Effect of monetary policy credibility on the fear of floating: Evidence from Brazil

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Abstract Based on the argument of Calvo and Reinhart that monetary policy credibility is able to reduce the "fear of floating", we analyze whether monetary policy credibility is important to reduce the "fear of floating" of the Central Bank of Brazil (CBB). Besides, since expectations play a key role under Inflation Targeting, we also analyze whether credibility can affect the expectations of financial market experts about the "fear of floating" of the CBB. In order to measure monetary policy credibility, we use four different credibility indexes. The results show credibility can reduce the "fear of floating". Besides, the findings also indicate that financial market experts expect less intervention by the CBB when credibility is higher.

Keywords: fear of floating; credibility; monetary policy; exchange rate

Resumo Com base no argumento de Calvo e Reinhart de que a credibilidade da política monetária é capaz de reduzir o "medo da flutuação", analisamos se a credibilidade da política monetária é importante para reduzir o "medo da flutuação" do Banco Central do Brasil (BCB). Além disso, uma vez que as expectativas desempenham um papel fundamental no regime de metas para inflação, analisamos, também, se a credibilidade pode afetar as expectativas dos especialistas do mercado financeiro sobre o "medo da flutuação" do BCB. Para medir a credibilidade da política monetária, utilizamos quatro índices de credibilidade diferentes. Os resultados mostram que a credibilidade é capaz de reduzir o "medo da flutuação". Além disso, os achados também indicam que os especialistas do mercado financeiro esperam menos intervenção do BCB quando a credibilidade é maior.

Palavras-chave: medo da flutuação; credibilidade; política monetária; taxa de câmbio.

Classificação JEL: E43, E52, E58, E62

Área 4 - Macroeconomia, Economia Monetária e Finanças.

1. Introduction

Based on the theoretical argument of Calvo and Reinhart (2002) that monetary policy credibility is important to reduce the fear of floating, the present study empirically analyzes whether monetary policy credibility is able to reduce the fear of floating of the Central Bank of Brazil (CBB). Besides, since one of the main goals of an Inflation Targeting (IT) central bank is to guide expectations, we also check whether the perception of financial market experts regarding the fear of floating of the CBB is affected by monetary policy credibility.

The study contributes to the literature since it provides evidence that the exchange rate affects the reaction of the CBB through the basic interest rate and, the credibility reduces the effect of the exchange rate on the reaction of the CBB. Following the literature that addresses monetary policy rules (e.g., Clarida et al. 1998, 2000; Berger 2008; Moura and de Carvalho 2010; Furlani, Portugal and Laurini 2010; Fendel et al. 2011; Frömmel et al. 2011), we use an expanded-Taylor rule. The rule considers standard elements of a Taylor-type rule (for instance, inflation deviations from the target and the output gap), as well as expectational variables (in line with New Keynesian models) and the effect of the exchange rate.[1] As a novelty, the rule also captures the effect of monetary policy credibility.[2] Besides, another contribution is provided: we examine the expectations formed by the experts of the financial market in relation to the reaction of the CBB and, in particular, if monetary policy credibility affects these expectations.

At the end of the 90s, many developing countries have adopted floating exchange rate regimes and IT. However, a feature that emerges when countries adopt this arrangement is that central banks in practice do not let the exchange rate float freely. This situation was highlighted by Calvo and Reinhart (2002), and called "fear of floating". Once IT central bankers recognize the existence of the pass-through effect from exchange rate to domestic prices, they get worried about the possibility that fluctuations in exchange rates could threaten the IT regime (Ball and Reyes 2008).

Under IT, the fear of floating is clearly related to the fear of inflation, and both can be justified by the fear of the monetary authority in relation to the pass-through effect from exchange rate devaluation to domestic prices (Ball and Reyes 2004, 2008). However, some studies have pointed to the existence of an inverse relationship between credibility and exchange rate pass-through, i.e., when credibility improves, it reduces the pass-through from exchange rate devaluation to inflation (e.g., Taylor 2000; Mishkin and Savastano 2001; de Mendonça and Tostes 2015). Taylor (2000) suggests that the establishment of a strong nominal anchor in many countries has led to a strong reduction in the degree of pass-through from exchange rate devaluation to inflation. Following this idea, Mishkin and Savastano (2001) argue that the credibility gains from the monetary authority's commitment to the IT regime may be responsible for keeping inflation expectations – and inflation itself – anchored to the established inflation target, even after exchange rate devaluations.

