THE VENEZUELA RISKS FOR PETROCARIBE AND ALBA COUNTRIES

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This study models the debt dynamics currently at play in the Venezuelan economy that are increasing the short-run risks of a debt crisis in that country. The inevitable interruption of subsidized oil exports that would result from such a crisis could deal a devastating blow to the Cuban economy, as well as the rest of Venezuela's PetroCaribe and ALBA trading partners.

To explore these potential risks, this study looks back at Venezuela's historical "oil booms," where the seeds of current and prior predicaments were sown. An oil boom is defined here as a period of unbroken increases in oil prices (in inflation-adjusted terms) that culminates in a new historical maximum. By this measure, the longest and most profitable of the three Venezuelan oil booms (since 1970) came to an end in 2008. We characterize the dynamics of the Venezuelan economy in the wake of the current oil bonanza, and show the risks the economy faces now that the boom period has ended. We conclude by showing the regional dependence on Venezuela's concessional oil export programs (PetroCaribe and other ALBA flows), with a view to measuring the first round impact of a crisis in Venezuela on Cuba and other countries in the region.

THE BOOMS

There are three historical periods in which the global oil price increased in real terms until reaching a new historic high: (1) 1971–74; (2) 1978–80; and (3) 2002–08. The first period (1971–74) was both the shortest and the period during which the government of Venezuela had the least amount of direct administrative control over the country's energy resources. The period of oil nationalization of the 1970s in Venezuela had only begun when oil prices increased four-fold. Despite the huge increase in oil prices, the non-oil deficit remained relatively contained (at 8.7% of GDP) which led to low annual inflation, modest real exchange rate appreciation, and strong real economic growth.

During the second (1978–80) boom, Venezuela experienced much higher inflation—the likely result of non-oil deficits exceeding 25% of GDP necessarily accommodated by monetary expansion. The sharp increase in imports (as reflected by reserves in months of imports) alongside the smaller relative size of the boom (as reflected in years of appreciation of oil prices) left the economy in a weaker position. The low reserves and debt accumulation that resulted left the economy vulnerable to the interest rate shock of the early 1980s, which culminated in a debt crisis in Venezuela.

The start of the third and longest (seven years) of the three oil booms can be broadly dated to 2002. The extraordinary length and strength of this bonanza permitted substantial deficits alongside asset accumu-

1. International Monetary Fund. This paper should not be reported as representing the views of the IMF. The views expressed in the paper are those of the authors and do not necessarily represent those of the IMF or IMF policy. This paper describes research in progress by the authors and is published to elicit comments and to further debate.

Table 1. Venezuela's Historical Oil Booms

	1971–74	1978–80	2002–08
Peak Year (Annual Average Price)	**1974**	**1979**	**2008**
Change in Period Oil Price			
USD Current (US$)	9.8	23.1	72.7
USD Constant (cum %)	407	121	227
Years of Price Growth	4	3	7
GDP Growth After Peak	6.1	-2.0	…
(in percent, unless otherwise indicated)			
Inflation in last year	11.7	12.3	30.9
Avg annual inflation	4.2	11.2	22.1
REER Appreciation	5.3	-8.9	40.0
Non-oil Deficit	-8.7	-26.3	-27.5
Reserves (& Assets, USD m)	2,476	7,713	68,226
M1/Reserves	4.3	5.1	2.4
M1/GDP	9.3	18.5	24.0
Reserves/GDP	9.1	15.4	21.8
Reserves/Imports (in months)	10.5	8.9	16.6

Source: Venezuelan Authorities; Authors' estimates.

Note: The table compares various economic indicators during Venezuela's historical "oil booms," where an oil boom is the period of trend real increases in oil prices (in inflation-adjusted terms) that culminates in a new historical maximum.

lation. Annual fiscal deficits exceeding 25% of GDP increased inflation and appreciated the real exchange rate, lowering the competitiveness of Venezuelan non-oil tradable production and increasing import dependence. Annual public sector wage increases were possible as oil prices went ever higher, further pushing the wage-price spiral in Venezuela, and pressuring an already notoriously unproductive non-oil economy. Though the public sector recorded asset accumulation, roughly half of these were held outside the central bank, and considered to be of questionable quality. For example, Venezuela's sovereign lenders, such as China, have collateralized recent loans with future oil revenues rather than any return from assets held in "trust funds" such as Fonden (a government trust fund with offshore characteristics, used for asset accumulation).

