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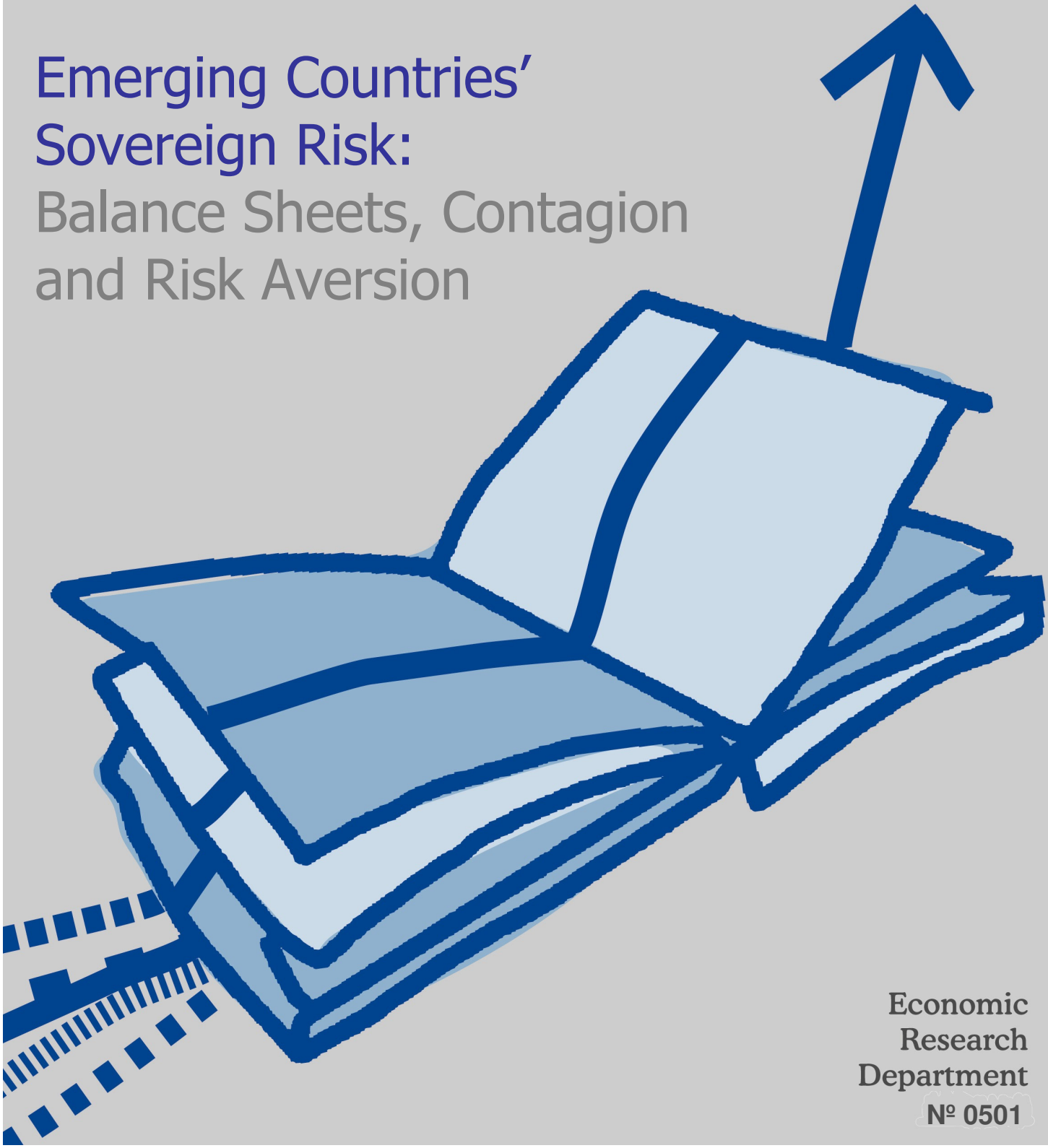
Emerging Countries' Sovereign Risk:
Balance Sheets, Contagion and Risk Aversion



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Emerging Countries' Sovereign Risk:
Balance Sheets, Contagion and Risk Aversion

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Abstract:

Three important external determinants of sovereign spreads in emerging countries are reviewed: balance sheet effects, global risk aversion and contagion. While there are ways to reduce the detrimental impact of balance sheet effects, these are either hard to implement or costly. Insurance against them would need to be considered either in the form of self insurance (accumulation of reserves) or market insurance (instruments which are inversely related to a country's real exchange rate). In addition, the cost of self insurance might be too high and private insurance not easily available because of shallow markets. This is why regional insurance has an important role to play.