The concern of central banks with exchange rate fluctuations has been widely discussed in the economic literature. Some studies have emphasized the importance of considering the exchange rate in monetary policy analysis (e.g., Ball 1999; Svensson 2000; Clarida et al. 2001; Calvo and Reinhart 2002; Ball and Reyes 2004, 2008; Lubik and Schorfheide 2007; Dong 2013). One of the main issues discussed in this literature was pointed out by Calvo and Reinhart (2002), which showed that countries adopting floating exchange rate regimes and IT use the basic interest rate to avoid large fluctuations in the exchange rate.

[1] According to Nogueira-Jr. and León-Ledesma (2009), the greater exchange rate pass-through is, the greater the response of the monetary policy to the exchange rate. They argue that "*even if the Central Bank does not care about the exchange rate level, it must respond to its movements, as it influences the overall rate of inflation, and thus its ability to attain the inflation targets*" (Nogueira-Jr. and León-Ledesma 2009, pp. 258).

[2] In order to obtain robust results, the analysis considers four different types of monetary policy credibility indexes. Moreover, we also build a series based on principal component approach using all the four monetary policy credibility indexes.

According to Calvo and Reinhart (2002), one of the main reasons for the existence of fear of floating is the lack of credibility of the monetary authority. The authors argue that many developing countries set their interest rates based on domestic concerns, and the decision of smoothing exchange rate variations can be driven by a scenario of low credibility with a high pass-through effect. Calvo and Reinhart (2002) show that the movements in the basic interest rate are more frequent in countries with floating exchange rate regime. The theoretical model proposed by them consider the adoption of IT, in which the fear of floating arises from a combination of high pass-through effect and low credibility. The results suggest it is not always easy to distinguish whether a country that announces the adoption of IT will really let the exchange rate float freely or not. However, the work of Calvo and Reinhart (2002) does not provide any empirical evidence regarding the effect of credibility on the fear of floating. As far as we know, there is no study addressing the fear of floating which had empirically analyzed the effect of credibility on the fear of floating. Thus, to our knowledge, the present study contributes to the literature since it is the first one to empirically investigate this relation considering an IT developing country.

Brazil is an emerging country that has adopted IT, but the monetary policy is also committed to smooth exchange rate variations (Ball and Reyes 2008). Ball and Reyes (2008) suggest the presence of fear of floating in the conduction of monetary policy in Brazil. They argue that Brazilian policymakers announce that the country follows a regime of IT, but actually it follows a regime of fear of floating in disguise.

Since the adoption of the floating exchange rate regime and IT in Brazil, the literature related to the exchange rate pass-through has developed more vigorously (e.g., Minella et. al 2003; Nogueira Jr. 2007, 2010; Ca'Zorzi et al. 2007; de Mendonça and Tostes 2015). In particular, de Mendonça and Tostes (2015) points out that high fiscal and monetary credibility can reduce the pass-through effect. The results suggest that, while monetary credibility is relevant to the pass-through related to the inflation of market prices, fiscal credibility is important to reduce the pass-through related to inflation and inflation expectations.

In addition, there are studies that have examined how the monetary authority behaves in terms of monetary policy reaction. Specifically, some studies seek to verify whether the exchange rate affects the monetary policy reaction function of the CBB (e.g., Bogdanski et al. 2002; Fraga et al. 2003; Minella et al. 2003; de Mello et. al 2009; Nogueira-Jr. and León-Ledesma 2009; Palma and Portugal 2014). These studies are not conclusive about the existence of fear of floating. However, they point out that the CBB smoothes the variations in the exchange rate in order to reduce the variability in the inflation rate (fear of inflation) (Nogueira-Jr. and León-Ledesma 2009).

