UNIVERSIDAD DEL CEMA
Buenos Aires
Argentina

Serie
DOCUMENTOS DE TRABAJO

Área: Finanzas y Economía

MEASURING THE "TAILWIND" IN AN EMERGING MARKET ECONOMY: THE CASE OF ARGENTINA

Emilio Ocampo

Octubre 2016
Nro. 600

www.cema.edu.ar/publicaciones/doc_trabajo.html
UCEMA: Av. Córdoba 374, C1054AAP Buenos Aires, Argentina
ISSN 1668-4575 (impreso), ISSN 1668-4583 (en línea)
Editor: Jorge M. Streb; asistente editorial: Valeria Dowding <jae@cema.edu.ar>

WORKING PAPER

Draft Version 10 October 2016

Measuring the "Tailwind" in an Emerging Market Economy: The Case of Argentina

Emilio Ocampo

Finance Department

UCEMA

Abstract:

This paper introduces an index that seeks to objectively measure tailwind, a term used to describe favorable external conditions in commodity and financial markets that can lead to improved macroeconomic performance. Argentina is and has historically been a net exporter of commodities and a net importer of capital, therefore it benefits from rising prices in international commodity markets and the availability of low cost long-term capital. The index is partly based on the framework of "push" and "pull" factors developed in the early 1990s to explain international capital flows into emerging markets economies and my own experience as an international investment banker during the nineties.

Key words: Tailwind, push factors, economic policy, Argentina, emerging markets.

I am grateful to Niso Abuaf, José Dapena, Daniel Lema and Julián Siri for helpful comments. Any errors are my sole responsibility. The views and opinions expressed in this paper do not necessarily represent those of UCEMA University.

Introduction

In the first decade of twenty first century, most Latin American economies experienced particularly favorable conditions in international financial and commodity markets, which in many cases resulted in increased capital inflows and higher GDP growth. The press, politicians and the general public have loosely referred to this phenomenon as "tailwind". The term however has never been properly defined. Some economists have associated it with improving terms of trade, others with lower interest rates in the US. In this paper I propose an index that measures tailwind objectively and in real time. I also introduce an index the measures the receptiveness of international investors to invest in emerging market securities (i.e., portfolio flows in balance of payments terminology). The idea grew out of my research on the links between rising commodity prices and populism, which I explored in another paper (see Ocampo, 2015).

Tailwind and the External Sector

Let's start with a very simplified model of Argentina's external sector using the basic balance of payments identity:

$$(1)\ CA = X - M + NFIA = \Delta\ NFA = PI + FDI + \Delta\ R$$

Where CA is the current account, X exports of goods and services, M imports of goods and services, NFIA, net factor income from abroad and NFA, net foreign assets. To the extent the country runs a current account deficit, it has to import capital in the form of portfolio debt and equity investments (PI), FDI, or drawing down its international reserves (R). In 27 out of the last 40 years, Argentina ran a current account deficit.

There are two types of exports, agricultural (X_A) and non-agricultural (X_I). In the short run, the dollar volume of the latter is relatively constant whereas the dollar volume of X_A is a function of international commodity prices:

$$(2)\ X_A = P_A \times Q_A$$

Where P_A are nominal agricultural commodity prices and Q_A, total agricultural production. In 2015, $P_A \times Q_A$ generated approximately 20% of the country's total exports (50% if we add processed agricultural commodities such as soybean oil). We know that over the medium term, Q_A is a positive function of P_A. In the short run, imports also tend to be fixed. NFIA is essentially equal to interest (R_R) and dividends (d_R) earned by residents on foreign assets minus interest (R_F) on foreign debt (d_F) and dividends (d_F) paid to foreign residents. The latter two have historically been similar in size and significantly larger than the former two.

$$(3)\ R_F = r \times D_E$$

Where r is the average rate of interest paid and D_E the outstanding country's external debt. For most of the external debt, r is fixed. All of the above means that, in the very short run at least, changes in Argentina's current account balance are mainly a function of what happens to agricultural commodity prices.

Given that Argentina has historically exhibited chronic current account deficits, it is important to understand how these deficits are financed. To the extent they are driven

by a fiscal imbalance (which has historically been the case), the key variable to look at is the cost at which the sovereign can borrow internationally. This cost is simply the yield on the 10-year US Treasury Note (r_{10}) plus a country risk premium that reflects the extra spread required by investors to buy and hold Argentine bonds:

$$(4)\ r_A = r_{10} + CRP$$

Where r_A is the average rate on new borrowings and CRP is the country risk premium. The CRP depends on internal and external factors and it is usually positively correlated with r_{10}, i.e., all other things equal when benchmark US interest rates go down, the probability of the country defaulting on its external debt also goes down. Also, in the case of Argentina, CRP should, in theory, move inversely with P_A, i.e. higher agricultural commodity prices improve the country's creditworthiness, which in turn should push down CRP. But CRP also depends on internal factors, including those that determine long-term growth (institutional quality, infrastructure, natural resource base, human capital, etc.) as well as fiscal and monetary policies.