Keywords: Balance Sheets, Contagion, Risk Aversion
Classifications JEL: F0, F32, F36, F37, G11

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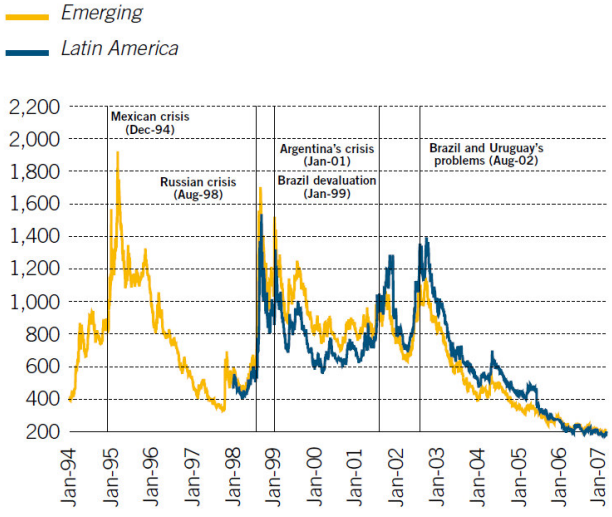
Introduction

Latin America saw a strong revival of capital inflows starting in 1990 after a long period of external financing constraints during the debt crisis of the 1980s. With only a brief interruption during the Mexican crisis in 1994-95, this resurgence continued until the Russian crisis erupted in 1998, when sovereign spreads skyrocketed. However, by the end of 1998, only three months after the Russian default, sovereign spreads had narrowed, recovering most of their losses. The Brazilian devaluation of January 1999 was no more than a brief interruption of this recovery, which was again underway as early as March 1999. The Argentine crisis, which started in 2001, led to a sharp increase in spreads, particularly in Latin America. This started to revert in October 2002, after Lula's won the Brazilian elections and the first signs of US economic recovery appeared. Since then, sovereign spreads have fallen to historically low levels, with some small and quickly reverted surge in mid 2004 (Graph 1).

Given the toll that such high cost of capital has for growth, academics and practitioners interested in emerging economies are paying increasing attention to the determinants of a country's risk premium.

Graph 1
Sovereign Spreads in Emerging Countries
In basis points



Fuente: JP Morgan.

For a strand of the literature domestic factors -i.e., economic fundamentals - are particularly relevant in determining sovereign spreads. Another strand considers external factors more important. This article focuses on external factors since they are the relevant ones when thinking about insurance devices, which is the issue of this conference.

Three major external factors will be analyzed in this paper: (i) balance sheet effects, induced by a sudden change in the real exchange rate[1]; (ii) global risk aversion, and (iii) contagion.

Real Exchange Rate and Balance Sheet Effects

A growing strand of literature has explored the link between eal exchange fluctuations and economic performance, which an serve as a basis to analyze the relation between the real exchange rate and the risk premium. This is particularly relevant for emerging countries as their real exchange rate is much more volatile than that of industrial countries.

Conventional open economy models - from Mundell-Fleming onwards, have argued that real depreciations are expansionary by switching global demand towards domestic production. Already in 1986, Edwards (1986) challenged this view on several grounds: the possible contractionary effect of a higher price level after a devaluation, as well as a potential negative impact on income distribution. More recently, theories based on what has started to be known as the open economy Bernanke-Gertler-Gilchrist financial accelerator, have challenged the Mundell-Fleming view. If a country's debt is denominated in foreign currency, a real depreciation will reduce the country's net worth through a balance sheet effect and, in the presence of financial imperfections, they may increase the cost of capital. This is particularly relevant for emerging economies given their relatively large share of foreign currency denominated debt, the frequency of large real depreciations and the presence of financial imperfections.