Generally, the balance of payments identity is as follows:

$$Current\ Account + Capital\ Account + Errors\ \&\ Omissions = \Delta R \quad (1)$$

The standard balance of payments identity in equation (1) is assumed to not hold in the Venezuelan case because of the concessional dollar outflows in the capital account. Concessional ALBA and Petro-Caribe dollar outlfows are labeled as assets accumulated abroad in Venezuela. Nevertheless, borrowing countries can repay on highly concessional terms that include long grace periods, low interest rates, and the ability to repay via bartering (on favorable terms). Hence, the return measured in US dollars on these assets is likely to be highly negative (e.g., oil flows to Cuba). Nevertheless, external debt contracted by the Venezuelan state must be repaid in the future, given that future oil exports are pledged as collateral (and these can easily be embargoed in foreign ports in the event of default). Hence, this study makes the assumption that Venezuela's net international investment position is more accurately reflected by international reserves less external debt (marking non-reserve assets to zero and treating ALBA and Petro-Caribe flows as miscategorized transfers). For example, if Venezuela had zero international reserves and debt, and borrowed $10 billion from abroad (guaranteed by future oil exports) while simultaneously granting concessional transfers of $10 billion to its ALBA trading partners, its net position would be -$10 billion. In what follows, the net international investment position is assumed to result from international reserves held by the central bank (ΔR) less external debt.

THE RISKS OF A CRISIS

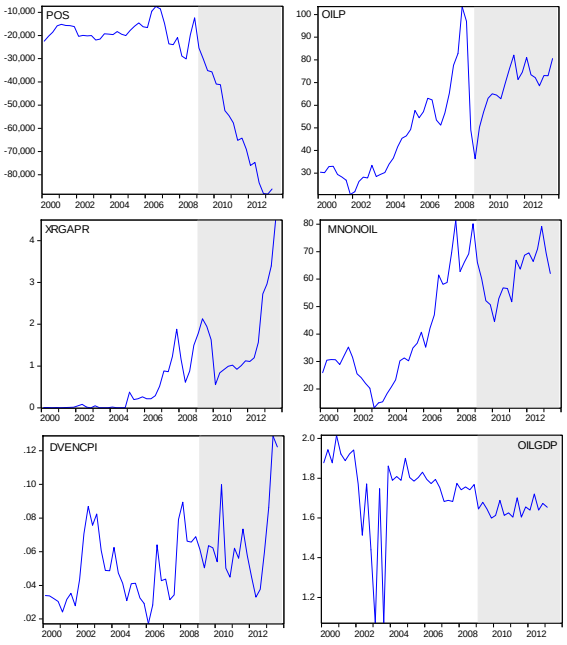
Figure 1 depicts the Venezuelan economy in the years approaching the 2002–2008 oil boom, and the impact of the (modest) decline in oil prices since the peak (in real terms). Venezuela's net cash position (labeled POS, defined as international reserves less external debt in US dollars), has declined monotonically since the 2008 oil price peak. This deterioration reflects largely an accumulation in debt, though in recent quarters, also reflected a decline in reserves held by the central bank. The panel shows multiple factors contributing to the ongoing accumulation of debt.

- The first is the lack of continued upward growth in the real US dollar oil price (OILP). Though

the price has steadily recovered back to 2007 levels from the 2009 global financial crisis, it has broadly stagnated. This stagnation, combined with the steadily declining oil production in Venezuela (shown by OILGDP), has stunted the country's oil revenues.