Brazil is an interesting case study on this subject because since 1999 it adopts inflation targeting with a floating exchange rate regime. However, as pointed out by Ball and Reyes (2008), the monetary authority faces the dilemma of leaving the exchange rate fluctuates without intervention.

Following Calvo and Reinhart (2002), our argument is that this dilemma is clearly related to the construction of credibility and the reduction of exchange rate volatility, which are important challenges to be overcome by policymakers in Brazil. Particularly in relation to the importance of credibility, when monetary policy credibility is low, inflation increases and departs from the established inflation target (Montes and Curi 2016; Montes and Bastos 2014). As a consequence, an environment of low credibility leads the central bank to fear exchange rate devaluations, because such devaluations can increase the inflation rate through the pass-through effect. Thus, with low monetary policy credibility, the monetary authority is more susceptible to react to movements in the exchange rate, rather than simply pursuing the inflation target and let the currency float freely.

The findings suggest monetary policy credibility is able to reduce the fear of the monetary authority in relation to exchange rate fluctuations in Brazil. Besides, the estimates also suggest that the improvement of monetary policy credibility is important to reduce the expectations formed by the forecasters of the financial market about the fear of floating of the CBB. From the results obtained policymakers should pay attention to the credibility of their policies, otherwise they may be misinterpreted in relation to the goals they pursue and how they conduct their policies.

2. Empirical evidence

Our study contributes to the literature once it seeks empirical evidence for the theoretical hypothesis suggested by Calvo and Reinhart (2002) that the development of credibility is important to reduce the fear of floating. Besides, the paper also contributes to the literature once we advance in relation to the studies presented by Nogueira-Jr. and León-Ledesma (2009) and de Mendonça and Tostes (2015) for the Brazilian economy.

Nogueira-Jr. and León-Ledesma (2009) empirically evaluates the impact of a radical monetary policy regime shift in an emerging market. They ask if this regime shift produced a change in the exchange rate policy. The authors provide evidence on exchange rate pass-through for Brazil between 1995 and 2007, as well as the reaction of monetary policy to exchange rate shocks, comparing the period before and after the adoption of IT in 1999. They suggest three main conclusions regarding fear of floating in Brazil: (i) exchange rate pass-through decreased dramatically after the adoption of IT; (ii) although exchange rate variability increased substantially after IT, the CBB kept on reacting to exchange rate changes, and; (iii) the reaction of the CBB to exchange rate shocks shifted almost completely from using international reserves to using interest rates as monetary policy instrument. According to Nogueira-Jr. and León-Ledesma (2009), in relation to Brazil, monetary policy interventions through the basic interest rate can be interpreted more as “Fear of Inflation” than “Fear of Floating”. That is, interest rates reactions to the exchange rate simply reflect the fact that the CBB reacts to anything that affects inflation.

In turn, de Mendonça and Tostes (2015) present empirical evidence regarding the exchange rate pass-through effect on inflation in Brazil after the adoption of IT. In general, the results indicate that the pass-through effect is important in explaining the inflation rate. Besides, they analyze the impact of fiscal and monetary credibility in the transmission mechanism of the pass-through from exchange rate to inflation. The empirical evidence indicates high credibility helps to mitigate the exchange rate pass-through effect. Thus, one might think that a consequence of this is a better control on inflation with lower social cost.

2.1 Data

The data used to build the series were obtained from the CBB. Due to the availability of data, the period of analysis runs from July 2002 to December 2015 (monthly). The analysis uses the following series: basic interest rate (SELIC), expectation for the basic interest rate for the next 12 months (E(SELIC)), inflation rate measured by the official Consumer Price Index – IPCA – (INF), expectation for the inflation rate measured by the official Consumer Price Index – IPCA – for the next 12 months (E(INF)), real interest rate (SELIC_R), expectation for the real interest rate for the next 12 months (E(SELIC_R)), exchange rate (EXCH), expectation for the exchange rate for the next 12 months (E(ECXH)), inflation deviations in relation to the inflation target (DESV_INF), expected inflation deviations in relation to the inflation target (DESV_EINF), output gap (GAP), expected output deviations in relation to its trend (E(GAP)) (Table A1 in the Appendix presents a detailed description of the series). All the series are transformed to consider the cumulative change in the last twelve months. Furthermore, a dummy variable (CRISIS) for the subprime financial crisis and its international consequences is also used (it assumes value 1 from September 2008 to December 2012, and zero otherwise).

