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Exchange-market pressure and currency crises in Latin America: Empirical tests of their macroeconomic determinants

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Abstract

During the financial crisis of 2008, the currencies of Latin America faced pressure to devalue— which evoked memories of the "contagious" crises of the 1990s. Yet even between crises, domestic macroeconomic factors can have an impact on a country's exchange market. This study creates quarterly time series of exchange-market pressure for five Latin American countries, not only for two periods of crisis, but for the entire past decade. These series are then used in two separate analyses. The first addresses the macroeconomic determinants of this pressure, finding that current account deficits place the most pressure on a country's currency and that economic growth tends to reduce this pressure. The second study assesses the probability of a crisis, and finds that oil price drops (a global factor) might precipitate a currency crisis.

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1. Introduction

During the recent financial crisis, considered by many to be the worst since the Great Depression, currencies worldwide faced tremendous pressure to devalue. Some were forced to do so, while others managed to avoid a crisis. In Latin America, barely a decade removed from the crises of the 1990s, pressure on the exchange market also increased during 2008. While much attention has been paid to the role of contagion in the spread of currency crises among countries, less work has been done on the periods between crises. The primary goal of this study is to examine an index of exchange market pressure over the entire past decade for five Latin American countries, before applying cointegration analysis to model this pressure as a function of a set of key macroeconomic determinants. As a secondary analysis, a Probit estimation is performed to test the determinants of a currency crisis. Overall, current account deficits seem to be the most important contributor to exchange market pressure across the region, while declines in the oil price might precipitate a currency crisis.

The measurement of Exchange-Market Pressure (EMP) has its roots in such seminal papers as Girton and Roper (1977) and Weymark (1997, 1998), who capture both currency depreciations and the measures used to avoid them in a single index. These measures can include a loss of reserves, an interest-rate hike, or both. Thus, a currency crisis can be measured even if the currency does not actually fall. This measure has been used in two main branches of the literature. The first attempts to address the determinants of exchange-market pressure as a function of (mainly domestic) macroeconomic variables. The second examines the role of "contagion," which is best explained as extreme events in a country's market that are not caused by its fundamentals.

While the determinants of EMP have been studied for countries in other regions (see, for example, Van Poeck *et al.*, 2007, or Hegerty, 2009, for the transition economies of Central Europe; or Feridun, 2009, for Turkey), much of the literature on Latin America focuses on "crises"—that is, only those periods during which EMP reaches an extremely high level. There are notable exceptions, however. Connolly and da Silveira (1979) test the Girton-Roper monetary model on data from Brazil over the period from 1955 to 1975, and find that growth in domestic credit and inflation are important contributors to this pressure while GDP growth reduces it. More recently, Burkett and Richards (1993) examine EMP in Paraguay from 1963 to 1988 as a function of credit growth, real GDP growth, and world and domestic inflation, and arrive at similar results.

Studies of currency crises took on added importance after the events of the 1990s. Tanner (2000) examines both the 1994 Mexican crisis and the global near-collapse that originated in Asia three years later, focusing on Brazil, Chile, and Mexico (as well as three Asian countries) over the period from 1994 to 1998. Applying a Vector Autoregressive (VAR) approach to isolate the feedback effects between EMP and central banks' policy responses, the author finds that domestic credit was increased in Mexico in response to increased exchange-market pressure.

Most of the broad body of literature has focused on the probabilities of devaluations or currency crises rather than on exchange-market pressure itself. Blanco and Garber (1986) provide some of the first estimates of the probability of a devaluation in Mexico, using observations over the period from 1976 to 1982, and find that the model holds when the central Bank of Mexico's policy called for a rate that was inconsistent with the country's peg. Klein and Marion (1997) perform a logit analysis to estimate the duration of exchange-rate pegs in 16 Latin American countries (including Jamaica). Using pooled monthly data, they find that such economic factors as openness, the real exchange rate, and the level of international liquidity are

significant, as well as political and structural variables.

