Do exchange rate regimes affect the exchange risk premium? International evidence[1]

¿Afectan los regímenes de tipos de cambio a la prima de riesgo cambiario? Evidencias internacionales

Jorge A. Muñoz Mendoza*
Sandra M. Sepúlveda Yelpo**
Carmen L. Veloso Ramos***
Carlos L. Delgado Fuentealba***
UNIVERSIDAD DE CONCEPCIÓN, CHILE
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Abstract
This article analyzes the impact of the risk premium on exchange returns and the relationship between the risk premium and flexible exchange rate regimes. We use the GMM estimator proposed by Arellano and Bond (1991) on a sample of 21 countries between January 1997 and December 2015. Our results show that the time-varying exchange premium is concentrated in emerging markets and it generates a depreciation that ranges between 1.8% and 2.7% monthly. In developed markets, there is a constant exchange risk premium that promotes an appreciation of their currencies against the US dollar. These results reveal that the UIP and CIP are not fulfilled, although their bias is less in emerging countries. Exchange flexibility has dissimilar effects between developed and emerging countries. These results have important implications for policymakers and investors.
Keywords: Exchange returns, risk premium, exchange regime.
JEL classification: F31, F37, G14, G15.

Resumen
Este artículo analiza el impacto de la prima de riesgo en los rendimientos cambiarios y la relación entre la prima de riesgo y los regímenes de tipos de cambio flexibles. Utilizamos el estimador GMM propuesto por Arellano y Bond (1991) en una muestra de 21 países entre enero de 1997 y diciembre de 2015. Nuestros resultados muestran que la prima de cambio variable en el tiempo se concentra en los mercados emergentes y genera una depreciación que oscila entre el 1,8% y el 2,7% mensual. En los mercados desarrollados, hay una prima de riesgo de cambio constante que promueve una apreciación de sus monedas frente al dólar estadounidense. Estos resultados revelan que la UIP y la CIP no se cumplen, aunque su sesgo es menor en los países emergentes. La flexibilidad del intercambio tiene efectos diferentes entre países desarrollados y emergentes. Estos resultados tienen importantes consecuencias para los encargados de formular políticas y los inversores.
Palabras Clave: Rendimiento cambiario, prima de riesgo, régimen cambiario.
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*jormunozm@udec.cl
**ssepulveday@udec.cl
***carmenveloso@udec.cl
****cadelgado@udec.cl

1. Introduction

During the last decades, diverse studies have analyzed the foreign exchange market and its short-term equilibrium. International evidence has brought the debate to the risk premium existence that explains the exchange rate deviations in relation to its equilibrium. The discussion has even been directed towards the role of de facto exchange rate regimes as a determinant of the exchange risk premium. Undoubtedly, this empirical analysis would have important implications for the design of the countries' exchange rate policy.

The uncovered interest rate parity (UIP) and the covered interest rate parity (CIP) have normally been used as short-term equilibrium conditions for the foreign exchange market. However, various empirical studies have argued that the UIP and CIP are not met (Taylor, 1995). One of the potential reasons for this deviation would be the risk premium existence for averse investors (Frankel and Chinn, 1993). Eventually, the structural differences of each country could give a different relevance to the risk premium (Muñoz et al., 2020). Even exchange rate regimes can play a critical role in determining the risk premium, and that the empirical literature has largely not addressed.

Therefore, this article analyzes the effect of the risk premium on exchange returns and how exchange rate regimes affect this premium. We use monthly data for a sample of 21 countries between January 1997 and December 2015. Our results indicate that there is a time-varying risk premium that promotes exchange rate depreciations that range between 1.8% and 2.7% for emerging markets. For developed countries there is a constant premium that encourages the currencies appreciation. This upholds the non-validity of the UIP and CIP. Regarding exchange rate regimes, evidence was observed in favor of "fear to float". These results have important implications for policymakers and investors.

The article is structured as follows. Section 2 presents the literature review. Section 3 indicates the data and methodology, and

Section 4 presents the main results. Finally, section 5 contains the conclusions.