In order to capture monetary policy credibility, we use four different credibility indexes. All the indexes are based on the idea of Agénor and Taylor (1992) that series of expected inflation could be applied to derive a credibility index. As Svensson (2000) proposed, the credibility can be measured by the difference between expected inflation and the target. Hence, we use the following indexes: the first one comes from Cecchetti and Krause (2002); the second comes from de Mendonça (2007); the third was proposed by de Guimarães e Souza and de Mendonça (2009), and; the fourth comes from Tejada, Neto and Leal (2013).

The index proposed by Cecchetti and Krause Index (2002) (CREDCK) is calculated based on the difference between the expected inflation ($E[\pi]$) and the inflation target (π^T). The index is equal to 1 if the annual expected inflation ($E[\pi]$) is below the inflation target (π^T). If the inflation expectations are lower than 20% but higher than the target, the index value ranges between 0 and 1. If the expected inflation is equal or higher than 20%, the index is 0. The index uses the series of inflation expectations obtained from the CBB and the inflation target defined by the monetary authority. Hence:

$$CREDCK = \begin{Bmatrix} 1 & if\ E[\pi] \leq \pi_t^T \\ 1 - \frac{1}{0.2-\pi_t^T}[E[\pi] - \pi_t^T] & if\ \pi_t^T < E[\pi] < 20\% \\ 0 & if\ E(\pi) \geq 20\% \end{Bmatrix}$$

In turn, the index proposed by de Mendonça (2007) has a value equal to 1 when the annual expected inflation ($E[\pi]$) is equal to the target (π^T) and decreases in a linear way while inflationary expectation deviates from the announced target. Therefore, the credibility index shows a value between 0 and 1 strictly if the expected inflation is situated between the maximum and minimum limits (π^*) established for each year and assumes a value equal to 0 when the expected inflation exceeds one of these limits. Since the idea of the index is to capture the degree of anchorage in a normalized index (between 0 and 1), so when the expected inflation is above the inflation target (and at the same time it did not exceed the upper limit of the band), we use, in the denominator, the difference between the maximum limit (π_{tMAX}^*) and the inflation target (π^T). But, when the inflation expectation is below the inflation target (and at the same time it did not exceed the lower limit of the band), we use, in the denominator, the difference between the minimum limit (π_{tMIN}^*) and the inflation target (π^T). The index uses inflation expectations obtained from the CBB, and the inflation target and the tolerance bands defined by the monetary authority.

$$CREDM = \begin{Bmatrix} 1 & if\ E[\pi] = \pi_t^T \\ 1 - \frac{1}{\pi_t^*-\pi_t^T}[E[\pi] - \pi_t^T] & if\ \pi_{tMIN}^* < E[\pi] < \pi_{tMAX}^* \\ 0 & if\ E(\pi) \geq \pi_{tMAX}^*\ or\ E[\pi] \leq \pi_{tMIN}^* \end{Bmatrix}$$

Based on the index of Cecchetti and Krause (2002), de Guimarães e Souza and de Mendonça (2009) proposed an index. The idea of the index is that when the annual expected inflation ($E[\pi]$) exceeds any of the tolerance bands (π_{tMIN}^* or π_{tMAX}^*) but it does not cross the lower limit of 0% nor the higher limit of 20%, there is a linear loss of credibility. If the expected inflation ($E[\pi]$) is lower than 0% or higher than 20% there is 0 credibility. The index is equal to 1 if the expected inflation ($E[\pi]$) is within the tolerance bands. Thus:

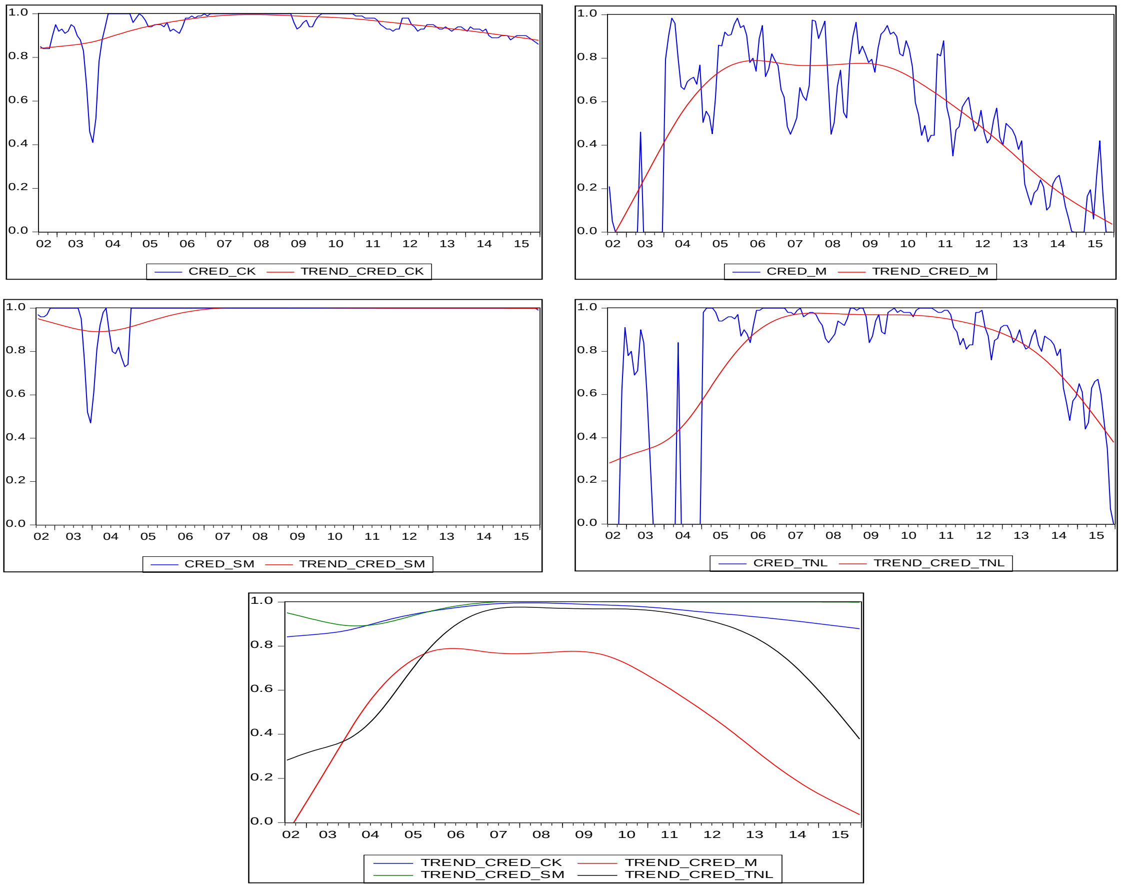
$$CREDSM = \begin{Bmatrix} 1 & if\ \pi_{tMIN}^* \leq E[\pi] \leq \pi_{tMAX}^* \\ 1 - \frac{[E[\pi] - \pi_{tMAX}^*]}{0{,}2 - \pi_{tMAX}^*} & if\ \pi_{tMAX}^* < E[\pi] < 20\% \\ 1 - \frac{[E[\pi] - \pi_{tMin}^*]}{(-\pi_{tMin}^*)} & if\ \ 0\% < E[\pi] < \pi_{tMin}^* \\ 0 & if\ E(\pi) \geq 20\%\ or\ E[\pi] \leq 0\% \end{Bmatrix}$$