- Declines in revenue alongside increases in expenditure driven by both inflation inertia and legislated wage increases, alongside a battery of market-unfriendly policies, have brought shortages and further fueled inflation (labeled DVENCPI).
- The real appreciation from high inflation has made Venezuela an "expensive" and uncompetitive country, driving up import dependence (labeled MNONOIL).
- Given the shortage of dollars from, inter alia, low export revenues, increasing imports and continued outflow of dollars, the deterioration in the net international investment position (POS) has been accompanied by rationing of currency. This rationing is reflected in the difference between Venezuela's real exchange rate based on the official rate, and the real exchange rate based on the parallel rate (XGAPR). This real exchange rate gap is a measure of the difference between the official and black market rate.

Figure 1. The Evolution of the Venezuelan Economy



Source: Venezuelan Central Bank, Authors' estimates.

Note: The panel shows the evolution of various indicators of the Venezuelan economy. POS is the net cash position, defined as international reserves less external debt expressed in US dollars. OILP is the real US dollar oil price, deflated by US CPI. XGAPR is the difference between Venezuela's real exchange rate based on the official rate, and the real exchange rate based on the parallel rate. Hence, it is a measure of the gap between the official and black market rate. MNONOIL is non-oil imports, expressed in constant (CPI deflated) US dollar millions. DVENCPI is the quarterly, non-seasonally adjusted inflation rate in Venezuela. OILGDP is the real GDP index for Venezuela's oil sector published by the Central Bank of Venezuela.

THE MONEY

Despite the strength and length of the 2002–08 oil bonanza, there was little saved by the Venezuelan authorities. Table 2 shows the cumulative dollar flows into and out of Venezuela during the last decade while the oil price increased and subsequently stabilized. Total exports from Venezuela in the four-year post-boom period (2009–12) were $313 billion, which nearly matched the $380 billion export revenues in the seven-year boom period 2002–08. The broad plateau in real oil prices obtained since 2008 has stabilized revenues. Nevertheless, imports and other current account outflows have grown since the boom years, leaving just $46 billion in export revenues. Despite "saving" only $46 billion from exports during 2009–12, Venezuela transferred out $82 billion from the country, combining capital account outflows and errors and omissions. Hence, the net loss in reserves in the years following the oil bonanza that ended in 2008 was $36 billion.

While external borrowing and periodic devaluations succeeded in past years in suppressing the gap between the parallel and official exchange rates, the inability to accumulate debt indefinitely has been reflected in a recent spike in the exchange rate gap. Continued reserve losses and mounting debt, alongside the economic deterioration from rationing of US dollar imports, could eventually bring an economic collapse if not addressed. To capture the dynamics of this deterioration in the financial position of the Venezuelan economy, we estimate a simple one-period lag vector auto-regression.

Table 2. Venezuela: Income from Rest of the World (in US dollar billions)

	2002–08	2009–12	2002–12
Exports, f.o.b.	380	313	693
Imports, f.o.b.	-197	-186	-383
Other	-48	-81	-129
Current Acct Surplus	135	46	181
Capital Flows	-104	-57	-161
FDI	2	1	4
Other flows	-107	-58	-165
Errors and Omissions[a]	-14	-25	-39
Subtotal Flows	17	-36	-19
Δ Official Reserves	17	-36	-19
Memo:			
Δ External Debt	18	62	80

a. Includes US$12.2 bn in reserves transferred to Fonden.

$$X_t = \gamma_0 + \Gamma X_{t-1} + \gamma_{q1} I_{quarterly} + \gamma_{t1} trend_t + \gamma_{crisis1} I_{t>2008} + \varepsilon_t$$
$$where\ X_t = [OILP_t, XRGAPR_t, MNONOIL_t, DVENCPI_t, \Delta POS_t]' \quad (2)$$

In equation (2), the vector auto-regression includes the change in the financial position, real oil prices, the real exchange rate gap, non-oil imports, and inflation. These are a function of the prior quarter, and include indicator variables for the first, second and third quarters (to capture seasonal effects), a trend variable, and an indicator variable for the period after 2008 reflecting the post-peak oil price period.