2. Literature review and hypotheses

2.1. Exchange parity and risk premium

The international exchange market (currency parities) is clearly one of the most attractive areas in the field of macroeconomics and international finance (Burnside, 2019). During the last 40 years, the study of exchange rates and the determination of their equilibrium value have reached an important level of development, mainly due to the increase of the international trade activity.

These facts have motivated the study of the foreign exchange market in diverse areas. Taylor (1995) shows that a market can be efficient when the exchange rate reflects all the information available from its participants, and its value fully adjusts to its fundamentals. Many studies on this matter have evaluated the foreign exchange markets efficiency, both in the short-term and in the long-term. This paper will focus on short-term macro-fundamentals associated with financial conditions, such as the UIP and the CIP. In general, the literature has tested these conditions through linear representations:

$$\Delta s^{e}_{t+k} = \beta_0 + \beta_1\left(i_t - i^{*}_t\right) + n_{t+k} \quad (1)$$

$$\Delta s^{e}_{t+k} = \beta_0 + \beta_1\left(f^{k}_t - s_t\right) + n_{t+k} \quad (2)$$

For (1), the variables i_t and i^* correspond to the interest rates of the domestic and foreign economy, respectively, and for (2) the term f^k_t represents the logarithm of the forward exchange rate for the period k and s_t is the logarithm of the spot exchange rate in the period t. In both cases, the null hypothesis for exchange market efficiency indicates that b_0=0 and b_1=1. In this way, both UIP and CIP indicate that the expected depreciation of the exchange rate is equivalent to the interest rate differential (i_t - i^*) or the forward premium (f^k_t -s_t), respectively[2].

The international empirical evidence has been varied and the results, mainly unfavorable to these conditions, have depended on

methodological tools and the hypotheses. However, most of the international empirical evidence, such as that indicated by Frenkel (1976), Fama (1984), Froot (1990) and Froot and Thaler (1990) have tested these relationships, finding that b_0 is not statistically different from zero and that b_1 is often less than one. Even Froot and Thaler (1990) point out that the most common result is $b_1<0$, which is known in the international literature as the forward discount bias.

One possible explanation for the exchange rates misalignments from UIP and CIP approaches is based on the elimination of the risk neutrality assumption of the market agents and including an explicit risk premium on the value of currencies. So, the cost of maintaining the position on a currency is equal to its expected return plus a risk premium, that is, $i_t - i^* = f_t^k - s_t = Ds^e_{t+k} + q_t$. Frankel and Chinn (1993) and Cavaglia et al. (1994) support this explanation by arguing that the forward discount bias is attributable to failures in the expectations mechanism and the existence of time-varying exchange risk premium.

Frankel (1982) indicates that the risk premium is a function of the forecast error variance and the exchange rate movements. Domowitz and Hakkio (1985), using the CIP through an ARCH-M(4) model, analyzed the existence of the risk premium for the currencies of five developed countries. Their results indicate the existence of a significant risk premium for the United Kingdom and Japan. Similarly, Baillie and Bollerslev (1990) use a multivariate ARCH model with MA(4) coefficients for CIP, finding evidence that supports the exchange risk premium existence. Although they warn that their results are weak to support that it varies over time. In addition, the risk premium existence, constant or time-varying, has not been able to correct short-term deviations in exchange rates.

Although previous studies have focused mainly on developed economies, more recently researchers have raised and strengthened interest in studying such conditions in emerging markets, which are characterized by higher risk premiums, lower levels of GDP per capita and recent episodes of financial stress. Such studies have not yet determined exactly the relationship between the risk premium and the UIP and CIP validity.

Bansal and Dahlquist (2000) suggest that the UIP is not fulfilled in emerging economies because these countries have lower levels of GDP per capita, higher inflation, higher uncertainty in their financial markets and lower credit ratings. This implicitly involves a higher exchange risk premium. Consistent with that, Emre et al. (2007), using a survey based on UIP, suggest the existence of additional types of risk premiums in emerging European countries such as periods of high inflation, financial contagion, information asymmetry and structural breaks. Such factors would be common among these types of countries.