While Fratzscher (2003) uses EMP as the main variable in a study of contagious crises in both financial and currency markets, this approach is relatively uncommon. Applying a Markov-switching model to a panel of 24 emerging markets over the period from 1986 to 1998, he finds that contagion plays a strong role (versus the fundamentals), particularly when a crisis originates in Mexico. The other use a binary "crisis" variable to measure periods of extreme pressure, rather than EMP itself. It is used only indirectly, to construct a binary series of "crisis periods," which is zero unless EMP is a significant number of standard deviations above its mean. Originally, Eichengreen *et al.* (1996) set this value at 1.5. In addition, much of the newer literature applies this approach to the idea of contagion. Haile and Pozo (2008), for example, investigate the role of trade linkages for 37 countries (including Latin America). Testing a Probit model on a set of quarterly data from 1960 to 1998, they find that contagion is indeed a factor.

While that approach is very effective in determining the causes of extreme events, it does little to determine what happens during relatively tranquil periods. This study, however, focuses mainly on domestic economic factors behind exchange-market pressure, both during and between crisis. To that end, it proceeds as follows: Section II outlines the methodology. Section III provides the empirical results, and Section IV concludes.

2. Methodology

We first construct a measure of EMP using quarterly data over time periods that include both the 1990s crises as well as the global financial crisis of late 2008. Then, a reduced-form model is developed to isolate the main contributors behind EMP. Next, this model is tested using time-series methods for each of the five countries in the analysis.

While each country in the region follows its own policy goals, the currencies in this investigation have followed certain common trends. Brazil, Chile and Colombia saw steady depreciations from the late 1990s up until early 2003, after which increases in commodity prices helped fuel their appreciation. These currencies began to fall again in 2008. Mexico broke its dollar peg after the 1994 crisis, and the peso has depreciated steadily since then. Finally, Peru has had the most stable rate during this period, holding close to 3.5 *soles* per dollar for half a decade beginning in 1999. We might thus expect Mexico, and particularly Peru, to behave differently from the others in our analysis.

Our first step in this analysis is to construct the EMP index. Exchange-market pressure measures not only an actual depreciation or devaluation, but also the loss of reserves or an increase in interest rates that can be used to avert a decline in the currency. A standard measure of EMP in the literature (see Eichengreen *et al.*, 1996) is

$$EMP_t = \frac{e_t - e_{t-1}}{e_{t-1}} - \eta_1 \frac{RES_t - RES_{t-1}}{MONEY_{t-1}} + \eta_2 \Delta\left(r_t - r_t^{U.S.}\right) \qquad (1),$$

which consists of three components. The first is the percentage depreciation of the currency (an increase in units per U.S. dollar) from the previous period. The second is based on the loss of reserves as a share of the previous period's base money stock. The third component reflects an increase in the country's interest rate versus that of the United States. Per Eichengreen *et al.* (1996), these components are combined using "variance-smoothing" weights (η_1 and η_2). These are the ratio of the standard deviation of the reserve change series over that of the exchange-rate series, and the ratio of the standard deviation of the interest rate series over that of the exchange-

rate series, respectively.

The econometric model aims to include those variables which the previous literature has shown to be significant contributors to EMP. Van Poeck (2006), for example, finds that current account deficits and the growth of domestic credit are consistently significant in a panel of transition economies, while government borrowing is not. As mentioned previously, Connolly and da Silveira (1979) and Burkett and Richards (1993) show that credit growth, inflation, and GDP growth are significant in their specifications. Therefore, the reduced-form specification includes five explanatory variables:

$$EMP = f\left(CRG, GOV, GROWTH, INF, CA\right) \qquad (2)\ .$$

Here, *CRG* is the growth rate of domestic credit; *GOV* is the net claims on central government as a share of GDP; *GROWTH* is the growth rate of real GDP; *INF* is the growth rate of the Consumer Price Index; and *CA* is the country's current account as a share of GDP. The three growth rates are constructed as the change over the previous year (four quarters); the other variables are deseasonalized using the Census X-12 procedure.