When P_A are high and r_{10} is low, the country experiences tailwind, and when the opposite occurs it faces headwind. Given the above, an index to measure the wind's intensity and direction could be constructed using these two variables. But the level of interest rates alone is not enough to determine whether tailwind exists. It is also important to gauge to what extent international investors are willing to allocate capital to opportunities in emerging markets. As we shall see, this willingness depends on a myriad of other variables that can also be measured such as risk appetite, volatility and momentum. The literature refers to all of these variables as "push factors".

The Push and Pull Factor Framework

Most Latin American economies have historically shared, to some degree, two main features: they are net exporters of commodities and net importers of capital. Basically, a strong tailwind meant access to cheap capital abroad and very favorable prices for their exportable commodities. As explained above, at the most elementary level, there are two variables that explain tailwind: a) the US dollar price of those key commodities that generate the bulk of a country's export revenues, and b) the yield on the 10-year US Treasury note, which is the benchmark off which emerging market risk is priced. However, the latter is an imperfect indicator, as it does not necessarily reflect availability of capital for a borrower in an emerging market country.

In the case of Argentina, a net importer of capital with chronic fiscal imbalances, the availability and cost of long term debt in US dollars is a critical variable not only due to its potential impact on portfolio and FDI flows (and indirectly on economic growth), but also due its immediate and direct impact on public sector financing.

In a seminal paper, Fernandez-Arias (1993) introduced the terms "push" and "pull" factors to explain the direction and intensity of capital flows into emerging market economies (EME). Essentially, "push factors" are external (and therefore common to most EME) whereas "pull factors" are country specific (e.g., growth prospects, institutional strength, quality of economic policy, etc.). Both factors could also operate in reverse. For example, a tightening of Fed policy would indicate a negative "push" factor whereas a misguided economic policy at home would indicate a negative "pull" factor.

Writing in the early 1990s when capital flows were returning to Latin America, Fernandez-Arias tried to address the issue that policymakers were facing at the time: whether capital flows were being "pushed" by low interest rates in advanced economies (AE) or "pulled" by prospects of higher returns in EME. The answer had important policy implications. According to Chuhan, Claessens and Mamingi (1993), "pull factors" dominated, whereas Calvo, Leiderman and Reinhart asserted that "push factors" were more important. Fernandez-Arias sided with the latter.

The push-pull framework developed by Fernandez-Arias proved quite useful and has become a standard tool to analyze capital flows into EME. In recent years, a number of studies have attempted to quantify the relative impact and importance of these factors. The issue became particularly important in the aftermath of the global financial crisis, when the Federal Reserve aggressively pursued an expansive monetary policy (quantitative easing) that drove short and long-term rates to historical lows. The search for yield in EME by international investors, led, for a while, to a significant appreciation of EME currencies against the US dollar, most notably in the case of Brazil.

A study by Fratzscher (2011) found that common shocks exerted a substantial effect on global capital flows and this effect changed markedly during and after the crisis. In particular, the rise in risk and crisis episodes triggered a reallocation of flows from many EME to some AE, while they had the opposite effect before and after the crisis, consistent with a "flight-to-safety" hypothesis. In reviewing the literature, Koepke (2012) found there was a consensus among economists that both external and domestic factors mattered for capital flows. It is now generally accepted that "push factors" have a significant impact on the direction of portfolio flows, somewhat less for banking flows, and least for FDI.

In a recent paper, Cerutti, Claessens and Dpuy (CCP) found that (i) the aggregate co-movement of aggregate inflows into EME conceals significant heterogeneity across asset types, as only bank-related and portfolio bond and equity inflows do co-move; (ii) while global "push factors" in AE mostly explain the common dynamics, their relative importance varies by type of flow; and (iii) the sensitivity to common dynamics varies significantly across countries, with market structure characteristics (especially the composition of the foreign investor base and the level of liquidity) rather than borrower country's institutional fundamentals strongly affecting sensitivities.

As defined, tailwind can have a positive effect on economic growth of EME in two ways. The first is direct, through the impact of improving commodity prices on export revenues. Aslam et al (2016) found that historically commodity price booms led to sizable output gains in commodity exporters. The effect is stronger for countries with lower levels of financial development, more pro-cyclical fiscal policies and less flexible exchange rates. Gruss (2014) confirmed that for most commodity exporting countries in Latin America, the recent commodity price boom had a significant positive effect on GDP growth.

The second effect is indirect. Kose, Prasad, Rogoff and Wei (2009) reviewed the vast literature on capital flows and economic growth and concluded that it was positive if certain thresholds were met. These thresholds had to do with the level of development of domestic financial markets, the quality of institutions and corporate governance,

the nature of macroeconomic policies (including the exchange rate regime), and the extent of openness to trade. For countries that don't meet these thresholds, the positive relationship between capital flows and growth can disappear and even turn negative.

