Box 1. What impact does Brazil have on Latin America's economy?

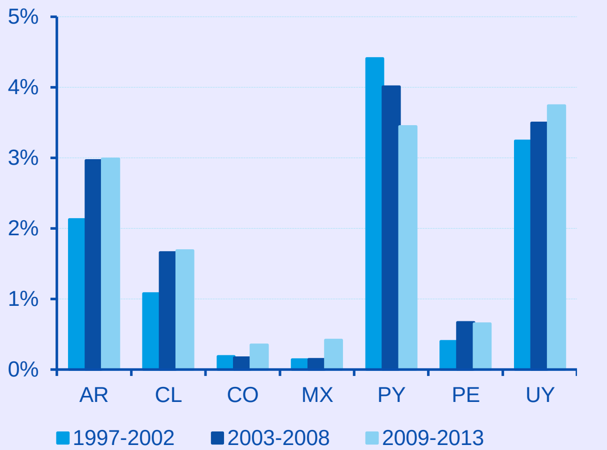
The sharp deceleration in the Brazilian economy and concern about potential spill-over into other LatAm countries have prompted us to examine to what extent and through what channels any movements in the Brazilian economy are passed on to that of each of its regional neighbours. Thus in this box we analyse the key transmission channels and present quantitative exercises to gauge the impact of shocks originating from Brazil on each of its principal neighbours in the region.

The trade channel (goods)

Over the past decade Brazil's imports have held at around 9% of its GDP, with manufactures accounting for 75% of these, while the rest are commodities. On the other hand, of total purchases made by Brazil, 15% originates from Latin America, with virtually the same distribution by categories as for those from the rest of the world.

By country, Argentina's share in Brazil's overall imports is notable (around 6% in recent years, followed by Chile and Mexico (with roughly 2% each).

Figure B.1.1
Size of exports to Brazil
(in % of GDP for each exporter country)

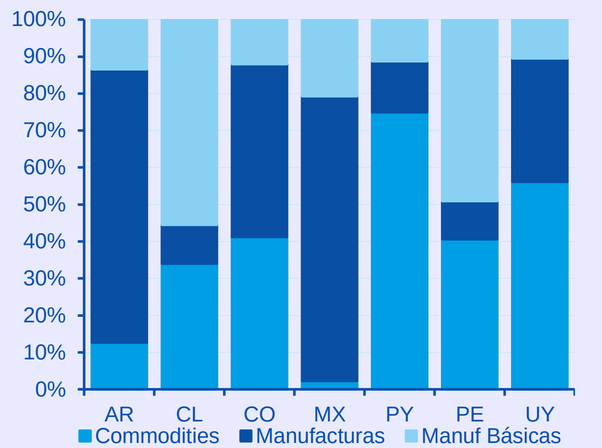


Source: Base Alice and WTO

When observing sales to Brazil as a proportion of the GDP of each country, it becomes possible to stylise three cases of exposure (Figure B.1.1) The most potentially vulnerable situation is that of the original Mercosur partners (Argentina, Paraguay and Uruguay), followed by that of Chile, and last of all, that of the other countries (Peru, Colombia and Mexico).

From a qualitative standpoint, which emerges from analysing those items which make up each invoice paid by Brazil to its trading partners in Latin America, a certain unevenness between countries is also observable, as there are marked differences in the goods mix depending on the country of origin (Figure B.1.2). Argentina and Mexico would be the countries worst hit by any sudden drop in Brazil's demand for goods imports, given the high content of manufactures in their sales, but the low share of Brazilian buying in Mexico's trade substantially allays the risk which Brazil poses for it. Contingent risk of the same nature, though on a smaller scale, affects Colombia, and, to a lesser extent, Uruguay. Among the other countries within the sample, the most heavily traded goods are commodities and basic manufactures.