Recent theoretical studies (Aghion, Bacchetta and Banerjee (2001), Berganza, Chang and García Herrero (2004), and Céspedes, Chang and Velasco (2004)) have developed the above argument in some detail. The empirical evidence, is, however, scarce, particularly at the aggregate level[2], although sorely needed since the theory by itself cannot determine whether

[1] This could also be considered a domestic factor in as far as the balance sheet effect increases with the size of the foreign-currency denominated debt.

[2] As for firm-level data, Forbes (2002) analyzes the impact of 12 major depreciations on a sample of emerging countries' large firms and finds no significant balance sheet effects on performance although firms with higher debt ratios tend to show lower net income growth. It should be noted, though, that Forbes does not take into account the currency composition of debt. In the same vein, Bleakley and Cowan (2002) show evidence that the competitiveness effect associated with exchange rate depreciations offsets the potential contractive balance sheet effect on investment for a panel of Latin American firms.

the balance sheet effect of a real depreciation is strong enough to reverse conventional wisdom.

Berganza, Chang and García Herrero (2004) and Berganza and García Herrero (2004) try to give an answer to that question by testing what is the aggregate impact of balance sheets on emerging countries and, in particular, on the sovereign risk premium. Both investigations conclude that the balance sheet effects of a real depreciation increase the sovereign risk premium, even when controlling for its positive impact on trade competitiveness.

The next relevant question is which factors make balance sheets more detrimental This should help identify the countries which are bound to suffer most in case of a real exchange rate depreciation, quite an interesting question for policy makers. The two papers point to the importance of financial imperfections but also to the occurrence of financial crisis with episodes of large devaluations. In addition, Berganza and Garcia Herrero (2004) find evidence that the exchange rate regime also matters; in fact a fixed exchange regime makes balance sheets more detrimental. For the sake of brevity, this summary paper does not show the detailed results of this second paper, but only some of those in Berganza, Chang and García-Herrero (2004).

Since the objective is to estimate the aggregate impact of balance sheet effects on the country risk premium, macroeconomic data is used. This substantially limits the number of observations available. In addition, the difficulties in proxying sovereign country risk reduce the sample even further. We, therefore, end up with 27 emerging economies and a period from 1993 to 2002 for most countries.

The most widely used proxy for the country risk premium are the returns implicit in the Emerging Markets Bond Indices (Embi) provided by JPMorgan, after having subtracted total returns of US treasury bonds [3](from now onwards this variable shall be named COSTBORROWING).

Apart from the dependent variable, the focus of this study area balance sheet effects (BALANCESHEET), which amount to the change in the value of financial wealth due to an

[3] It should be noted that Embi spreads reflect sovereign risk while our objective is broader: country risk in general since we do not concentrate on public debt only but in all debt denominated in foreign currency, be it public or private. In any event, the Embi spread continues to be the best available proxy as sovereign spreads are generally a floor for private sector country risk.

unexpected change in the real exchange rate. In emerging countries we can safely assume that financial wealth is negative and corresponds with the increase in the foreign currency-denominated debt burden. Berganza, Chang and García-Herrero (2004) proxy it with the external debt service (DEBT*). [4] They also extend the concept of balance sheets to those stemming from domestic foreign-currency denominated debt and find that these are also detrimental for the sovereign risk premium.

The change in the real exchange rate is calculated as the yearly change in the bilateral nominal exchange rate against the US dollar adjusted by the domestic inflation (EXSURPRISE). We use the bilateral exchange rate since we assume that all foreign currency debt is denominated in US dollar. This is a relatively safe assumption for the countries in our sample.

Competitiveness, the other relevant channel of influence of real exchange rate depreciations, is measured by the increase in the dollar value of exports (ΔEXPORT). Finally, a number of control variables are included in all specifications. The first is the lag of the sovereign risk (COSTBORROWING_1), which accounts for its persistence. The second is the sovereign spread for all emerging countries for which the EMBI is available (EMBIWORLD). This should capture a possible similar co-movement stemming from the market integration of this asset class and potential contagion effects. We also include past economic growth (RGDP_1) and the level of international reserves (RRES), which obviously constitutes financial wealth.