Regarding the index proposed by Tejada, Neto and Leal (2013), its main feature is to consider non-linearities, so that small deviations from the inflation target represent a smaller credibility reduction. On the other hand, large deviations from the target have a stronger effect on credibility. The idea is that small deviations can be perceived as temporary, and as a consequence they do not harm credibility as much as large deviations. Its quadratic specification captures this nonlinear effect. Again, the index uses inflation expectations obtained from the CBB, and the inflation target and the tolerance bands defined by the monetary authority. Therefore:

$$CREDTNL = \begin{cases} 1 & if\ E[\pi] = \pi_t^T \\ \dfrac{\sqrt{[\pi_t^T - \pi_{tMAX}^*]^2 - [E[\pi] - \pi_t^T]^2}}{(\pi_{tMAX}^* - \pi_t^T)} & if\ \pi_t^T < E[\pi] < \pi_{tMAX}^* \\ \dfrac{\sqrt{[\pi_t^T - \pi_{tMin}^*]^2 - [E[\pi] - \pi_t^T]^2}}{(\pi_t^T - \pi_{tMin}^*)} & if\ \pi_{tMIN}^* < E[\pi] < \pi_t^T \\ 0 & if\ E(\pi) \geq \pi_{tMAX}^*\ or\ E[\pi] \leq \pi_{tMIN}^* \end{cases}$$

Figure 1 presents the graphs for all the indexes and their respective trends obtained through the Hodrick-Prescott filter. Table 1 below presents the correlation matrix for the indexes.

Figure 1 – Graphs for the monetary policy credibility indexes



Graphs prepared by the authors.

Table 1 – Correlation matrix for the monetary policy credibility indexes

INDEXES	CREDCK	CREDM	CREDSM	CREDTRL
CREDCK	1.000	0.446	0.670	0.588
CREDM	0.446	1.000	0.064	0.372
CREDSM	0.670	0.064	1.000	0.661
CREDTRL	0.588	0.372	0.661	1.000

Table prepared by the authors.

In order to capture common characteristics present in all series, we also use the linear combination of the indexes, i.e., we build a series based on the first principal component approach using all the monetary policy credibility indexes (PC_CREDM).

A first condition to be analyzed before applying the econometric analysis is to check if series are stationary (or have unit roots). Therefore, the Augmented Dickey-Fuller (ADF), Phillips-Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests were applied (Table 2 below). The results showed that all series are I(0) (an expected result, once all the series are transformed to consider the cumulative change in the last twelve months). Since the credibility indexes are variables with values between 0 and 1, unit root tests are not necessary, i.e., all credibility indexes are stationary.

Table 2 – Unit root tests

Series		ADF				PP				KPSS		
		Lag	Test	cv -10%		Band	Test	cv -10%		Band	LM-stat	cv -1%
SELIC	None	1	-5.5	-1.62	None	9	-2.96	-1.62	C+T	10	0.09	0.22
EXP_SELIC	None	3	-5.35	-1.62	None	8	-3.14	-1.62	C+T	9	0.05	0.22
INF	None	1	-3.22	-1.62	None	7	-2.8	-1.62	C	9	0.08	0.74
EINF	None	4	-6.16	-1.62	None	5	-3.52	-1.62	C	9	0.08	0.74
SELIC_R	None	1	-3.18	-1.62	None	5	-2.68	-1.62	C	9	0.09	0.74
EXP_SELIC_R	None	4	-4.96	-1.62	None	2	-3.25	-1.62	C+T	9	0.09	0.22
DESV_INF	C + T	11	-4.23	-3.14	None	2	-2.89	-1.62	C+T	9	0.04	0.22
GAP	None	0	-5.3	-1.62	None	6	-5.54	-1.62	C	9	0.03	0.74
EGAP	None	1	-4.37	-1.62	None	6	-7.49	-1.62	C	8	0.02	0.74
EXCH	None	0	-2.2	-1.62	None	4	-2.5	-1.62	C	9	0.43	0.74
EXP_EXCH	C+T	4	-4.08	-3.14	None	8	-5.38	-1.62	C	10	0.5	0.74

Table prepared by the authors. Note: ADF - the final choice of lag was made based on Schwarz criterion. PP and KPSS tests - lag is the lag truncation chosen for the Bartlett kernel. “C” denotes constant; “C+T” denotes constant and trend, and; “None” denotes none.