As a second specification, the (log) oil price is included to test the impact of global factors on these countries' exchange markets. Since the current accounts of many countries (particularly Mexico) can be closely correlated with the oil price, this variable (the log price of West Texas Intermediate) replaces the current account in Equation (3):

$$EMP = f\left(CRG, GOV, GROWTH, INF, \ln(P^{OIL})\right) \qquad (3)\ .$$

These variables are tested for stationarity using the Phillips-Perron (1988) test. Because some variables are shown to be I(0) and others are I(1), a cointegration methodology is used that is able to include both stationary and non-stationary variables. The Autoregressive Distributed Lag (ARDL) technique of Pesaran *et al.* (2001) is applied, which combines short- and long-run effects within a single error-correction model. For example, the variable *X* can be modeled as a function of *Y* and *Z* in the following specification:

$$\Delta X_t = \alpha + \sum_{j=1}^{n1} \beta_j \Delta X_{t-j} + \sum_{j=0}^{n2} \gamma_j \Delta Y_{t-j} + \sum_{j=0}^{n3} \delta_j \Delta Z_{t-j} + \lambda_1 X_{t-1} + \lambda_2 Y_{t-1} + \lambda_3 Z_{t-1} + \varepsilon_t \qquad (4)\ .$$

The lag lengths *n* are chosen by minimizing the Akaike Information Criterion, but the focus of this study is on the long-run coefficients. They are obtained from the vector of λ terms in Equation (4). In a long-run equilibrium, the short-run Δ terms should be zero, leaving only the (lagged) long-run variables. If these variables are shown to be jointly significant in the regression (with an F-test), then these variables are cointegrated. The coefficient estimates (and their standard errors) are then used to discuss the key determinants of exchange market pressure in these Latin American countries.

Each country is estimated separately, rather than in a panel or pooled estimate. This allows for country-specific characteristics to be isolated and addressed rather than for regional effects to dominate. The number of observations for each country is sufficient to allow for individual regressions to be performed, particularly using the ARDL methodology. Bahmani-Oskooee and Hegerty (2009) point out that this technique has been shown to have good small-

sample properties. Thus, we will obtain results for 10 equations: Five countries over two specifications.

Finally, a Probit estimate is performed. A variable *CRISIS* is created using the EMP measure. For each series, *CRISIS* equals 1 during quarters where the *EMP* value is more than 1.5 standard deviations above its sample mean, and zero otherwise. *CRISIS* is then modeled as a function of the first-differenced variables in the previous equations:

$$\Pr(CRISIS = 1) = \Phi(\Delta CRG, \Delta GOV, \Delta GROWTH, \Delta INF, \Delta CA) \quad (5)$$

and

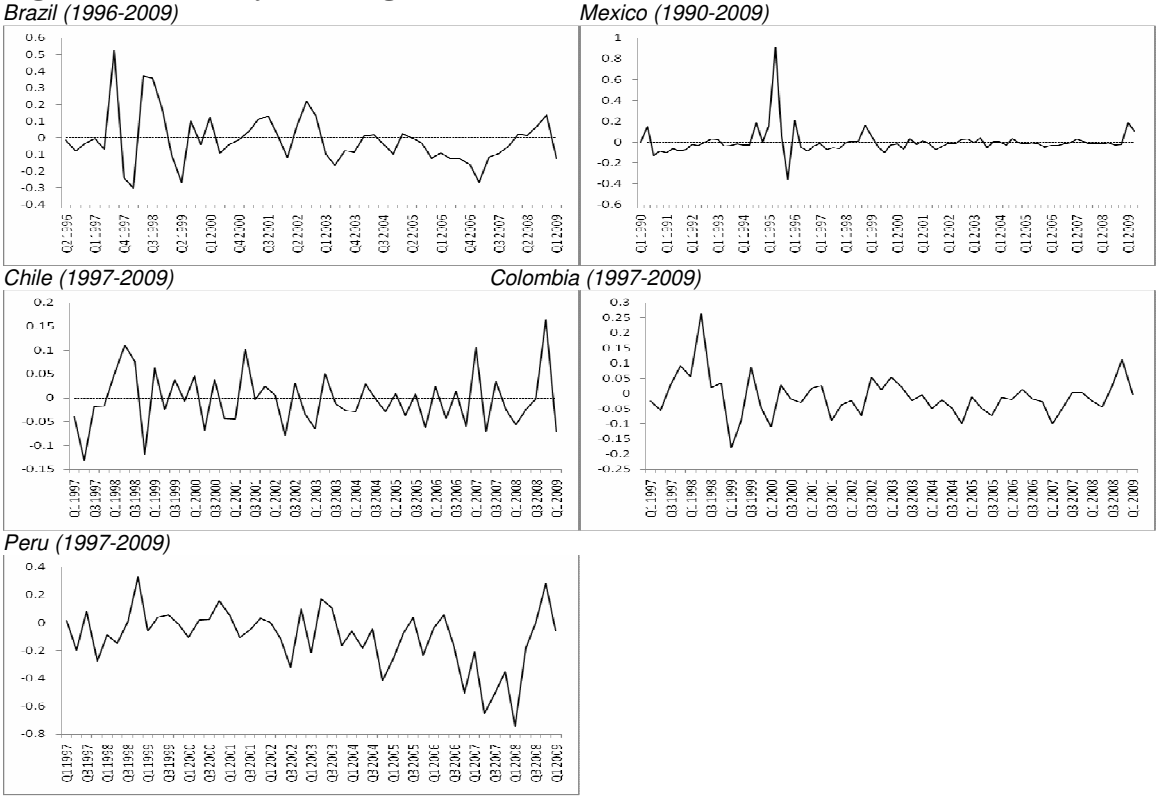
$$\Pr(CRISIS = 1) = \Phi(\Delta CRG, \Delta GOV, \Delta GROWTH, \Delta INF, \Delta \ln(P^{OIL})) \quad (6)\ .$$