The results show that the balance sheet effect increase the cost of capital; i.e., the coefficient of BALANCESHEET is positive and significant at the one percent level (Table 1). Its magnitude is also reasonable in economic terms: it implies that if a real depreciation increases a country's debt service by one percent of its 1995 GDP, the sovereign risk premium will rise by about 61 basis points, ceteris paribus. Furthermore, Berganza and Garcia-Herrero (2004) find that the effect of real exchange rate changes in asymmetric: real depreciations are clearly detrimental while real appreciations are not found significant in lowering the risk premium, at least in the short term.[5] In a second regression (whose results are shown in the rightmost column in Table 1), we included the year to year change in exports as an explanatory variable. As stressed earlier, our aim is to test whether the significance of BALANCESHEET in the regression hinges

[4] Berganza and García Herrero (2004) show that the results do not change using flows (debt service) or stocks. They also conduct robustness tests with a measure of net wealth, substracting international reserves to the stock of debt. The results are maintained as well.

[5] *Results only reported in the original paper.*

on an omitted variable problem, namely the competitiveness effect. While the inclusion of ΔEXPORT results in a lower estimate for the BALANCESHEET coefficient, the fall is relatively small. The next question we address is whether the significance of the BALANCESHEET variable is really due to the impact of debt accumulation on the cost of credit and not to the presence of balance sheet effects.

Table 1
Baseline Regresion

Number of Obs.	177	177
R-squared	0.5733	0.5909
Dependent variable: COSTBORROWING		
COSTBORROWING_1	0.7480 ***	0.7713 ***
	(0.0618)	*(0.0613)*
EMBIWORLD	0.4373 **	0.5259 **
	(0.2142)	*(0.2129)*
RGDP_1	330.4769	219.9883
	(250.1205)	*(248.9829)*
BALANCESHEET	60.9356 ***	49.4570 ***
	(13.7547)	*(14.1568)*
RRES	-48.4515 **	-47.1219 **
	(23.3747)	*(22.9589)*
ΔEXPORT	-	-5.6623 ***
	-	*(2.0914)*
CONS	-484.3599	-387.5060
	(328.3529)	*(324.4174)*
Wald test[a]	-	0.03
(p-value)	-	0.8689

OLS estimation.
Standard errors in parenthesis.
* Significant at 10%; ** Significant at 5%: *** Significant at 1%.
[a] The Wald test assesses the equality of the coefficient of the variable BALACESHEET in both regressions. It is distributed as a chi-square.

To this end, we ask what - if any - is the impact of including measures of the accumulation of debt as explanatory variables in our regression. Column I in Table 2 reproduces our basic regression for convenience. In column II, the change in debt service in US dollar (ΔDEBT*) is included as an additional regressor. We find that ΔDEBT* is not significant and that the coefficient of BALANCESHEET is basically not affected.

The same happens when we include the real value of the debt service (DEBT*), as indicated in column III.

Table 2
Testing for the Role of Indebtness

Number of Obs.	177	177	177
R-squared	0.5909	0.5955	0.5909
Dependent variable: COSTBORROWING	(I)	(II)	(III)
COSTBORROWING_1	0.7713 ***	0.7552 ***	0.7717 ***
	(0.0613)	*(0.0622)*	*(0.0619)*
EMBIWORLD	0.5259 **	0.5545	0.5253 **
	(0.2129)	*(0.2133)*	*(0.2138)*
RGDP_1	219.9883	190.3760	223.2117
	(248.9829)	*(249.2362)*	*(255.3909)*
DEBT*	-	-	-46.8924
	-	-	(778.8844)
ΔDEBT*	-	(-1.5308)	-
	-	*(1.1062)*	-
BALANCESHEET	49.4570 ***	51.2867 ***	49.7561 ***
	(14.1568)	*(14.1807)*	*(15.0427)*
RRES	-47.1219 **	-47.6038 **	-46.9043
	(22.9589)	*(22.9000)*	*(23.3085)*
ΔEXPORT	-5.6623 ***	-5.3229 ***	-5.6564 ***
	(2.0914)	*(2.1002)*	*(2.0998)*
CONS	-387.5060	-3604504	-387.6526
	(324.4174)	*(324.1385)*	*(325.3814)*
Wald test[a]	-	0.00	0,00
(p-value)	-	0.9889	0,9999

OLS estimation.
Standard errors in parenthesis.
* Significant at 10%; ** Significant at 5%: *** Significant at 1%.
[a] The Wald test assesses the equality of the coefficient of the variable BALACESHEET in regressions II vs I and III vs I. It is distributed as a chi-square.