Byrne and Nagayasu (2011) estimate the risk premium (RP) through panel data regressions as the excess exchange rate return over the interest rate differential for a sample of 11 emerging European countries. Their results warn that the economic and financial developments of the United States constitute a common element on the exchange risk premium for these economies. Analyzing the validity of the UIP and CIP under risk aversion, and studying the effects of the exchange rate risk premium on returns is a still relevant question for international exchange rate policy. Therefore, we formulate the following hypothesis:

H1: The exchange risk premium has significant effects on exchange returns.

2.2. Relationship between risk premium and exchange rate regimes

According to international literature, and indications from International Monetary Fund (2007), the exchange regimes that the countries declare to carry out are known as the *De Jure* Classification. Lascano (2002) analyzes and differentiates the exchange rate regimes into eight reasonably differentiated systems. But, their identities of which tend to blur when arrangements or combinations with monetary policy are considered. In this way, the *De Jure* Classification issued to the IMF can be synthesized into three exchange rate regimes: Fixed, Intermediate and Flexible.

In the early 1990s, various studies showed that the exchange rate behavior and declared policies did not always coincide. Countries

that claimed to maintain a flexible exchange rate regime frequently intervened in some way to defend their exchange rate and keep it within certain fluctuation bands. This phenomenon was recognized by Calvo and Reinhart (2002) as "The fear to float". Therefore, classifying countries solely by the regime they declare to have before the International Monetary Fund (*De Jure*) can lead to untrue results. This situation led several authors to propose new categorization schemes for exchange rate regimes, which were known as *De Facto* Classifications. This classification proposes a new methodology to determine the monetary regime that countries actually follow and not the *De Jure* that they declare to the IMF.

The most important classifications were proposed by Frankel (1999), Levy-Yeyati and Sturzenegger (2003, 2005), Ghosh et al. (2003), Reinhart and Rogoff (2004), among others. However, these alternatives were found to differ more from each other than from the official *De Jure* classification. Bleaney and Francisco (2007) conducted a study comparing three *De Facto* classifications and the IMF classifications for a sample of 74 developing countries for the period 1985-2000. The author shows that the existing correlation between them is very low. The fear to float and its relationship to the exchange rate can have a relevant effect on exchange rate volatility. This leads us to believe that the exchange rate regime can have a relevant effect on the exchange risk premium because it can limit volatility by keeping the value of currencies controlled or increase it due to the lower credibility that exchange rate systems can have between *De Jure* and *De Facto* systems. Therefore, we formulate our second hypothesis:

H2: Exchange flexibility has a significant effect on the foreign exchange risk premium.

3. Data and methodology

3.1. Data

Our data includes information from 21 countries for the monthly period between January 1997 and December 2015. The information related to 30-day nominal interest rates was obtained from the Central

Banks of each country. The spot and 30-day forward exchange rates were taken from Bloomberg[3]. The currencies express the value of the US dollar in local currency of the following countries:

- *Emerging Countries*: Israel (New Shekel), South Korea (Korean Won), Thailand (Thai Baht), South Africa (South African Rand), Brazil (Brazilian Real), Mexico (Mexican Peso), Colombia (Colombian Peso), Chile (Chilean Peso), Peru (Peruvian Nuevo Sol), Russia (Russian Ruble) and Turkey (Turkish Lira).
- *Developed Countries*: Euro Zone (Euro), Sweden (Swedish Krona), United Kingdom (British Pound), Iceland (Icelandic Krona), Norway (Norwegian Krone), Switzerland (Swiss Franc), Canada (Canadian Dollar), Japan (Yen Japanese), New Zealand (New Zealand Dollar) and Australia (Australian Dollar).

The classification between emerging and advanced economies is based on information extracted from the World Economic Outlook of the International Monetary Fund, which follows a classifying criterion based on GDP per capita and economic-financial development. The selected countries show a significant openness that guarantees that the evolution of the currencies values is consistent with the countries' trade with the rest of the world.

Additionally, the volatility was calculated as a measure of the exchange risk premium. For this purpose, the conditional standard deviation was used through a GARCH (1,1) in Mean model with a conditional mean equation for the exchange returns explained by UIP and CIP.