The estimated coefficients in Table 3 show Venezuela's one-quarter instantaneous impact in the variables as conditions change. Hence the positive relationship between, for example, real non-oil imports and improvements in the net financial position of the country likely reflect simultaneous improvements in both due to improvements in the oil price. The long-term impact of the estimates can be observed by simulations of the system in Table 2 over a few quarters. Figure 2 simulates the system using historical "shocks" drawn from the sub-sample 1996–2003 (excluding most of the very high oil price years).

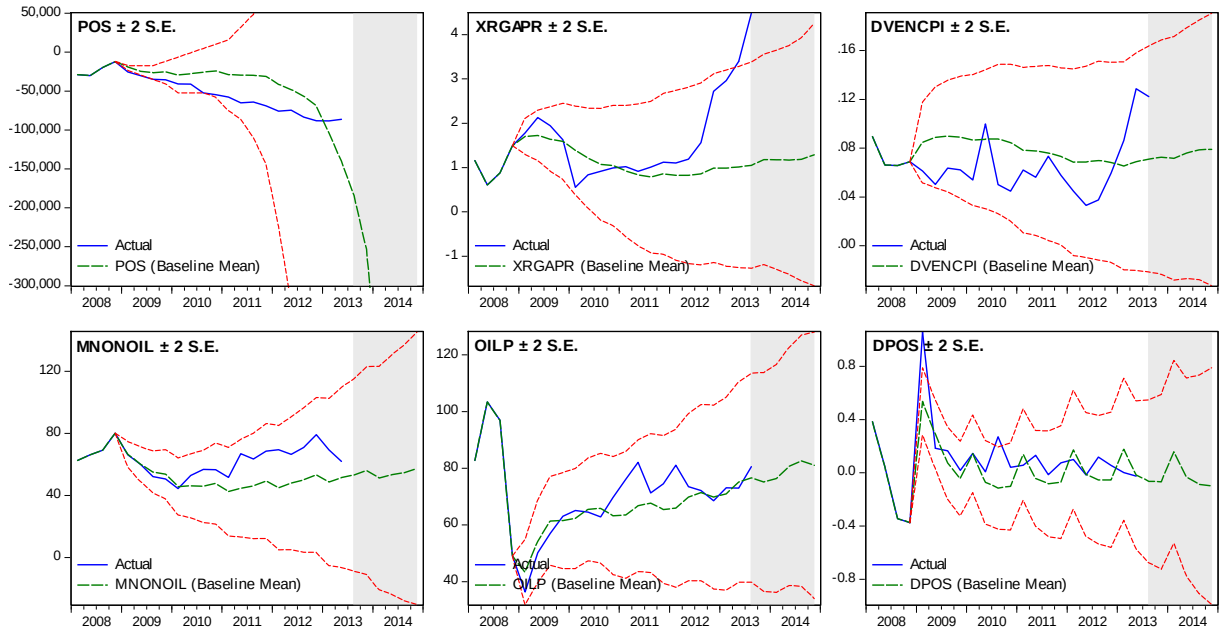
The dynamic simulation captures the historical data well, as can be observed by comparing the actual with the mean of one-thousand simulations. The two variables that most sharply divert from the model forecast are the net international investment position (POS) and the real exchange rate gap (XRGAPR). The model forecasts a sharp decline in Venezuela's financial position (POS) despite continued high real oil prices, while the exchange rate gap stabilizes. In actuality, however, so far Venezuela has avoided such a drop in its international investment position by allowing the exchange rate gap to widen to levels outside the 90% confidence bands (at the time of writing the parallel exchange rate in Venezuela is Bs. 46 per US dollar, while the official is Bs. 6.3 per US dollar). The model simulations anticipate a hard ceiling on how far the real exchange rate gap can widen (based on the historical distribution), and hence, this is the source of the pronounced decline forecast for the international position. The current exchange rate gap is an outlier and has not been sustainable in a historic sense. Closing this gap to historically sustainable levels will likely result from a large devaluation of the official exchange rate and some further reserve loss to reduce demand for US dollars (hence adjusting via quantities instead of prices).