Hence the evidence is supportive of the view that an increase in the amount borrowed is not as relevant for the risk premium as unexpected changes in the debt service due to the variation in the real exchange rate (the balance sheet effect). This does not mean, however, that the level of debt is irrelevant. Berganza and Garcia Herrero (2004) show that balance sheet effects are larger for more indebted countries. In addition, they show clear evidence that financial imperfections amplify the negative impact of balance sheets on the risk premium.

Finally, they report some stylized facts that a higher level of debt may be originated by a fixed exchange regimes and that these seem to amplify the negative impact of balance sheets on the country risk premium. Finally, Berganza and Garcia Herrero (2004) also show that it is not only external debt that matters to suffer from balance sheets but also domestic foreign-currency denominated debt[6]. The evidence just reviewed is, on the whole, supportive of the view that balance sheet effects (i.e., the increase in the debt burden after a real depreciation) significantly raise the sovereign risk premium, other things given.

[6] For details on the results consult the paper.

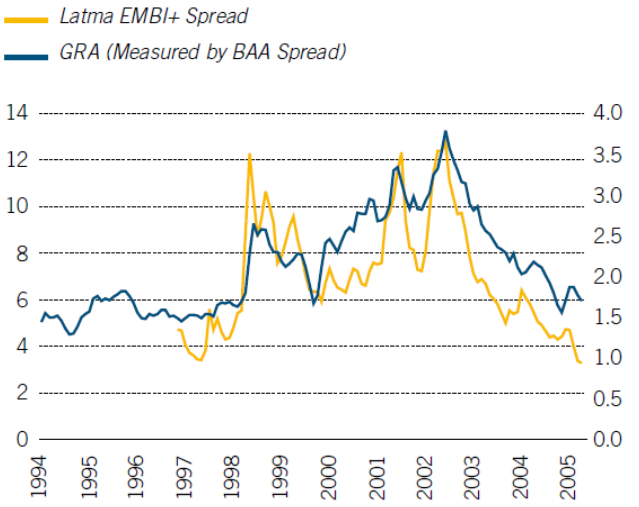
If one accepts the view that balance sheet effects are significant for the cost of credit in an emerging country, the policy implications are severe. There is an argument to avoid sharp changes in the real exchange rate unless financial imperfections are small. The other policy venue is obviously to reduce financial imperfections. If none of the two were possible, countries should think of obtaining insurance against potential balance sheet effects. This will be discussed further in the conclusions.

Global Risk Aversion

The risk appetite of global investors has become a key variable to understand trends in financial markets in the last few years. When measured by the most common proxy, namely the US Baa corporate spread, global risk aversion (GRA) seems to have been closely related to the evolution

of Latin American sovereign spreads for quite some time already (Graph 2). More specifically, during the period prior to the Russian crisis, both yields moved very closely. After the Russian default, the corporate spread went clearly below Latin American sovereign spreads until the first quarter of 2000. Thereafter, the corporate spread reduced the distance with the sovereign spread until mid-2001 where they moved together.

Graph 2
Latin American Sovereign Spread and US BAA Corporate Spread*



* Latin American sovereign spreads measured on left-hand side scale and US Baa corporate spread on right-hand side.
Source:

The exception was the few moths at end-2001 beginning 2002, when the corporate spread fell less rapidly than Latin American EMBI. Interestingly, the latter period coincides with the peak of the Argentine crisis, which was associated with the decoupling of other Latin American sovereign spreads from the Argentine one. The US corporate spread started to increase sharply again in the third quarter of 2002 as a consequence of several corporate scandals, beginning with Enron. Latin American spreads moved very closely during this period, which coincided with Lula's run up for the Brazilian elections. In October 2002, when the corporate scandals started to clear up, the corporate spread started to fall until the currently very low levels. Latin American spreads followed the same trend. The temporary surge in yield in mid-2004 also occurred for both types of assets.

In the traditional literature, the main external factor affecting sovereign spreads was the risk-free interest rate in the US. While this is clearly relevant, investors' sentiment towards risk should also have a bearing on high risk markets, to which emerging countries' sovereign bonds belong. This is probably even more the case today in which risk issues play an increasing role due to the sophistication of financial markets.