Tailwind and "push" factors

Given all of the above, from a practical point of view, an index that precisely measures the intensity of "push" factors should be a valuable tool for policymakers and financial decision makers in the private sector in EME. In this paper I attempt to provide such tool by drawing on the original push-pull framework and my own experience as an international investment banker for over a decade.

For most EME, tailwind has two main components: the price of its key commodity exports and the cost and availability of foreign capital. In the case of Argentina, the first is simply the US dollar price of wheat, maize and soybeans in Chicago. Capturing the second is more complex. Portfolio flows, and to a lesser extent FDI, are affected by the level of US long-term interest rates. Market practitioners focus on the 10-year US Treasury Note, which is a key input to determine the price of any US dollar denominated bond offering and also to calculate the cost of capital for any long-term investment project in EME. But this rate tells half the story. The other half has to do with the availability of capital for EME issuers.

Following the literature, CCP define "push" factors as including the following variables: (i) the average GDP growth rate in four core economies (U.S., Euro Area, Japan, and U.K.), (ii) the US VIX, (iii) changes in the expected U.S. policy rate (difference between the 6 months fed funds future and the fed funds), (iv) the slope of the U.S. yield curve (the difference between the 10 year and the 3 month U.S. government T-bill yields, (v) the U.S. real effective exchange rate (REER), (vi) the TED spread (calculated as the difference between the three-month LIBOR and the three-month T-bill interest rate.) to capture global banks' leverage and funding conditions, (vii) the 10-year U.S. government bond yield, to capture risk-free long term cost of investing; (viii) the lagged return of the EMBI+ as a proxy for return-chasing in EME bond markets, (ix) the lagged return in the MSCI emerging market index, to capture equity return-chasing in portfolio equity inflows. All these variables affect all types of capital flows.

CCP found that for total investment flows, the variables with the highest explanatory value are TED, EPC and YCS, in this order. For bond flows, the US10Y was the most important factor and, interestingly, YCS in the case of equity flows. In the case of bank flows, TED dominated. These results apply to a sample of 35 countries.An increase in any of these variables ("push" factors working in reverse) would have, *caeteris paribus*, a negative impact on capital flows to emerging markets, which would constitute headwind.

The tailwind index (TWIN™) is made up of two sub-indices. The first includes only financial market variables. This is an index of financial market receptiveness to emerging market issuers (FREM for short). To build the FREM, I took the following approach: (i) I discarded any variables that could not be observed daily, i.e., GDP growth rate and REER, (ii), I used the EMBI+ spread instead of its monthly return, (iii) instead of using the return on the MSCI Emerging Markets Index, I subtracted it from the return on the S&P 500 Index, and (iv) I added the fed funds rate.

The second component of the TWIN is an index of international commodity prices, which CCP consider, in my view incorrectly, a "pull factor" (this is a totally exogenous variable beyond the control of any country's policymakers). Also, to a certain extent, commodity prices serve as a proxy for the REER. In the case of Argentina, the commodity price index uses the monthly average price in Chicago for soybeans, wheat and maize.

Determining the appropriate weights for each of its components is the most difficult challenge when building any index. In this case, one approach is to rely on the parameters of the econometric models estimated in recent papers. However, these papers conclude that the relative importance of "push" factors: a) changes over time, b) varies across types of capital flows (e.g., the TED spread affects bond inflows and equity inflows differently), and c) is country specific. This approach would add complexity without adding much in terms of explanatory power.

Another approach would be to use the relative weights implied in equation (1). This alternative offers some promise but would require periodic adjusting. Given that on average, over the last two decades, $P_A \times Q_A$ has been roughly equal to the sum of PI, FDI and NFIA and to avoid unnecessary complexity, I assigned equal weights to commodity prices and financial market variables.

Data

I have built three versions of the tailwind index: a) TWIN 1 starts in January 1990 and it excludes both the EMBI (not available before December 1993) and MOM, b) TWIN 2 uses all the data above but as a result starts on December 1993, when J.P. Morgan started publishing the EMBI, and c) TWIN 3 uses only MSW and US10Y and therefore can be calculated starting in December 1983, when democracy returned to Argentina. However, given that the country was in default of its external debt, and therefore no access to foreign capital, the index is of limited use.