These estimates can then be used to determine the underlying factors behind not only the much-studied crises of the 1990s, but also the most recent period of macroeconomic turmoil.

3. Results

Quarterly data from the International Financial Statistics of the IMF are used for this study. Five countries are chosen because of their relative size and the availability of data: Mexico, Brazil, Colombia, Peru, and Chile. Countries that have dollarized at any point are also excluded. The time period ends in 2009q1 for each country, but the starting point varies and is given below. These data are first used to create EMP indices for each country, which are given in Figure 1.

Figure 1. Quarterly Exchange-Market Pressure Indices.



It is clear from Figure 1 that the Mexican peso faced enormous pressure during the 1994

crisis. Colombia has a clearly defined crisis period in 1998, although both countries have levels of EMP in 2008 that could probably be considered large relative to the preceding quarters. Brazil also shows high EMP around 1998, although it is also high in the early 2000s. Chile registers the least distinction between "tranquil" and "crisis" quarters, while Peru stands out for its extremely low EMP right up to the crisis of 2008. It is plausible that the country benefited from high resource prices and increased trade integration before the 2008 spike. What is clear is that each of these five countries has undergone a unique set of circumstances, and that the effects of the explanatory variables will differ from country to country as well.

Table 1 shows the results of the Phillips-Perron stationarity test. While EMP is stationary for all countries, the other variables are not consistently I(0) or I(1). Credit and economic growth are generally nonstationary, but with the exception of Brazil, government borrowing is stationary. The ARDL cointegration method is thus applied to each country separately to account for these differences.

Table 1. Phillips-Perron Stationarity Test Results.

	Brazil		Chile		Colombia		Mexico		Peru	
Variable	**Level**	**1st Diff**	**Level**	**1st Diff**	**Level**	**1st Diff**	**Level**	**1st Diff**	**Level**	**1st Diff**
CA	-1.13	-7.51	-2.24	-7.32	-2.23	-6.23	-2.36	-6.97	-1.57	-9.72
GOV	-2.53	-6.63	0.08	-6.92	-1.70	-7.53	-2.20	-9.28	-1.46	-7.73
CRG	-3.87	-9.83	-2.96	-6.50	-3.47	-7.39	-4.09	-8.67	-3.51	-8.03
EMP	-5.92	-11.91	-9.28	-18.47	-5.65	-11.44	-8.38	-16.63	-4.96	-13.04
GROWTH	-3.92	-6.87	-1.14	-5.40	-2.95	-6.28	-3.94	-8.92	-4.94	-9.81
INF	-3.32	-3.86	-2.19	-3.35	-1.88	-5.30	-2.02	-4.59	-52.51	-17.36
LOIL	-1.45	-7.31								

Critical values: -3.6, -2.9, -2.6 at 1, 5, and 10 percent, respectively.

Tables 2 and 3 show the results for both specifications. The F-statistics indicate that the variables are cointegrated in all specifications, while the other diagnostic statistics will allow us to choose the more appropriate model for each country. These include the RESET specification test, the Bera-Jarque normality test, and adjusted R-squared.