3.2. Econometric methodology

To estimate the impact of the risk premium on exchange returns, we use the GMM method proposed by Arellano and Bond (1991). The models are:

$$ERR_{it} = \beta_0 + \beta_1 RD_{it} + \varphi RP_{it} + \theta DCRIS + \gamma ERR_{it-1} + \eta_i + \eta_t + \varepsilon_{it} \quad (3)$$

$$ERR_{it} = \beta_0 + \beta_1 FP_{it} + \varphi RP_{it} + \theta DCRIS + \gamma ERR_{it-1} + \eta_i + \eta_t + \varepsilon_{it} \quad (4)$$

Where in ERR_{it} it represents the monthly exchage return (depreciation/appreciation) of the currency of the country i with respect to the US dollar at time t. The variable RP_{it} is the risk premium that measures the exchange rate volatility of currencies, which was calculated using the conditional standard deviation of exchange rate returns. Model (3) represents the uncovered interest rate parity (UIP), which includes the interest rate differential RD_{it} of country i with the United States rate at time t as control variable. Model (4) represents the covered interest rate parity (CIP), which includes the forward premium FP_{it} of country i at time t as a control variable. Models (3) and (4) include the ERR_{it-1} variable, which is endogenous and was instrumentalized with all available lags (Judson and Owen, 1999).

Models (3) and (4) include individual effects h_i associated with country i and temporary effects h_t associated with period t. Furthermore, to control the impact of crisis periods, models (3) and (4) include the *DCRIS* dummy variable that takes the value 1 in two sub-periods: (a) since June 1997 to March 1998 for including the effect of the Asian Crisis and (b) since September 2008 to June 2009 to capture the effects of the Subprime Financial Crisis and zero otherwise. The remaining residual e_{it} is a random disturbance.

To estimate the effect of exchange rate regimes on risk premium, we estimate the following model:

$$RP_{it} = \mu_0 + \mu_1 REG_{it} + \mu_2 TRANS_{it} + \gamma RP_{it-1} + \eta_i + \eta_t + \varepsilon_{it} \quad (5)$$

Where in RP_{it} represents the exchange risk premium of the country i respect to the US dollar at time t. The REG_{it} variable is a dichotomous variable that takes the value 1 from the period (month) in which the country adopts the flexible exchange system and 0 otherwise, based on the regimes classification indicated on Review of Exchange Arrangements, Restrictions and Controls. Jaque and Pistelli (2011) use this classification to avoid the complexities derived

from the differences between the *de Jure* and *de Facto* regimes. The variable $TRANS_{it}$ takes the value 1 only for the specific date that the country change from the fixed to flexible exchange regime, and 0 otherwise. Model (5) includes individual effects h_i associated with country *i* and temporary effects h_t associated with period *t*. In addition, it also includes the variable RP_{it-1}, which is endogenous and was instrumentalized with all lags (Judson and Owen, 1999).

Models (3), (4) and (5) were estimated through the GMM method proposed by Arellano and Bond (1991). The correct specification of the models requires that the GMM estimators be consistent and the model be overidentified. Consistency is supported through the presence of first-order autocorrelation and the absence of higher-order autocorrelation. The over-identification of the model will be evaluated with the Sargan test. All models were estimated with robust variances to control for heteroskedasticity patterns.

4. Empirical results

4.1. Statistical analysis

Tables 1 and 2 shows the statistical analysis. According to Table 2, the average monthly exchange rate returns for emerging countries is 0.54%, a figure that is relatively higher than the almost zero variation experienced by developed countries (0.03%). It is important to mention that within the sample period, there is the direct effect of two economic-financial crises: the Asian crisis (1997) and the Subprime crisis (2008), where the average exchange rate returns exceeded 2.1% per month. Some particular cases, such as Turkey in 2001, exhibited significant levels of financial stress above the emerging average as a consequence of the exchange controls abandonment. On the other hand, both the forwards premiums and the interest rate differentials have the same behavior, although with significantly less volatility than those experienced by exchange rate returns. Such spreads exceed 8.1% percent per month in emerging economies, while in developed economies they are around 1%. If we discount the effect of the devaluation of the Turkish lira in 2001 and the interbank tightness, interest rate differentials and forward

premiums would be around 5%. The interest rate differentials and forward premium in the emerging countries are almost 7 times more volatile than in advanced markets (Table 1).