Against this background, Garcia-Herrero and Ortiz (2006) analyze how investors' attitude towards risks affects Latin American sovereign spreads and whether the impact is different across countries. Table 3 shows the results under two different estimation techniques: OLS adjusted for autocorrelation of the error term and TSLS. The parameters are always significant and have relatively high values. This confirms the relevance of investor's risk aversion for the evolution of spreads.

Table 3
Semi-elasticities of the Spread to GAR*

Country	OLST	SLS **
Argentina***	0,13	0,06
Brazil	0,21	0,21
Chile	0,40	0,29
Colombia	0,20	0,20
Mexico	0,20	0,19
Panama	0,15	0,15
Peru	0,24	0,23
Venezuela	0,16	0,17

* Coefficients significant to 95% level.
** Estimated with two lags of GRA.
*** The observations when the country was in default have been excluded.

Chile - the country with the lowest average sovereign spread - has the largest estimated parameter for GRA in both cases. Instead, those parameters are lowest for Argentina, and Venezuela (the two countries with the highest average sovereign spread). This highlights the idea that countries with worse fundamentals, and, thus, with a higher probability of default, should be relatively less affected by GRA, at least in the short run. In fact, their weak fundamentals basically explain most of the variability of their sovereign spreads[7]: Instead, well-performing countries, like Chile, tend to be relatively more affected by external factors. The much smaller impact of GRA on Mexico does not necessarily contradict this finding since Mexico has good fundamentals fairly recently in our sample.

The authors also show the impact of GRA to be persistent and even increases over time in most countries. This might be explained by the growing integration of Latin American sovereign bonds in global investors' portfolios (Wooldridge, Domanski and Cobau, 2003). In fact, the range of investors purchasing emerging market securities has broadened. While in the early 1990s, only specialized investors, such as hedge funds and mutual funds, invest in these securities, today large institutional investors are also exposed to this kind of paper.

This cannot but strengthen the interrelation between US corporate paper and emerging countries' sovereign bonds.

Contagion

Some of the episodes of very high sovereign spreads (as shown in Graph 1) have been associated with contagion. In the last few years, the economic literature has devoted substantial efforts to explain the phenomenon of contagion between countries. The possibility of separating pure contagion from fundamental-related changes in financial variables is key in the design of the international financial architecture. In fact, the understanding is that countries with crises originated by pure contagion should be bailed out since such crises are not related to the country's situation.

The phenomenon of contagion is also of particular interest for investors since they can profit from events where there is no perfect arbitrage or where herd behaviour exists. In particular, if an investor were to know beforehand that a country's financial variables suffer contagion from

[7] *It is also the result of the model developed by Blanchard (2004).*

another country's financial variables when a shock occurs, he or she could profit from this information.

For both interests (the international community's and investors'), the concept of contagion needs to be defined accurately since decisions need to be taken on the basis of its existence or absence. The lack of consensus in the literature is related to the difficulty in measuring such a high frequency event. Distinguishing contagion events from other market movements is, thus, an empirical question, which is crucial in view of the role that contagion plays in the provision of international financial assistance. Diez and Garcia Herrero (2004) aim at improving the measurability and comparability of events of potential contagion, by narrowing down the concept and testing it empirically. To that end, they concentrate on pure contagion, i.e., on those interrelations which cannot be explained by other factors, such as general market movements.

They also concentrate on one market, emerging countries' sovereign bonds, and in one type of shock, a downgrade in a country's sovereign rating different than the one that may potentially suffer from contagion.

The reasons for these two choices are the following. First, emerging countries are those more dependent on international financial assistance and their sovereign bonds are particularly relevant financial assets, being closely associated with country risk. In addition, emerging countries' sovereign bonds constitute an asset class in which investors are interested. Second, sovereign ratings are an aggregate measure of a country's fundamentals. Downgrades in sovereign ratings should be a relatively good proxy for a shock since they generally reflect a sharp deterioration in fundamentals. Notwithstanding the caveats - the downgrade does not coincide with the shock and not all shocks are reflected by a downgrade - a rating downgrade is still an important piece of information which agents incorporate in their investment decisions.