Figure B.1.2
Exports to Brazil by group of goods
(%, annual average over 2008–13)



Source: Base Alice and WTO

Argentina is thus the partner which would be most affected in the event of a drop-off in demand from Brazil. Notable within the significant trading relationship among the major Mercosur economies is the auto sector agreement which has strengthened trading ties via the installation of auto final assembly plants in both countries. Boosted by the Mercosur trade agreement, Brazil has been Argentina's foremost trading partner since the early 1990s, both as regards imports and exports. In 2012-13, Brazil accounted for 21% of Argentine exports, representing 2.8% of the country's GDP. Argentina is therefore highly vulnerable given that the volume of trade is substantial and includes a high proportion of manufactures, basically cars and auto-parts, and in 2013 vehicle exports comprised 49% of exports to Brazil (43.6% in 2009-13). Trade in goods within these categories presents significant rigidities, both due to technical and legal specifications in the destination market and product turnover cycles, as well as marketing characteristics. Events in 2014 provide a perfect illustration of this risk, as when the Brazilian economy braked sharply, Argentine industrial exports to the country fell-off by 16%, while those of vehicles dropped by 18%.

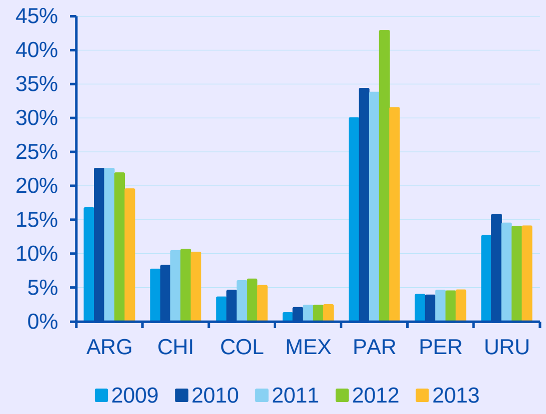
The other original members of Mercosur have a sales profile that is quite a lot less exposed to Brazil. Even though for Uruguay exports to Brazil are 22% of its overall international sales and in the case of Paraguay these are 12%, according to the breakdown of trade in both countries there is a high proportion of agricultural commodities, which serves to mitigate reliance on Brazil as these are basic goods which are relatively easy to place in international markets. With respect to Paraguay, if electricity exports are included, the proportion of exports to Brazil within the country's total exports amounted to 36% in 2009-13. Although the demand for electricity is relatively inelastic, this illustrates how high exposure to the Brazilian economy is.

The services channel - tourism[2]

Notable within this segment is the flow of Brazilian tourists out of the overall number of visitors to Mercosur countries, especially Paraguay (Figure B.1.3).

Nonetheless, despite its importance within the total flow of tourists, Brazilian tourism has a very small weight in terms of the economy of these countries, representing 0.5% of GDP for Uruguay, with like figures of 0.3% in Paraguay and 0.2% in Argentina. In none of these cases does it therefore suppose any risk beyond what it implies for certain niches or specific locations.

Figure B.1.3
Brazilian tourists out of the total (%)



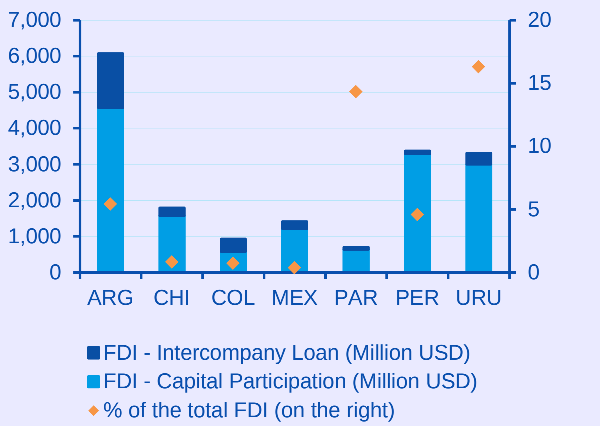
Source: National statistics and BBVA Research

The FDI channel

The flow of Brazilian FDI to countries in the region has surged in recent years, taking the stock of FDI in Latin America's principal countries in 2013 to USD19.7bn, with almost one third accounted for by Argentina (Figure B.1.4). In terms of the total stock of FDI in each country, Brazil's weight is very substantial in Uruguay and Paraguay (16% and 14%) and significant in Argentina and Peru (approximately 5%). The stock of Brazilian FDI has a weight of roughly 6% of Uruguay's GDP, with corresponding figures of around 2% for Paraguay and Peru and 1% in Argentina, while this is under 1% in the other countries examined[3].