The TWIN 2 index is the inverse of a weighted average of the following variables (monthly averages):

Variable	**Indicator used**	**Ref.**	**Source**
Exogenous growth in export revenues:	Minus average nominal price of maize, soybean and wheat in Chicago.	MSW	IMF
Long term cost of capital:	Yield on 10-year US Treasury Note	US10Y	FRED
Tightness of US monetary policy:	Fed funds rate	FF	FRED
Expected Fed tightening	Difference between 6-month futures contract on fed funds and current fed funds rate	EPC	FRED
Equity Market Volatility	CBOE S&P500 Volatility VIX	VIX	FRED
Liquidity conditions in the interbank market:	TED Spread (the difference between the three-month LIBOR and the three-month T-bill interest rate)	TED	FRED
Risk aversion in the bond market	Yield Curve Steepness difference between yield on 10-year Note and the 3-month T-bill	YCS	FRD
Investor appetite for Emerging Market Equities	Monthly Return on the S&P 500 – Monthly return on MSCI EM	MOM	S&P and MSCI
Investor appetite for Emerging Market Debt:	EMBI+ spread	EMBI	J.P. Morgan

With the exception of EMBI, all other variables are available on a daily basis since at least January 1990. Note that the index of nominal agricultural commodity prices was included with a changed sign. All variables were normalized for the period December 1993-May 2016.

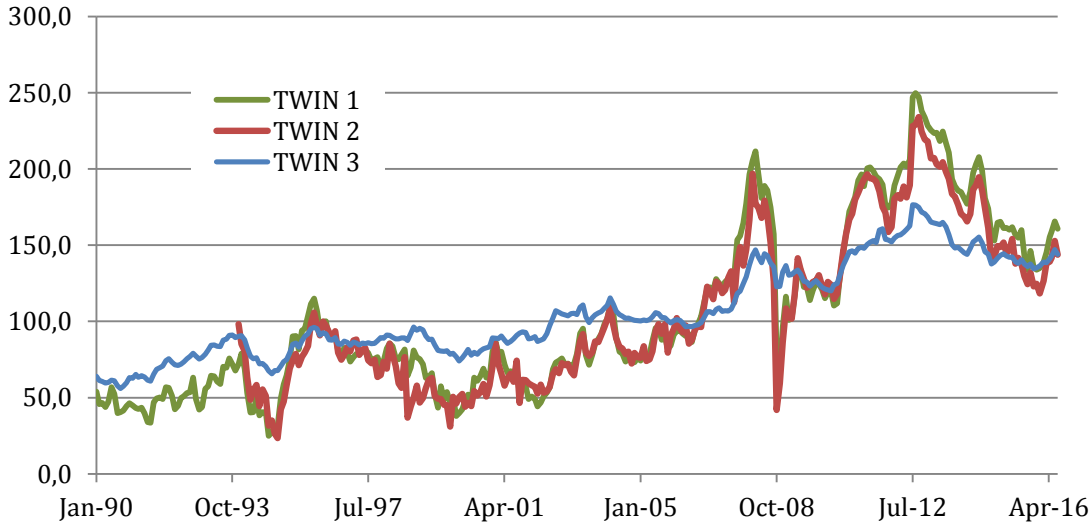
After changing its sign, the resulting average was rescaled and expressed in two formats: a) on a scale of 1 to 10 that provides historical context (therefore past index values change over time), and b) as an index normalized for the period 12/93-05/16 with the average of 2006 as its base.

An increase in the TWIN index in any of its versions indicates stronger tailwind. The intensity of the tailwind (or headwind) for any given period can be measured by the rate of change of the index over such period.

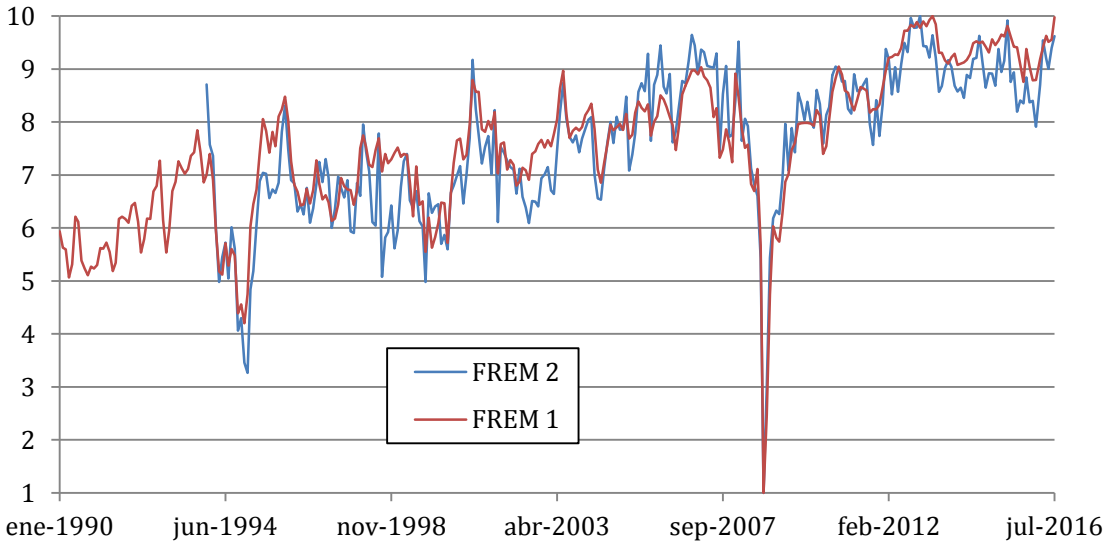
Why three versions of the index? The Republic of Argentina formally reentered international debt markets in December 1992, when it reached an agreement to join the Brady Plan. Before that date however, private sector issuers had already tapped the international debt and equity markets. Also, it is generally agreed that the second era of globalization started in 1990. Both indices are highly correlated as can be seen in Table 3. TWIN 3 can be used to explore the counterfactual impact of the tailwind over longer periods of time.

