "Default Risk and Income Fluctuations in Emerging Economies," *American Economic Review*, 98 (2008) pp. 690-712.

Boz, Emine, Christian Daude, and Bora Durdu. "Emerging Market Business Cycles: Learning About the Trend," *Journal of Monetary Economics* (forthcoming).

Calvo, Guillermo, Alejandro Izquierdo, and Luis Mejia. "On the Empirics of Sudden Stops: The Relevance of Balance-Sheet Effects," NBER Working Paper 10520 (2004).

Corsetti, Giancarlo, Luca Dedola, and Sylvain Leduc. "International Risk Sharing and the Transmission of Productivity Shocks," *Review of Economic Studies*, 75 (2008) pp. 443-473.

Eyigungor, Burcu. "Debt Dilution: When It Is a Major Problem and How to Deal with It," Federal Reserve Bank of Philadelphia *Business Review* (Fourth Quarter 2013).

Fernandez-Villaverde, Jesus, Pablo Guerron-Quintana, Keith Kuester, and Juan Rubio-Ramirez. "Fiscal Volatility Shocks and Economic Activity," Federal Reserve Bank of Philadelphia Working Paper 11-32/R (2012).

Krugman, Paul, and Maurice Obstfeld. *International Economics: Theory and Policy*. Addison-Wesley (2003).

Nason, James, and John Rogers. "The Present-Value Model of the Current Account Has Been Rejected: Round Up the Usual Suspects," *Journal of International Economics*, 68 (2006) pp. 159-187.

Neumeyer, Andy, and Fabrizio Perri. "Business Cycles in Emerging Economies: The Role of Interest Rates," *Journal of Monetary Economics*, 52 (2005) pp. 345-380.

Reinhart, Carmen, and Kenneth Rogoff. "This Time Is Different: A Panoramic View of Eight Centuries of Financial Crises," NBER Working Paper 13882 (2008).

Reinhart, Carmen, and Kenneth Rogoff. "From Financial Crash to Debt Crisis," NBER Working Paper 15795 (2010).

Schmitt-Grohe, Stephanie, and Martin Uribe. "International Macroeconomics," Lecture notes, Columbia University (2012), available at: <http://www.columbia.edu/~mu2166/UIM/notes.pdf>.