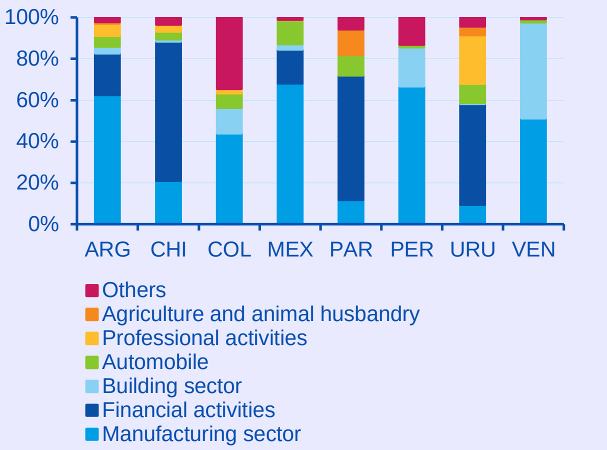
2: Unlike the situation as regards goods trade, not much information is available on services trade among Latin American countries. Here we examine a generally important sub-sector within the services sector for which there is greater data availability: tourism.
3: The figures used in this section are from the Central Bank of Brazil's census of Brazilian capital abroad. In some cases they differ significantly from those published by other sources, for which reason we advise caution when giving them consideration.

Figure B.1.4
Foreign Direct Investment originating from Brazil (stock in 2013: USD mn, % of total stock)*



* Foreign Direct Investment (FDI) is broken down, according to the methodology used by the BCB, into equity holdings and inter-company loans.
Source: BCB, WTO

Figure B.1.5
FDI originating from Brazil by sector (stock in 2013, % of country's total Brazilian FDI)*

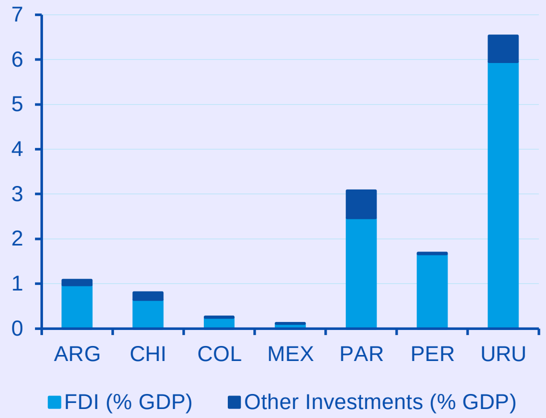


* Only FDI – Equity holdings. Does not include FDI – Inter-company loans.
Source: BCB

The sector breakdown shows that generally speaking it is manufacturing industry and financial activities which account for a large part of the stock of Brazilian FDI (Figure B.1.5). Despite the lack of data, the available evidence suggests that a substantial portion of the manufacturing sector FDI of certain countries is attributable to investments by Petrobras.

This breakdown helps to show that, beyond a potential macro-economic effect, there are sectors which are especially sensitive to any curtailment of flows of Brazilian FDI. In particular, given the recent corruption scandal involving Petrobras and several of Brazil's major construction companies, mention should be made of the risk of certain of the region's countries being hit by the financial problems which both the oil company and the construction sector face. In this respect, manufacturing and construction sector FDI, which serves as a proxy representing each country's degree of exposure to this factor, equates to 1.4% of Peru's GDP (USD2.8bn)[4], around 0.5% of GDP for Argentina and Uruguay, 0.3% for Paraguay and roughly 0.1% of GDP for the other countries.

Figure B.1.6
Weight of Brazilian investments in GDP (stock in 2013, %)



* Only FDI – Equity holdings. Does not include FDI – Inter-company loans.
Source: BCB, IMF

The portfolio investment channel

The stock of portfolio and real estate investments is largest in Argentina and Chile: USD0.6bn and USD0.4bn respectively. In both of these countries equity investment has the most considerable relative weight, while in the region's other countries, holdings of currency and deposits are the most sizeable, as well as those of real estate.