We see in both specifications that economic growth tends to reduce pressure on the exchange market; there are negative coefficients for Brazil and Peru, as well as for Colombia in the *CA* specification. An increase in domestic credit appears to have been a successful method for Brazil to have dealt with currency crises; in Mexico, government borrowing seems to have the same effect. Mexico also appears to have a consistent result in which inflation *reduces* EMP rather than contribute to it. Perhaps it is related to the increase in government borrowing, which might contribute to inflation as it is used to buttress the peso.

Table 2. ARDL Cointegration Results and Diagnostic Statistics for Model (1).

Country	**INPT**	**CRG**	**GOV**	**GROWTH**	**INF**	**CA**	**F**	**RESET**	**NORM**	$\overline{R}^2$
Brazil	0.092 (0.360)	**-0.567** **(0.075)**	0.054 (0.197)	**-2.904** **(0.003)**	-0.521 (0.369)	-0.809 (0.108)	9.19	1.77	1.23	0.82
Chile	-0.058 (0.232)	0.379 (0.205)	-0.021 (0.760)	0.134 (0.427)	0.627 (0.415)	-0.547 (0.104)	17.35	0.18	0.13	0.80
Colombia	0.013 (0.787)	-0.031 (0.685)	0.013 (0.923)	**-0.654** **(0.044)**	-0.235 (0.507)	**-1.478** **(0.028)**	7.15	0.37	0.92	0.58
Mexico	**0.030** **(0.091)**	-0.038 (0.660)	**-0.498** **(0.003)**	0.168 (0.226)	**-0.127** **(0.035)**	**-4.296** **(0.009)**	24.47	4.24	2.98	0.90
Peru	0.029 (0.677)	0.362 (0.190)	**1.276** **(0.019)**	**-2.265** **(0.006)**	2.948 (0.183)	1.485 (0.474)	5.62	0.09	1.60	0.37

NORM = Bera-Jarque normality test. Critical values distributed as a $\chi^2(2)$, 10% critical value = 4.605 and 5% critical value = 5.991.

By far the most interesting result from these estimations is that current account deficits increase EMP in all countries except Peru. For Colombia and Mexico, the p-value is quite low, but it is close to 10 percent for Brazil and Chile. Thus, we can say that current account deficits serve as a key domestic "fundamental" behind exchange-market pressure in Latin America. Since many of these countries saw their current accounts improve right up until the 2008 crisis, it is not unexpected that this might mirror their currency appreciations.

When the oil price is substituted in place of the current account, only Mexico shows a significant response.[1] This might be expected for such an important oil producer. The improved RESET statistic suggests that perhaps this specification is preferred over the one with the current account, at least in this particular case. In this specification, the positive relationship between *CRG* and EMP corresponds to Tanner's (2000) conclusion that domestic credit was increased to relieve pressure on the peso. For the other countries, the diagnostic statistics suggest that the current-account specification seems more accurate—especially given Brazil's normality results.

Table 3. ARDL Cointegration Results and Diagnostic Statistics for Model (2).

Country	INPT	CRG	GOV	GROWTH	INF	Ln(P^{OIL})	F	RESET	NORM	$\overline{R}^2$
Brazil	**0.182**	**-0.766**	0.050	**-2.846**	**-1.306**	-0.002	8.91	0.00	6.30	0.74
	(0.035)	**(0.005)**	(0.113)	**(0.002)**	**(0.005)**	(0.917)				
Chile	0.316	0.451	-0.197	0.266	1.231	-0.104	5.09	0.06	0.24	0.89
	(0.222)	(0.433)	(0.254)	(0.582)	(0.519)	(0.228)				
Colombia	-0.086	0.026	0.030	-0.115	0.582	0.008	7.02	0.13	0.40	0.53
	(0.606)	(0.732)	(0.866)	(0.585)	(0.235)	(0.807)				
Mexico	**0.123**	**0.119**	**-0.470**	-0.023	**-0.142**	**-0.020**	32.20	0.93	5.43	0.89
	(0.021)	**(0.055)**	**(0.004)**	(0.851)	**(0.031)**	**(0.100)**				
Peru	-0.060	-0.161	0.451	**-1.505**	1.592	0.012	6.41	0.28	1.06	0.45
	(0.803)	(0.652)	(0.531)	**(0.045)**	(0.391)	(0.865)				

p-values in parentheses. **Bold** = significant at 10 percent.
F = Joint significance of lagged level variables. Upper bound critical value: 4.68 at 1 percent.
RESET = Ramsey specification test. Critical values distributed as a $\chi^2(1)$, 10% critical value = 2.706 and 5% critical value = 3.841.