Ultimately, the gap between the real exchange rates based on official and parallel exchange rates reflects a shortage and rationing of dollars. Attempting to close this gap by devaluing the official exchange rate (as in

Table 3. Venezuela Vector Autoregression Estimates (1997Q3 2013Q2, t-statistics shown below estimates)

	OILP	XRGAPR	MNONOIL	DVENCPI	DPOS
OILP(-1)	0.79	-0.01	0.23	-0.00	-0.01
	6.79	-1.37	3.20	-0.92	-4.79
XRGAPR(-1)	1.88	0.88	-2.56	0.01	-0.08
	0.77	9.35	-1.65	1.77	-1.51
MNONOIL(-1)	-0.08	0.01	0.85	0.00	0.01
	-0.73	2.20	13.12	0.89	4.39
DVENCPI(-1)	22.83	-4.29	-62.58	0.76	0.45
	0.60	-2.95	-2.60	8.64	0.52
DPOS(-1)	15.63	-0.08	2.48	-0.02	-0.05
	3.05	-0.38	0.77	-1.82	-0.46
CRISIS	-6.12	0.00	2.47	-0.01	-0.04
	-1.63	0.03	1.04	-1.22	-0.47
Adj. R-squared	0.90	0.88	0.94	0.41	0.42
F-statistic	61.7	53.6	113.8	6.0	6.1

Figure 2. Bootstrapping Simulation of VAR



Source: Author's estimates, Venezuelan Central Bank, Misistry of Finance. Actual data 1996–2013q2, forecast through 2014q4.

Note: Solid lines are actual data, dashed lines are the mean model predictions from 1,000 simulations with bootstrapped errors drawn from 1996–2003 (pre-oil boom) subsample. The error bands refelect two standard deviations and coefficient uncertainty. POS is international reserves less external debt, XRGAP is the percent gap between the official and parallel based real exchange rates, DVENCPI is quarterly inflation, MNONOIL ia non-oil imports (in billions of dollars), OILP is the real oil price, and DPOS is the quarterly change in POS.

the past) will push up inflation, further pressuring exchange rates and demand for dollars. Hence, some international reserves will likely continue to be expended to help contain the exchange rate pressure. However, the model suggests that stabilizing the gap at roughly 100%-200% (i.e., a parallel rate that is double to triple the official rate) could potentially imply an unsustainable rate of reserve loss and borrowing within just a few quarters. Hence, the pressure on the Venezuelan financial position reflected in the real exchange rate gap presents short-term risks to PetroCaribe and ALBA financing.

PETROCARIBE AND ALBA REGIONAL FINANCING

PetroCaribe is an agreement signed in 2005 to provide financing imports of oil from Venezuela by certain Central American and Caribbean (CAC) countries at concessional terms (historically, the terms were 25–year maturity, 2–year grace, 2% interest). The financing terms fluctuate with the world price of oil, becoming more favorable as oil prices increase. There are other terms associated with this facility, which include commitments on the part of the borrowing authorities to increase social or other targeted expenditure categories. There are also provisions that allow borrowing countries to make barter payments, for example repaying for oil imports with exports of agricultural or other goods, essentially repaying at non-market prices. While some of the financing terms reportedly came under review in 2013, the facility has remained largely unchanged despite the end of the oil boom in 2008. In particular, PetroCaribe flows continued during the global financial crisis despite an oil price correction that led to a devaluation-induced fiscal adjustment and a GDP contraction. This could be interpreted as a strong political commitment to PetroCaribe on the part of the Venezuelan authorities.