In order to narrow down the definition of pure contagion to a more operational one, it seems important to identify which are the main factors determining the returns of emerging countries' sovereign bonds. In fact, only what cannot be explained by such factors should be called contagion. Interest rate, exchange rate and credit (or sovereign) risks are the most widely accepted determinants of sovereign bond excess returns [Kamin and Von Kleist (1999)]. The

interest rate risk hinges on the interest rate structure (and maturity) of sovereign bonds as compared to other bond portfolios.

Exchange rate risk is particularly relevant for local currency denominated sovereign bonds. Credit risk depends on the country's economic fundamentals [Min (1998)]. The ability to clean sovereign bonds from these factors' influence before testing for contagion is another important objective of our paper. The measure of credit risk is particularly problematic, because it is related to a large number of variables reflecting a country's fundamentals. We shall use credit ratings to that end.

After cleaning up by interest rate currency and credit factors, through a three market asset pricing model, the residuals will obtain will be the pricing errors. We, then, test for a dynamic causal relation between such pricing errors, after a shock occurs (i..e., a downgrade in a third country's sovereign rating).

Such test should allow us to say something on the direction of the transmission of pricing errors and, thereby, to identify the country causing contagion (or a portfolio shift) and the country being affected. This is particular important when designing insurance tools for contagion. Granger causality tests will be used to test for such dynamic causal relation.

In the case of contagion, the co-movement will necessarily be positive while it will be negative in the event of a portfolio shift. In addition, we carry out a Wald test to assess whether such causal co-movement can actually be attributed to a third country's downgrade. The results (in Table 4) show a number of cases of pure contagion as well as pure portfolio shifts. In particular, portfolio shifts seem to have occurred from Mexico to Venezuela, from Poland to Russia and from Venezuela to Poland in the period of analysis. Contagion events seem to have occurred from Brazil to Mexico, and from Poland to Argentina.

To sum up, we narrow down the definition of contagion / portfolio shift by concentrating on one single asset class, cleaning up general market movements and assessing the response to a third country's shock. We do find a few cases of both contagion and portfolio shifts but these are probably at odds with the existing literature. This is probably because our definition focuses on short-term causal co-movements (one week after the shock), which does not need to coincide with longer term causal relations. This makes our definition more useful for investors in search

of arbitrage opportunities than for policy decisions by international organizations related to the international financial architecture. Furthermore, rating downgrades are a variable that investors focus on more than the international community. For the latter, a longer-term definition of contagion and a broader definition of a shock would be warranted since the granting of financial assistance to a country subject to contagion needs to be based on a problem which is not to disappear very quickly. However, the broadening of the definition should not be such as to make it impossible to compare across events in an objective way.