Graphs 1 and 2 below show the evolution the three versions of the index for the period 1990-2016. As can be seen, they tell a story tailwind/headwind which coincides with what is generally accepted as common wisdom: so far the 21st century has been much more favorable to Argentina than the nineties. As we shall see, this has important policy implications.

Graph 1. Tailwind for Argentina 1990-2016



Graph 2. Financial Market Receptiveness to Argentina 1990-2016



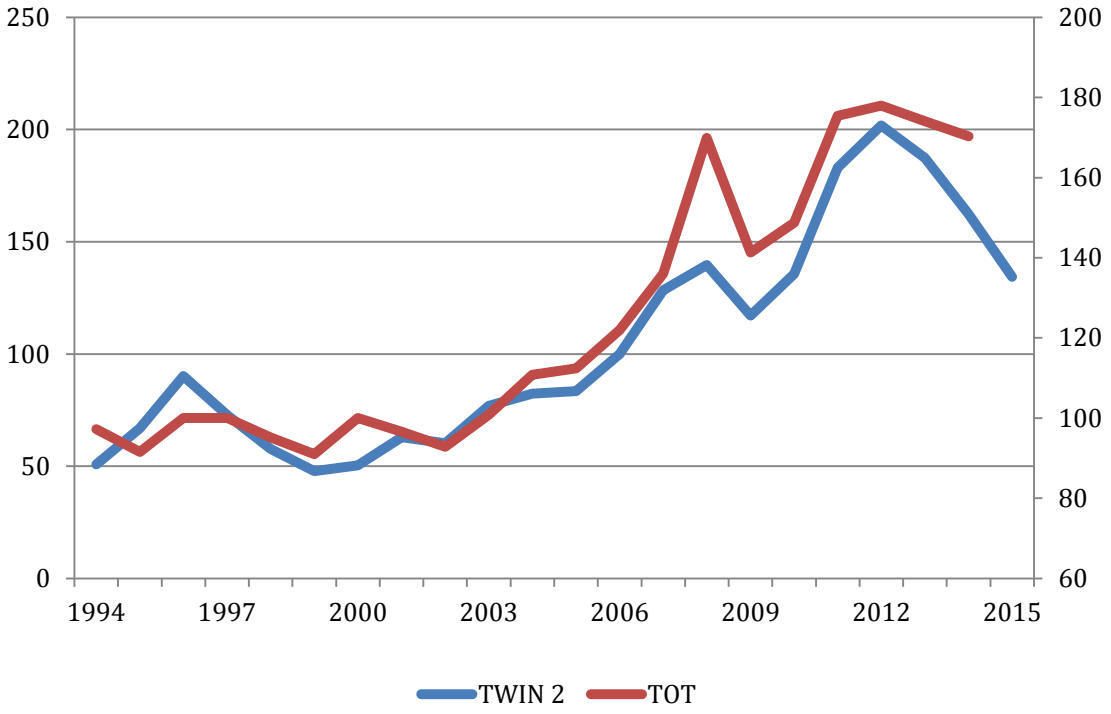
Tailwind and the Terms of Trade

Economists generally use the terms of trade (TOT) index, which is the ratio of export prices to import prices, to determine whether a country faces favorable international conditions. The TOT index is extremely valuable when analyzing a country's external sector and competiveness but given the frequency (quarterly or annually) and the lag with which it is published, it is not very useful for "real time" decision-making or analysis.

The TWIN is not an alternative to the TOT index. Both indices are complementary but conceptually very different. First, the TWIN summarizes the aggregate behavior of nominal market variables whereas the TOT Index measures the ratio of an index of aggregate export prices to an index of aggregate import prices. Second, the TWIN is built using variables that can be observed daily in financial and commodity markets whereas the TOT Index is based on price indices that are published by governments annually or quarterly with a significant lag. Third, the TWIN not only reflects export prices but also the receptiveness of international investors to buying securities issued by EME. For a net importer of capital such as Argentina, this information is crucial.

Notwithstanding the above differences, as can be seen in the following graph, since 1994 there has been a high positive correlation (approximately 96%) between the TWIN (expressed as a yearly average) and the annual TOT Index. This is simply a reflection of the fact that during the period under consideration, due to low US inflation, import prices have tended to remain stable or decline, whereas export prices (which in the case of Argentina are to a great extent driven by commodity prices) have experienced a significant positive adjustment in nominal terms.