Table 1. Descriptive statistics.

	Exchange returns (%)	**Interest rate differential (%)**	**Forward premium (%)**									
Emerging countries												
	Mean	S.D.	UR	JB	Mean	S.D.	UR	JB	Mean	S.D.	UR	JB
Israel	0.11	1.96	-8.64***	39.1***	0.05	0.22	-8.89***	683.3***	0.25	0.29	-3.02**	20.6***
South Korea	0.32	4.35	-8.24***	855.4***	2.81	3.48	-2.91**	328.6***	3.33	3.82	-2.89**	358.0***
Thailand	0.21	3.71	-4.11***	878.8***	0.62	4.66	-2.70*	211.4***	0.96	5.11	-2.70*	227.0***
South Africa	0.54	4.09	-8.75***	159.7***	3.79	3.94	-0.68	12.7***	4.32	4.11	-0.72	12.6***
Brazil	0.58	4.70	-7.65***	432.5***	15.51	6.70	-2.43	63.9***	16.98	7.23	-2.44	68.9***
Mexico	0.38	2.37	-8.99***	184.6***	9.12	6.77	-2.11	81.9***	9.55	6.77	-1.86	74.5***
Colombia	0.51	2.82	-6.73***	29.2***	2.63	2.63	-0.31	11.7***	3.07	2.61	-0.40	11.9***
Chile	0.31	2.67	-7.95***	357.3***	3.36	4.13	-2.91*	307.8***	4.35	4.83	-2.84*	302.1***
Peru	0.12	1.19	-7.72***	30.1***	4.18	6.46	-1.51	313.7***	6.13	8.24	-1.48	301.2***
Russia	1.12	6.26	-7.81***	494.4***	4.58	5.64	-1.64	87.4***	5.22	6.10	-1.42	22.1***
Turkey	1.80	4.92	-4.97***	192.2***	42.96	33.94	-3.89***	9290.6***	42.78	25.07	-1.66	12.5***
Developed countries												
	Mean	S.D.	UR	JB	Mean	S.D.	UR	JB	Mean	S.D.	UR	JB
Eurozone	-0.09	2.48	-8.47***	10.06***	-0.42	1.50	-1.20	13.3***	-0.37	1.51	-1.34	13.1***
Sweden	0.07	2.69	-8.37***	7.4***	-0.29	1.85	-2.35	14.3***	-0.26	1.83	-2.34	14.3***
United Kingdom	0.07	2.14	-8.85***	43.6***	1.41	1.17	-2.49	9.7***	1.46	1.17	-2.20	9.9***
Iceland	0.40	3.87	-7.52***	412.8***	6.25	3.37	-1.50	38.4***	6.27	3.26	-2.01	38.7***
Norway	0.05	2.71	-8.03***	55.0***	1.12	2.43	-2.59*	10.7***	1.10	2.39	-2.34	10.5***
Switzerland	-0.15	2.50	-9.93***	15.4***	-0.42	1.34	-1.83	12.1***	-0.16	1.36	-1.79	11.3***
Canada	-0.06	1.89	-8.89***	418.2***	-0.08	1.04	-1.99	11.9***	0.14	1.03	-2.05	11.2***
Japan	-0.19	2.68	-9.26***	16.7***	-3.61	1.72	-0.55	12.6***	-3.64	1.69	-0.58	11.8***
New Zealand	0.15	3.00	-8.27***	12.7***	2.88	1.82	-1.51	5.8*	3.47	1.84	-1.65	6.5**
Australia	0.10	3.09	-8.63***	290.3***	1.72	1.77	-1.24	11.5***	1.70	1.76	-1.06	11.1***

Notes: UR corresponds to Dickey-Fuller unit root test. JB indicates the Jarque-Bera test for normality. Source: Own elaboration.

The unit root tests (UR) indicated in Table 1 indicate that the time series for exchange returns are stationary at 1% of significance. In addition, there are time series of interest rate differentials and forward premiums that have unit roots.