PetroCaribe helped some Central American and Caribbean countries withstand the global crisis, which impacted them through a variety of channels, including declining commodity prices, cuts in trade credits, and tourism declines. Available financing is country-specific and depends on an oil import quota negoti-

ated bilaterally with Venezuela (in thousands of barrels per day, abbreviated bpd). Venezuela also provides financing through ALBA (Bolivarian Alternative for Our America, a loose political confederation of countries led by Venezuela and Cuba). Cuba and the Dominican Republic are the largest members (by GDP) and have the largest oil bills. The smaller members have combined oil imports (bpd) of only about 1.5 percent of total Venezuelan oil exports. Nevertheless, the combined oil imports of PetroCaribe member countries is roughly 20% of Venezuela's oil exports, with the average member country spending 10% of GDP on oil imports annually. Figure 3 shows the PetroCaribe oil quota and use by member countries, and reveals the relative vulnerability of each country to the cessation of such arrangement. PetroCaribe flows in US$-terms are highly concentrated. Some member countries have not used their assigned quotas or used only a small part. Total PetroCaribe flows were estimated to be US$2.5 billion per year for 2008–10, and cumulatively, total US$10 billion since 2005. This estimate, however, does not include ALBA-related flows, which include payments by Venezuela to ALBA partners for technical assistance, service exports, and transfers.

Figure 3. Petro-Caribe Oil Quota and Use (percentage of oil imports; avg. 2008–10)

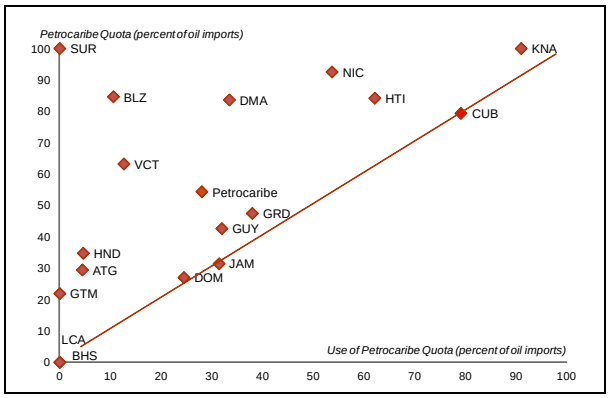
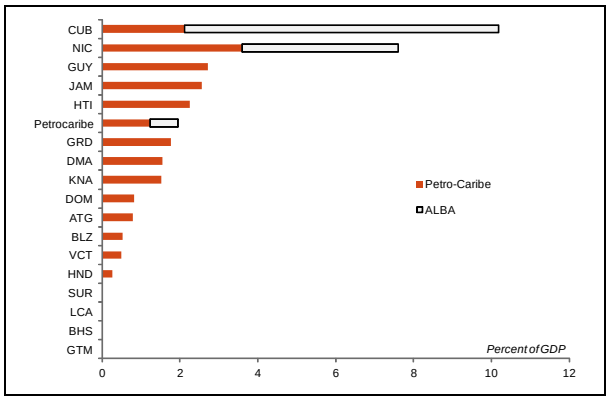


Figure 4 shows the first-round loss estimates that would result from an interruption in PetroCaribe and ALBA flows to Venezuela's concessional trading partners. The largest risks are faced by Cuba and Nicaragua, which currently receive approximately 12% and 8% of GDP annually in concessional financing from Venezuela. While much smaller in magnitude, the risks to the other large and populous economies in the Caribbean, namely the Dominican Republic, Jamaica, and Haiti, range from 1% to 5% of GDP. A financing shock of these magnitudes to these economies would likely pressure their external access more broadly, and trigger a region-wide balance of payments crisis.

Figure 4. First-Round Losses from an Interruption in PetroCaribe and ALBA Flows



CONCLUSIONS

This paper has studied the macroeconomic and external imbalances that have emerged in Venezuela as a result of the most recent oil boom, which began in 2002 and ended in 2008. The estimates presented show that the vulnerability to a crisis in Venezuela is elevated, most evident from the deteriorating international investment measure introduced here, and the gap in the parallel-real exchange rates. A correction in these imbalances appears inevitable in the short-run. Such a correction, if suddenly forced on Venezuela because of an unexpected loss in external financing, would likely be costly and disruptive both to that country and to its PetroCaribe and ALBA trading partners. The most heavily impacted countries would be Cuba and Nicaragua, but all PetroCaribe and ALBA partners, including countries with relatively large populations such as the Dominican Republic, Jamaica and Haiti, would risk facing an external financing crisis.

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