Graph 3. Tailwind Index and Terms of Trade Index



Source: World Bank for TOT index.

Practical Applications

Despite being, like most indices, backward-looking (only one of its components, EPC, is forward looking), the TWIN and FREM can be useful both at the micro and macro levels both for analysis and decision-making.

First, the TWIN can be used analyze to what extent a government's economic policy takes advantage of the tailwind or squanders the opportunities it creates. In other words, it helps put macroeconomic policy and performance in a broader, global context. This is particularly relevant when analyzing the case of Argentina and certain other Latin American countries that were governed by populist leaders during the latest commodity boom. Table 4 provides the average value of all indices for each presidential period and Table 5 shows the frequency and intensity of tailwind/headwind Argentina faced in the last decade of the 20th century and since 2000.

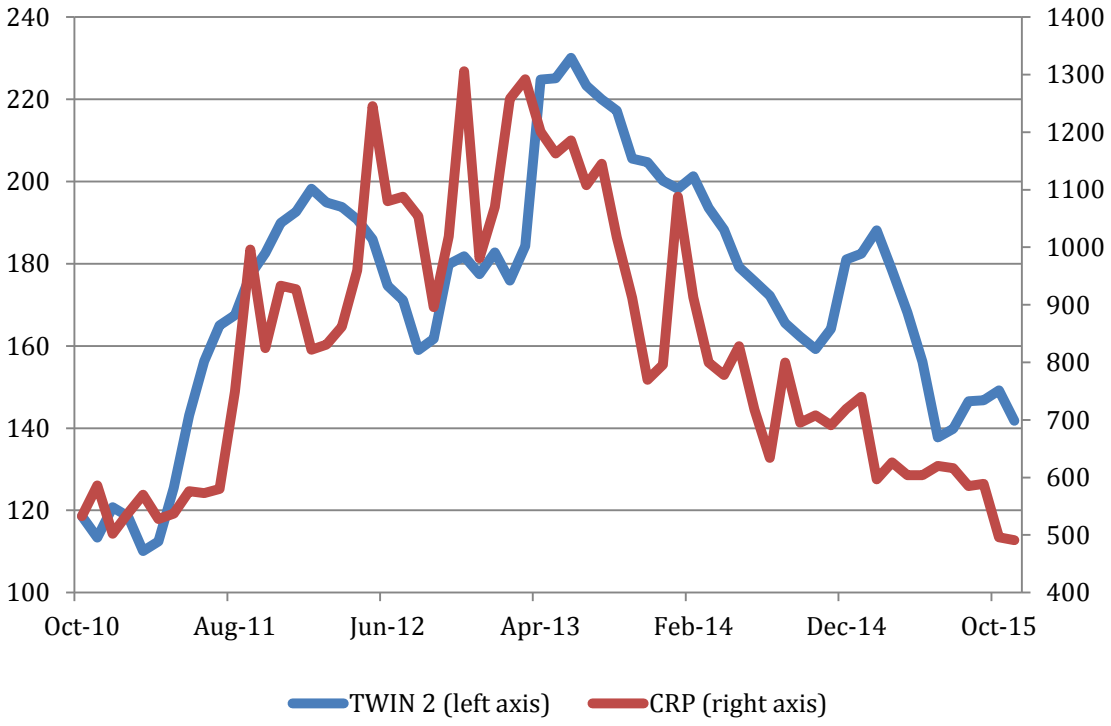
In theory, when the TWIN (or FREM) goes up, *caeteris paribus*, the country risk premium (CRP) should decline. Let's call this a "virtuous" phase. If the opposite

occurred, it would suggest that "pull" factors are operating in reverse, i.e., there is a deterioration of the country's growth prospects. In this case, there is a *prima facie* indication that the market has lost credibility in the country's economic policy (obviously, analyzing macroeconomic performance solely on the behavior of CRP is a simplification). Let's call this a "destructive" phase. As Table 3 shows, this inverse relationship between CRP and TWIN has been weaker for Argentina than for emerging markets as a whole (as measured by the EMBI+), suggesting virtuous phases have been less prevalent.*

The contrast between the first and the second term of President Fernandez de Kirchner (CFK) is quite striking, as can be seen in the Table 7. The second term was almost the exact opposite of the first in terms of the correlation between tailwind and CRP. One of the most "destructive" periods took place between October 2010 and August 2013. As Graph 3 shows, during this period there was a significant improvement in the TWIN 2 index but CRP almost doubled. Part of the explanation has to do with the decisions taken by Judge Griesa in the courts of New York. But those decisions were, to a great extent, a response to decisions taken by the Argentine government. In this instance we clearly have a lost opportunity.

Secondly, FREM provides a valuable historical frame of reference that can be used by financial decision makers in EME, both at the private and public sector level, when deciding the timing of any international debt or equity offering.