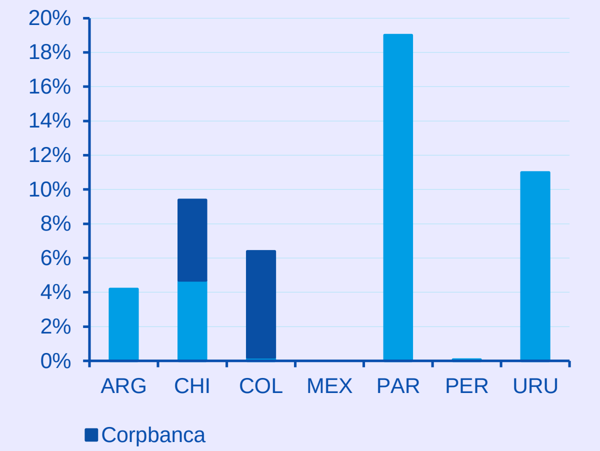
4: At the end of 2013 Petrobras sold off its operations in Peru for approximately USD2.6bn, which contributed to a marked reduction in the stock of Brazilian FDI in the country.

In all cases, however, Brazilian investments other than in FDI are not all that significant, and only account for 0.6% of GDP in Uruguay and Paraguay, and no more than 0.1% of GDP in the other countries (Figure B.1.6).

The banking channel

Brazilian-controlled banks represent a little less than 20% of the Paraguayan banking market, while this figure is a shade over 10% for Uruguay (Figure B.1.7). If the recent M&A activity involving banking assets is given the go-ahead by the competition authorities, the presence of Brazilian banks in Colombia and Chile will also become significant, at around 6%. In Argentina the weight of Brazilian banks amounts to roughly 4%, whereas in Mexico and Peru is almost negligible.

Figure B.1.7
Interest of Brazilian-controlled banks out of total financial system assets (%)*



* The Corpbanca / Itaú merger was being reviewed by the local authorities as of the date this Outlook was filed.
Source: BBVA Research, national statistics

Even though the significant presence of Brazilian banks in certain of the region's countries points to a risk of spill-over, the predominance of the branch model over that of subsidiaries helps to provide insulation from the effects of shocks originating from Brazil on the countries in the region.

The "regional financial indexes" channel

A portion of financial investments in Latin America are made via regional financial indexes which represent a portfolio of assets from several of the countries in the region. Although markets of this kind account for only a small part of total financial investments, the inclusion of Brazil among them means that decisions by financial investors in Latin American assets are influenced by how Brazilian securities perform. This in turn means that any sharp downward correction by Brazilian financial assets could end up prompting a similar downward correction in the prices of the financial assets of other countries in the region, probably only temporarily, unless events in Brazil have undermined the fundamentals for other countries.

Distortion of this kind becomes greater when Brazilian assets have an overly high weight in regional financial indexes, which is something that tends to happen, chiefly in the case of stock market indexes. In many financial indexes of this type, Brazilian assets represent over 50%, which is higher than the share accounted for by Brazil's GDP within the regional GDP figure (around 38%)[5].

Quantifying Brazil's impact on the LatAm countries

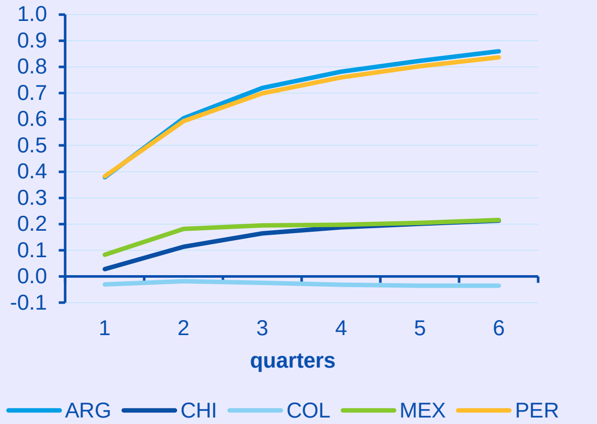
To gauge the impact of a shock in Brazil on the other countries, we estimate two econometric models.

The first of these is a VAR in which we include a set of global factors (world GDP, international financial conditions and commodity prices), as well as the GDPs of Brazil and the rest of Latin America. This analysis suggests that among the

5: For example, 48% in the S&P Latin America 40; 51% in the MSCI Latin America, and 53% in the FTSE Emerging Latin America.