Since the oil price may be construed to represent global factors, it is interesting to note that it does not affect all countries in this sample. This does not rule out the possibility of contagion—which is not the focus of this study—but it does place more attention on the fact that domestic macroeconomic fundamentals do sufficiently explain exchange-market pressure over this period. These domestic factors remain important, even in light of a global crisis.

In order to further investigate the probable causes behind these specific crisis periods, Equations (5) and (6) are estimated. Table 4 shows which quarters are counted as "crisis" quarters, defined as those in which EMP is more than 1.5 standard deviations above the mean. It is important to note that the 2008 crisis does not qualify for Mexico (or Brazil), because of the exceptionally larger spikes in EMP earlier in the sample. Since a case can be made for including them in this list, 2008q4 will be added as a separate estimation.

Table 4. "Crisis" Quarters in Latin America.

Country	Quarters
Brazil	1997q3, 1998q2, 1998q3
Chile	2001q2, 2007q1, 2008q4
Colombia	1998q2, 2008q4
Mexico	1995q1, 1995q4
Peru	1998q4, 2008q4

The results of the Probit estimates of Equations (4) and (5) are provided in Table 5. These highlight key differences between estimating the factors that influence EMP and estimating the causes behind crisis periods. In the first panel, which includes the estimates from the specification that uses the current account as a measure of external movements of capital, only two variables are significant. High inflation appears to precipitate a crisis in Colombia, and this spills over into an estimate that combines all of the countries into a single pooled sample. (This effect disappears if Colombia is dropped.) In Mexico, increased government borrowing is also related to a crisis, which is opposite in sign to the coefficient of the ARDL regression. Most likely, government action to head off an incipient crisis is taken before EMP peaks, and thus registers as a predictor of a currency crisis.

Table 5. Probit Results (Crisis Quarters).

Country	ΔCRG	ΔGOV	ΔGROWTH	ΔINF	ΔCA	Δ ln(P^{OIL})	Pseudo-R^2	AIC
	3.067	-0.572	-4.081	4.596	-24.564			
Brazil	(0.353)	(0.807)	(0.548)	(0.702)	(0.374)		0.03	-38.27
	2.219	6.967	1.289	1.486	3.635			
Chile	(0.747)	(0.294)	(0.853)	(0.946)	(0.717)		0.03	-37.42
	0.504	-0.288	-1.715	**45.056**	-10.410			
Colombia	(0.823)	(0.964)	(0.698)	**(0.054)**	(0.557)		0.09	-37.74
	-1.771	**37.190**	6.256	6.645	-36.689			
Mexico	(0.452)	**(0.044)**	(0.150)	(0.268)	(0.622)		0.08	-54.10
	-0.490	0.188	-4.642	14.854	7.880			
Peru	(0.821)	(0.981)	(0.437)	(0.501)	(0.629)		0.02	-37.58
	0.521	0.723	-0.144	**7.660**	-2.902			
Pooled	(0.611)	(0.687)	(0.949)	**(0.077)**	(0.649)		0.01	-193.94
	3.827	**-5.367**	-0.258	6.745		-1.149		
Brazil	(0.255)	**(0.087)**	(0.971)	(0.573)		(0.335)	0.07	-37.91
	0.937	6.248	6.853	33.465		**-3.694**		
Chile	(0.893)	(0.369)	(0.362)	(0.207)		**(0.034)**	0.11	-34.49
	0.170	-0.927	2.197	**50.131**		**-2.886**		
Colombia	(0.942)	(0.888)	(0.653)	**(0.034)**		**(0.070)**	0.14	-35.87
	-1.294	**32.558**	**8.355**	7.613		-1.085		
Mexico	(0.588)	**(0.069)**	**(0.092)**	(0.209)		(0.325)	0.09	-53.71
	0.452	-0.836	-1.942	31.320		**-4.105**		
Peru	(0.846)	(0.917)	(0.764)	(0.195)		**(0.029)**	0.12	-34.40
	0.420	0.382	2.303	**9.250**		**-1.540**		
Pooled	(0.682)	(0.832)	(0.337)	**(0.038)**		**(0.005)**	0.04	-198.46

p-values in parentheses. **Bold** = significant at 10 percent.
AIC: Akaike Information Criterion.