Graph 4. Tailwind and Country Risk Premium (2010-2013)



* An alternative way of determining whether a country is in a virtuous or a destructive phase would be to use the ratio of its CRP and the global EMBI+. However, this measure can be distorted by events in other EME.

Conclusion

The two main indices presented in this paper, TWIN and FREM, provide valuable information about the strength and direction of the "tailwind" that Argentina has faced since the 1990, when the second era of globalization started. Both indices provide an objective measure of its intensity, which in turn allow us to evaluate to what degree policymakers in Argentina took advantage of favorable conditions in international commodity and capital markets.

The TWIN index shows that Argentina was much luckier in the first decade of the 21st century than in the last decade of the 20th: tailwind was more prevalent and stronger and headwind was less prevalent and weaker. However, CRP increased more frequently in the former than in the latter and there was a higher incidence of destructive phases during the period 2000-2015. But the data has to be analyzed with care. Since mid 2013, CRP consistently declined, even in the face of weaker tailwind. This had more to do with the expectation of a regime change than the prevailing economic policy. It is also important to note that during the period 2010-2015, CRP was also affected by the decisions taken by Judge Griesa in New York. It could be argued however, that to a great extent these decisions were in response to actions taken by the Argentine government.

With respect to financial market receptiveness, since 1990 the FREM has grown consistently. This positive trend was interrupted several times, most notably in the 2004 Mexican crisis, the 1998 Russian crisis, September 11 and the global financial crisis of 2008. However, the FREM also shows that current financial market receptiveness to EME is at levels only surpassed in the first half of 2013.

With some minor modifications the tailwind index presented in this paper can be adapted to other countries for the same purposes outlined here. For example, in the case of Chile, the relevant commodity would be copper (which accounts for almost half of its exports), in the case of Brazil, iron ore, soybeans, crude oil and sugar; for Venezuela it would be just the price of crude oil.

References

Aslam, Aqib and Samya Beidas-Strom, Rudolfs Bems, Oya Celasun, Sinem Kılıç Çelik, Zsoka Koczán, 2016. "Trading on Their Terms? Commodity Exporters in the Aftermath of the Commodity Boom", IMF Working Papers 16/27, International Monetary Fund.

Calvo, Guillermo A., Leonardo Leiderman, and Carmen M. Reinhart. 1992. "Capital Inflows to Latin America: The 1970s and the 1990s." IMF Working Paper no. 92/85.

Cerutti, Eugenio, Stijn Claessens, and Damien Puy, 2015. "Push Factors and Capital Flows to Emerging Markets: Why Knowing Your Lender Matters More Than Fundamentals", IMF Working Paper WP/15/127.

Chuhan, P.; S. Claessens and N. Mamingi, 1993, "Equity and Bond Flows to Latin America and Asia: The Role of External and Domestic Factors," PRE Working Paper #1 160,World Bank.

Fratzscher, Marcel, 2011, “Capital flows, Push versus pull factors and the global financial crisis,” ECB Working Paper No 1364.

Gruss, Bertrand. 2014. “After the Boom—Commodity Prices and Economic Growth in Latin America and the Caribbean.” IMF Working Paper 14/154, International Monetary Fund, Washington.

Koepke, Robin, What Drives Capital Flows to Emerging Markets? A Survey of the Empirical Literature.

Kose, M. Ayhan, Eswar Prasad, Kenneth Rogoff and Shang-Jin Wei, 2006, “Financial Globalization: A Reappraisal”, NBER Working Paper No. 12484, August 2006.

Ocampo, Emilio, 2015. “Commodity Price Booms and Populist Cycles: An Explanation of Argentina’s Decline in the 20th Century”, UCEMA Working Paper series. Nro. 562.

APPENDIX

Table 1
Summary Statistics (December 1993-July 2016)

Indicator	Average	Std. Deviation	Coef. of Variation	Max	Min	Range
MSW	155.7	65.7	42%	323.6	77.3	246.3
US10Y	5.8%	2.7%	47%	13.6%	1.5%	12.1%
VIX	20%	8%	39%	63%	11%	52%
FF	2.7%	2.3%	86%	6.5%	0.1%	6.5%
TED	0.5%	0.4%	77%	3.4%	0.1%	3.3%
YCS	1.8%	1.1%	60%	3.7%	-0.6%	4.3%
MOM	0.0%	5.7%	34484%	18.7%	-18.6%	37.3%
EMBI	414	208	50%	1172	105	1067
TMS	138.2	60.0	43%	323.6	72.1	251.5

Table 2
Correlation Table

	VIX	TDA	FF	EPC	SLOPE	MOM	EMBI	TED
VIX	100.0%							
TDA	-9.9 %	100.0%						
FF	-11.0 %	86.0%	100.0%					
EPC	-22.0 %	11.0%	-20.8 %	100.0%				
YCS	13.5%	-29.5 %	-73.3 %	41.1%	100.0%			
MOM	4.0%	6.7%	8.5%	-1.5 %	-6.5 %	100.0%		
EMBI	28.5%	35.3%	22.2%	4.7%	5.4%	1.7%	100.0%	
TED	48.6%	24.8%	37.5%	-27.0 %	-29.5 %	9.4%	4.7%	100.0%
-TMS	-1.3 %	74.8%	69.7%	1.1%	-33.1 %	-11.5 %	48.2%	4.3%