Mercosur members it is Argentina which suffers most given problems in Brazil, although all the countries in the block are significantly affected too. The cumulative impact after six quarters of a shock of one standard deviation with respect to Brazil's GDP (2.5pp) is approximately 0.8pp in Argentina, a little over 0.6pp in Uruguay and around 0.4pp in Paraguay. As regards the Andean countries, only in Peru is there a strong effect, which is comparable to that on the Mercosur countries[6]. For the other economies the effects are almost negligible.

Figure B.1.8
Impulse-response (GVAR), cumulative impact of one standard deviation wrt Brazil's GDP on the LatAm countries



Source: BBVA Research

A second exercise involves estimation of a Global VAR (GVAR) model[7]. Unlike the VAR, the GVAR isolates the effect of an idiosyncratic shock from Brazil from the effect which it might have on the region's other economies. The results for this model tend in the same direction as the earlier exercise: the effects of a shock of one percentage point on Brazil's GDP are stronger for the Mercosur countries, principally Argentina and Peru. In Mexico, Chile and Colombia the impact is far less (Figure B.1.8).

Conclusions

Our analysis shows that within the region, it is Argentina, Uruguay and Paraguay which are the countries that have most exposure to Brazil. These three countries have considerable relations with Brazil in practically all of the spill-over channels. Among these, Argentina is the country which would be most affected by a shock to its neighbour, mainly on account of the magnitude of its exports of manufactures to Brazil.

The region's other countries would in any event also be affected to a certain degree, albeit less than Argentina, Paraguay and Uruguay, by problems originating from Brazil. In this regard, we would highlight bank channels in Colombia and Chile, and FDI in Peru. In the case of Mexico, the country least exposed to the Brazilian economy among those analysed, the main linkage comes from trade flows of manufactured products.

Likewise shocks of the same magnitude in Brazil can be passed on in different ways to the region's countries, depending on their source (real, banks, financial ...).

Finally, although the Brazilian economy affects those of its regional neighbours, it should be noted that the impact of an adverse shock in Brazil is not generally strong enough to suck the region's other countries into a crisis, although it could contribute to this in certain specific situations.

6: The results for Peru are striking given that trade and financial relations between these countries are not particularly significant. This is likely to be indicative of a specification problem for the model, such as leaving out some influential common factor, for which reason further investigation into these results is called for. It should be added that a similar problem can be found in the "Intra-Regional Spillovers in South America: Is Brazil Systemic after All?" by G. Adler & S. Sosa, which was published as a Working Paper by the IMF in June 2012.
7: Due to a lack of data, Paraguay and Uruguay were not included in the GVAR estimation.

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This report has been produced by the LatAm Co-ordination unit.

Chief Economist
Juan Ruiz
juan.ruiz@bbva.com

Enestor Dos Santos
enestor.dossantos@bbva.com

Cecilia Posadas
c.posadas@bbva.com

Pablo Urbiola
pablo.urbiola@bbva.com

Alejandro Faci
alejandro.faci@bbva.com

Argentina
Gloria Sorensen
gsorensen@bbva.com

Chile
Jorge Selaive
jselaive@bbva.com

Colombia
Juana Téllez
juana.tellez@bbva.com

México
Carlos Serrano
carlos.serranoh@bbva.com

Perú
Hugo Perea
hperea@bbva.com

Venezuela
Oswaldo López
oswaldo.lopez@bbva.com

With the contribution of:

Economic Scenarios
Julián Cubero
juan.cubero@bbva.com

Rodolfo Mendez Marcano
rodolfo.mendez@bbva.com

Cross-Country Emerging Markets Analysis
Gonzalo de Cadenas
gonzalo.decadenas@bbva.com
+34 606 001 949

BBVA Research

Contact details:

BBVA Research
Paseo Castellana, 81 – 7th floor
28046 Madrid (Spain)
Tel.: +34 91 374 60 00 and +34 91 537 70 00
Fax: +34 91 374 30 25
bbvaresearch@bbva.com
www.bbvaresearch.com