When the oil price is substituted into the estimation, we see that a drop in this price is a significant predictor for crises in all countries except Mexico and Brazil. Since, according to the provided definition of a "crisis," these two countries did not experience sufficient EMP in late 2008, this result is most likely because an oil-price drop precipitated the 2008 crisis but not the 1990s crises. To test this hypothesis, 2008q4 is redefined as a "crisis" quarter for Mexico and Brazil. In fact, both EMP values exceed 1.5 standard deviations of the sample period from 2001q4 to 2009q1. These results are given in Table 6. When the equations are re-estimated for Brazil, Mexico, and the combined sample, a fall in the oil price is indeed a significant predictor of a currency crisis in all countries. This supports the idea that the currency crises related to the meltdown of 2008 were more driven by this global factor than were previous crises. The provided pseudo-$\overline{R}^2$ statistics are slightly improved using the second specification.

While this study uncovers certain country-specific results—particularly regarding the role of government borrowing in Mexico—it is clear that oil price decline of 2008 had an effect across the region. Current account deterioration does not seem to have the same effect in the

Probit estimation. In this way, the analysis of EMP itself arrives at different conclusions than does the analysis of specific crisis periods.

Table 6. Probit Results, With 2008q4 Defined as a "Crisis" for Mexico and Brazil.

Country	ΔCRG	ΔGOV	ΔGROWTH	ΔINF	ΔCA	Δ ln(P^{OIL})	Pseudo-R^2	AIC
	3.594	-3.584	-5.358	3.016	-7.813			
Brazil	(0.282)	(0.171)	(0.435)	(0.797)	(0.772)		0.04	-38.94
	-2.327	42.639	5.870	4.546	-57.793			
Mexico	(0.331)	(0.024)	(0.332)	(0.292)	(0.438)		0.09	-53.81
	0.431	1.941	-1.077	**7.224**	-3.536			-
Pooled	(0.670)	(0.309)	(0.630)	**(0.096)**	(0.573)		0.02	195.96
	3.592	-3.817	-1.137	7.904		**-2.676**		
Brazil	(0.298)	(0.153)	(0.876)	(0.517)		**(0.054)**	0.10	-36.71
	-1.417	**34.709**	**8.909**	8.236		**-2.311**		
Mexico	(0.565)	**(0.059)**	**(0.075)**	(0.185)		**(0.055)**	0.12	-52.11
	0.237	1.701	1.997	**9.454**		**-2.137**		-
Pooled	(0.817)	(0.380)	(0.405)	**(0.038)**		**(0.000)**	0.06	187.93

p-values in parentheses. **Bold** = significant at 10 percent.
AIC: Akaike Information Criterion.

4. Conclusion

While a number of econometric studies have looked at currency "crises" in Latin America—both in terms of their fundamentals and with regard to contagion—relatively few studies have looked at exchange market pressure, which can be measured even during relatively calm periods. In addition, the crisis of 2008 is so recent that the literature has not yet been able to deal with it. This study attempts both tasks, constructing indices of Exchange Market Pressure (EMP) for five Latin American countries from the 1990s up to early 2009. While pressure on these currencies did indeed rise at the end of 2008, it did not reach anywhere near its 1990s levels for the two largest economies.

The macroeconomic determinants of this pressure are then estimated using cointegration analysis. Current account deficits are shown to increase EMP in nearly all countries, and this is related to a fall in the oil price for Mexico. Economic growth also helps to reduce this pressure. Key country-specific results include that government borrowing has helped to reduce exchange-market pressure in Mexico, while increases in domestic credit have done the same in Brazil. Performing a Probit estimation to isolate the key predictors of a currency "crisis" (where EMP is excessively large), the main result is that currency crises in Latin America, particularly the crisis of 2008, are strongly tied to a fall in the price of oil. While this opens up the question of international contagion, it does show that exchange-market pressure can be successfully explained by domestic macroeconomic factors, but crises may have different determinants.

Notes:
1. The log copper price was also estimated for Peru in place of the oil price, but was not found to be significant. For Chile, it was significant, highlighting the role of commodity prices on the current account.

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