Table 3
Summary Statistics for TWIN and FREM Indices (2006=100)

	TWIN 1	TWIN 2	TWIN 3	FREM 1	FREM 2
Average	112.95	107.4	96.2	110.6	86.9
Std. Deviation	54.29	49.9	34.99	24.0	15.7
Coef. of Variation	48%	46%	36%	22%	18%
Maximum	249.71	234.1	176.54	194.0	114.2
Minimum	24.97	23.4	17.65	19.4	11.4
Range	224.74	210.7	158.9	174.6	102.8
Number of Obs.	319	272	392	319	272

Table 4
Index Correlation Table

	TWIN 1	TWIN 2	TWIN 3	FREM 1	FREM 2	CRP	EMBI +	S&P
TWIN 1	100%							
TWIN 2	99%	100%						
TWIN 3	95%	94%	100%					
FREM 1	70%	70%	65%	100%				
FREM 2	69%	74%	64%	92%	100%			
CRP	-29 %	-28 %	-14 %	-7 %	-15 %	100%		
EMBI +	-55 %	-61 %	-48 %	-39 %	-60 %	45%	100%	
S&P	56%	53%	59%	66%	62%	-22 %	-35 %	100%
MSW	96%	96%	92%	50%	52%	-28 %	-53 %	41%

Table 5
Average Index Level by Presidential Period

	TWIN 1	TWIN 2	TWIN 3	FREM 1	FREM 2
Menem 1	52.4	58.8	73.2	73.9	67.3
Menem 2	74.3	68.3	87.2	83.1	75.6
De La Rua	59.1	56.2	83.9	87.3	80.5
Duhalde	63.4	63.5	98.5	88.8	78.3
Kirchner	96.3	95.4	103.7	96.6	94.4
F. de Kirchner 1	149.5	143.5	135.9	89.0	87.4
F. de Kirchner 2	186.3	172.3	150.7	112.4	103.2
Macri	143.9	130.7	138.4	111.6	102.5
1990-1999	61.0	64.8	78.8	77.5	72.8
2000-2015	124.8	119.1	120.7	97.0	91.7

Note: For the first Menem presidency, in each case it includes only the period for which there is available data. Only Twin 3 includes the whole period.

Table 6

Average Percentage Increase of Index Values and Country Risk

Period	TWIN 1	TWIN 2	TWIN 3	FREM 1	FREM 2	CRP	CRP 6M
Menem 1	n.a.	n.a.	47%	n.a.	n.a.	n.a.	n.a.
Menem 2	42%	16%	19%	12%	12%	-35 %	-40 %
De La Rua	-20 %	-18 %	-4 %	5%	7%	95%	359%
Duhalde	7%	13%	17%	2%	-3 %	9%	127%
Kirchner	52%	50%	5%	9%	20%	-57 %	-93 %
F. de Kirchner 1	55%	50%	31%	-8 %	-7 %	-66 %	99%
F. de Kirchner 2	25%	20%	11%	26%	18%	3%	-27 %
F. de Kirchner	74%	65%	38%	4%	1%	-65%	45%
Kirchner Era	224%	213%	131%	112%	121%	-75 %	-90 %
Macri (8 months)	-23 %	-24 %	-8 %	-1 %	-1 %	-44 %	-13 %

Note: CRP 6M is the percentage change between the average CRP in the last six months of each presidential period and the average of the last six months of the previous presidential period.

Table 7

Correlations between Tailwind and Country Risk

	Correlation between CRP and				Correlation
Period	**TWIN 1**	**TWIN 2**	**TWIN 3**	**EMBI**	**TWIN 1, TWIN 2**
Menem 1	26%	n.a.	-11 %	n.a.	87%
Menem 2	3%	-21 %	31%	72%	87%
De La Rua	-10 %	17%	52%	82%	82%
Duhalde	26%	3%	41%	75%	95%
Kirchner	-63 %	-68 %	-14 %	98%	97%
F. de Kirchner 1	-69 %	-74 %	-33 %	97%	96%
F. de Kirchner 2	80%	78%	78%	-61 %	99%
Jun-2010/Aug-2013	49%	39%	56%	60%	99%
F. de Kirchner	-20 %	-23 %	7%	53%	97%
Kirchner Era	-51 %	-51 %	-42 %	75%	99%
MM (8 months)	58%	30%	50%	-34 %	93%
1990-1999	-4 %	-27 %	-24 %	70%	86%
2000-2015	-50 %	-49 %	-37 %	77%	99%