Table 4

Granger Causality Tests: Three Factor Model with Ratings Wald Tests

Countries	Argentina	Brazil	Ecuador	Mexico	Morocco	Nigeria	Panama	Peru	Poland	Russia	Venezuela
Argentina	11.570 ***	3.140	0.380	0.110	16.821 ***	1.213	2.044	10.909 ***	9.675 ***	6.957 **	0.402
	(0.003)	*(0.208)*	*(0.827)*	*(0.946)*	*(0.000)*	*(0.545)*	*(0.360)*	*(0.004)*	*(0.008)*	*(0.031)*	*(0.818)*
Brazil	4.107	6.157 **	0.731	1.995	0.459	2.797	4.068	0.468	2.201	9.569 ***	1.957
	(0.128)	*(0.046)*	*(0.694)*	*(0.369)*	*(0.795)*	*(0.247)*	*(0.131)*	*(0.791)*	*(0.333)*	*(0.008)*	*(0.376)*
Ecuador	6.632 **	11.272 ***	3.100	2.630	6.063 **	1.674	7.471 **	0.885	1.948	5.305	0.250
	(0.036)	*(0.004)*	*(0.212)*	*(0.268)*	*(0.048)*	*(0.433)*	*(0.024)*	*(0.642)*	*(0.378)*	*(0.070)*	*(0.882)*
Mexico	10.031 ***	9.139 **	2.129	0.931	0.998	1.116	0.283	2.094	0.899	1.085	19.923 ***
	(0.007)	*(0.010)*	*(0.345)*	*(0.628)*	*(0.607)*	*(0.572)*	*(0.868)*	*(0.351)*	*(0.638)*	*(0.581)*	*(0.000)*
Morocco	1.326	1.513	2.578	0.698	0.843	0.221	2.997	2.858	4.071	1.487	1.546
	(0.515)	*(0.469)*	*(0.276)*	*(0.705)*	*(0.656)*	*(0.895)*	*(0.223)*	*(0.240)*	*(0.131)*	*(0.475)*	*(0.462)*
Nigeria	2.914	8.304 **	10.928 ***	0.275	2.025	12.701 ***	1.715	1.422	3.010	0.996	4.232
	(0.233)	*(0.016)*	*(0.004)*	*(0.872)*	*(0.363)*	*(0.002)*	*(0.424)*	*(0.491)*	*(0.222)*	*(0.951)*	*(0.121)*
Panama	2.231	3.875	1.094	1.937	1.593	2.310	2.595	1.228	2.934	1.839	1.861
	(0.328)	*(0.144)*	*(0.579)*	*(0.380)*	*(0.451)*	*(0.315)*	*(0.273)*	*(0.541)*	*(0.231)*	*(0.399)*	*(0.394)*
Peru	3.134	5.470 *	7.046 **	2.073	0.280	1.203	2.395	12.361 ***	1.259	0.759	0.152
	(0.209)	*(0.065)*	*(0.030)*	*(0.355)*	*(0.869)*	*(0.548)*	*(0.302)*	*(0.002)*	*(0.533)*	*(0.684)*	*(0.927)*
Poland	0.701	4.033	0.250	3.252	2.702	1.094	0.296	1.045	2.672	1.289	8.957 **
	(0.704)	*(0.133)*	*(0.988)*	*(0.197)*	*(0.259)*	*(0.579)*	*(0.862)*	*(0.593)*	*(0.263)*	*(0.525)*	*(0.011)*
Russia	4.771 *	5.128 *	2.280	1.682	3.148	3.915	2.820	11.867 ***	6.754 **	0.749	4.267
	(0.092)	*(0.077)*	*(0.320)*	*(0.431)*	*(0.207)*	*(0.141)*	*(0.244)*	*(0.003)*	*(0.034)*	*(0.688)*	*(0.118)*
Venezuela	0.706	1.744	0.850	9.403 ***	1.879	2.938	0.687	0.055	0.837	0.669	0.227
	(0.703)	*(0.418)*	*(0.654)*	*(0.009)*	*(0.391)*	*(0.230)*	*(0.709)*	*(0.973)*	*(0.658)*	*(0.716)*	*(0.893)*

Wald Test of the joint hypothesis that: $\gamma_{ij} = 0, \xi_{ij} = 0$

In estimated equation: $\nu_{it} = \gamma_{ij}\nu_{jt-1} + \zeta_{ij}\nu_{jt-1} \cdot DownOwn_{it-1} + \xi_{ij}\nu_{jt-1} \cdot DownOther_{it-1} + \varepsilon_{ijt}$

Where $\nu_{kt} = r_{kt} - \beta_{ej} f^R_{et} - \beta_{wj} f^R_{wt} + \beta_{rj} f^R_{et}$

(***), (**), (*) indicates coefficient significantly different from zero at the 1%, 5% and 10% level respectively. p-value in parenthesis.

Conclusions

We have reviewed three important external determinants of the sovereign spreads in emerging countries: balance sheet effects, global risk aversion and contagion. While there are ways to reduce the detrimental impact of balance sheet effects, these are either hard to implement (for example reducing financial frictions) or costly (such as maintaining a stable real exchange rate. This is why insurance against such kind of shock might need to be considered. This could be in the form of self insurance (accumulation of reserves) or market insurance (instruments which are inversely related to a country's real exchange rate). In addition, the cost of self insurance might be too high and private insurance might not be easily available because of shallow markets. This is where regional insurance may have a role to play. This could be achieved through some kind of reserve pooling. Its effectiveness will obviously depend on the degree of correlation of real exchange rate movements within a region.

The same case can be make for negative shocks stemming from a sudden increase in global risk aversion or for contagion effects, particularly if this is pure contagion. Obviously enough, developing adequate measures of global risk aversion and contagion is key so as to design the insurance device and when a country is allowed to draw from its insurance.

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