Table 2 shows the results of the means difference test between emerging and developed countries. The results show that exchange rate returns are significantly higher in emerging countries. Furthermore, the exchange volatility of emerging markets, measured by the conditional standard deviation, also stands out for being almost 50% higher than developed ones. Interest rate differentials and forward premiums are also higher in emerging countries, which establishes consistency with the risk level of these markets.

Table 2. Means difference test between countries.

Variable	Developed countries	Emerging countries	t-statistic
Exchange returns (%)	0.034	0.545	(-4.11)***
Interest rate differential (%)	0.858	8.146	(-17.04)***
Forward premium (%)	0.972	8.812	(-20.09)***
Volatility (%)	2.541	2.937	(-3.09)***

Notes: *t*- Statistic in brackets. Superscripts ***, **, * indicate statistical significance at 1, 5 and 10 percent, respectively. Source: Own elaboration.

4.2. Impact of the risk premium on exchange returns

Table 3 shows the results of models (3) and (4) for UIP and CIP, respectively. The GMM estimators are consistent because there is significant evidence for first order autocorrelation (AR1), but there is no higher order autocorrelation (AR2). Furthermore, the results of the Sargan test support that the estimated models are overidentified.

The constant b_0 is not significant for emerging countries, but it is significant for developed markets. This reveals that in developed markets there is a constant and negative risk premium that ranges between 1.4% and 3.3% according to UIP and that ranges between 1.2% and 3.8% according to CIP. In this way, the currencies of

developed markets have a discount that favors them and gives them greater strength against the US dollar. On the other hand, the parameter b_1 is negative for developed economies and positive for emerging economies, both in the UIP and the CIP. According to various previous studies, negative b_1 is consistent with forward discount bias, which is common in developed markets. While positive b_1 in emerging countries also corroborates that in these markets, the UIP and CIP bias are lower compared to advanced countries. Test 2 indicates that both UIP and CIP are not met and present persistent deviations in relation to the short-term equilibrium condition (H_0: $b_0=0$ and $b_1=1$).

Table 3. Dynamic panel data for exchange returns.

	Uncovered parity (Model 3)				Covered parity (Model 4)			
Parameters	Developed		Emerging		Developed		Emerging	
β_0	-0.014**	-0.033***	-0.006	-0.001	-0.012**	-0.038***	-0.007	-0.001
	(-2.31)	(-5.06)	(-0.61)	(-0.05)	(-2.19)	(-4.26)	(-0.69)	(-0.13)
β_1	-0.133***	-0.060*	0.038***	0.036***	-0.130***	-0.058*	0.042***	0.040***
	(-3.33)	(-1.81)	(4.58)	(4.35)	(-3.26)	(-1.91)	(4.01)	(3.72)
Φ	-0.004	0.001	0.018**	0.020**	-0.005	0.006	0.019**	0.027***
	(-0.35)	(0.74)	(2.16)	(2.46)	(-0.38)	(0.43)	(2.13)	(2.60)
Θ		0.644***		0.003		0.646***		0.002
		(7.51)		(0.65)		(7.84)		(0.64)
γ	0.126***	0.153***	0.269***	0.257***	0.143***	0.137***	0.290***	0.279***
	(5.37)	(4.95)	(4.01)	(3.96)	(3.77)	(4.26)	(4.95)	(4.48)
Dummy year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dummy country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Global	136.48***	145.32***	136.77***	137.93***	129.85***	126.46***	135.27***	139.02***
AR1	-3.45***	-3.77***	-3.11***	-2.94***	-3.54***	-3.15***	-2.97***	-3.01***
AR2	-0.73	-0.52	-0.45	-0.42	-0.68	-0.61	-0.55	-0.42
Sargan test	27.98	35.03	27.92	31.29	27.93	33.96	29.10	28.63
Test 1	-	7.94***	-	1.17	-	6.42***	-	1.07
Test 2	15.65***	17.94***	19.58***	15.22***	23.93***	24.27***	9.94***	21.37***

Notes: Superscripts ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively.
Source: Own elaboration.

Finally, the risk premium has a positive and significant impact on the exchange rate returns for emerging economies. This result

validates hypothesis H1. This exchange risk premium varies over time and shows that in emerging markets, the risk generated an additional depreciation that range between 1.8% and 2.7%. The exchange risk proportionally weakens the currencies of these countries in relation to the US dollar.

4.3. Impact of exchange rate regimes on the risk premium

Table 4 shows the results of the model (5). The autocorrelation tests show that the GMM estimators are consistent, while the Sargan test supports the models' overidentification. The constants of all the models show a negative and significant effect, which suggests that there are factors among these economies that induce a lower risk premium and are not associated with the exchange rate regime. The REG_{it} dummy variable had significant impacts on the foreign exchange risk premium that support the hypothesis H2. The results related to exchange rate regime and measured under UIP and CIP, have opposite effects between developed and emerging economies. At significance of 10%, in developed economies the risk premium is reduced as exchange rates are flexible, while in emerging economies it increases. This result is replicated for UIP and CIP. This is consistent with Calvo and Reinhart (2002) due to the fear to floating that some countries may have due to its impact on short and long-term economic growth. Even the exchange rate transition dummy variable (*TRANS*) has a positive and significant impact that suggests that the regime change to fixed to flexible increases the volatility in emerging markets.

Table 4. Dynamic panel data for exchange risk premium.

	Uncovered parity		Covered parity	
Parameters	Developed	Emerging	Developed	Emerging
μ_0	-0.143***	-0.008***	-0.163***	-0.005***
	(-17.33)	(-18.62)	(-16.47)	(-11.09)
μ_1	-0.0027***	0.0046***	-0.0026***	0.0051***
	(-2.75)	(5.27)	(-2.99)	(6.09)
μ_2	0.0002	0.0019***	0.0004	0.0017***
	(1.14)	(3.46)	(1.38)	(3.57)
γ	0.182***	0.226***	0.198***	0.202***
	(3.33)	(4.17)	(3.96)	(3.48)
Global	137.95***	184.03***	136.28***	196.31***
AR1	-3.97***	-3.74***	-4.13***	-3.15***
AR2	-0.65	-0.79	-1.06	-0.83
Sargan test	29.04	34.93	31.37	37.18

Notes: Superscripts ***, **, * indicate statistical significance at 1%, 5% and 10%, respectively. Source: Own elaboration.

5. Conclusions

Foreign exchange markets have been extensively analyzed for their economic and financial implications. In the short term, currency values and their returns are theoretically explained by the UIP and CIP. The permanent deviation of the currency values from UIP or CIP can be explained by the existence of a risk premium and the impact that exchange rate regimes would have on currency volatility.

Our research analyzes the impact of the risk premium on foreign exchange returns and the relationship between the risk premium and exchange rate regimes. The contributions to the international empirical evidence are summarized in two points. First, our results show that the risk premium has a positive and significant impact on exchange rate returns for emerging economies. This premium varies over time and shows that in emerging markets the risk generated an additional depreciation that ranges between 1.8% and 2.7%. This result has important implications for investors, financial advisors and policymakers. For investors, these results help them to make

better investment decisions in currency markets and to consider the exchange risk premium as well as the exchange system management on these decisions. For financial advisors, they can make better predictions of future values of exchange rates and improve the quality of their recommendations. For policymakers, these results help them to design economic policies and regulations that reduce exposure to currency risk and promote the investor confidence.

Second, flexible exchange rate regimes help to reduce the exchange risk premium for developed markets and increase it for emerging countries. This result implies that the credibility of exchange rate regimes in emerging markets is directly related to the volatility, and particularly to the "fear to float". In developed markets the opposite occurs. These results contribute to policymakers for the design of regulations aimed at strengthening the credibility of flexible exchange rates.

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Notas

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[2] The supra-index *e* of expressions (1) and (2) denotes the exchange rate expectation based on the information at the time *t*, since it is true that, $Ds^{e}_{t+k}=\ln(S^{e}_{t+k})-\ln(S_{t})= s^{e}_{t+k}-s_{t}$ where s_{t} is the spot exchange rate in *t*.

[3] Regarding to the developed countries of Europe, they were grouped in the Eurozone. Before the entry into force of the euro, the German mark was used as the reference currency of the Eurozone, as well as its interbank rates.

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