2.2 Methodology

Aiming at verifying the theoretical argument of Calvo and Reinhart (2002), i.e., whether credibility reduces the fear of floating, we use an expanded-Taylor rule. In general, a Taylor rule is used in the literature to show how a central bank reacts to changes in macroeconomic variables (Taylor 1993). In order to avoid criticisms related to the use of a single functional form, and in order to give robustness to the results, we use different forms of the Taylor rule which are obtained from the theoretical and empirical literature (e.g., Clarida et al 1998; Minella et al. 2003; Lubik 2007). In all specifications, we use the standard variables of the Taylor rule (the deviation of inflation from the target and the output gap), as well as expectations about macroeconomic variables (i.e., EINF and EGAP), which captures the forward-looking behavior of the Central Bank. Besides, all specifications present the influence of the exchange rate on the reaction of the CBB through the basic interest rate.

In turn, aiming at checking the effect of monetary policy credibility on the fear of floating, we use interaction terms, such as de Mendonça and Tostes (2015). However, while de Mendonça and Tostes (2015) analyzed the influence of fiscal and monetary credibility on the pass-through from exchange rate to inflation considering the effect of the interaction between the exchange rate and the credibility indexes, we use these interactions in the CBB’s reaction function.

We use two sets of empirical equations considering the variables exchange rate and monetary policy credibility in level: one with the nominal interest rate in the right hand side (RHS) (equations 1, 2, 3 4, 5 and 6) and the other with the real interest rate in the RHS (equations 7, 8, 9, 10, 11 and 12). We estimate both sets of equations obtained from the empirical literature in order to verify if the results remain the same for different functional forms.

Furthermore, such as in de Mendonça and Tostes (2015), we also estimate all the equations from 1 to 12 using the first difference for the variables of monetary policy credibility ($\Delta CRED$), as well as the first difference for the exchange rate (ΔEXCH). While the analysis with the variables in level shows how the interest rate is affected, depending on the level of credibility and the level of exchange rate; on the other hand, the estimations considering the first differences show how the variation of credibility affects the CBB reaction due to variations of the exchange rate. Once again, the rationale for the use of this procedure is to anticipate a possible question that can be raised, this time related to the idea that it is also important to check the effect of changes in the exchange rate and changes in the monetary policy credibility (such as de Mendonça and Tostes (2015) have done for the pass-through effect from exchange rate to inflation).

The estimated equations are:[3]

$$SELIC_t = \alpha_0 + \alpha_1 SELIC_{t-1} + \alpha_2 DESV\_INF_{t-3} + \alpha_3 EINF_{t-2} + \alpha_4 EGAP_{t-3} + \alpha_5 GAP_{t-1} + \alpha_6 EXCH_{t-3} + \alpha_7 CRISIS + \varrho_t \quad (1)$$

$$SELIC_t = \gamma_0 + \gamma_1 SELIC_{t-1} + \gamma_2 DESV\_INF_{t-3} + \gamma_3 EINF_{t-2} + \gamma_4 EGAP_{t-3} + \gamma_5 GAP_{t-1} + \gamma_6 EXCH_{t-3} + \gamma_7 CREDCK_{t-3}[EXCH_{t-3}] + \gamma_8 CRISIS + e_t \quad (2)$$

$$SELIC_t = \eta_0 + \eta_1 SELIC_{t-1} + \eta_2 DESV\_INF_{t-3} + \eta_3 EINF_{t-2} + \eta_4 EGAP_{t-3} + \eta_5 GAP_{t-1} + \eta_6 EXCH_{t-3} + \eta_7 CREDM_{t-3}[EXCH_{t-3}] + \eta_8 CRISIS + \epsilon_t \quad (3)$$

$$SELIC_t = \rho_0 + \rho_1 SELIC_{t-1} + \rho_2 DESV\_INF_{t-3} + \rho_3 EINF_{t-2} + \rho_4 EGAP_{t-3} + \rho_5 GAP_{t-1} + \rho_6 EXCH_{t-3} + \rho_7 CREDSM_{t-3}[EXCH_{t-3}] + \eta_8 CRISIS + \mu_t \quad (4)$$

$$SELIC_t = \omega_0 + \omega_1 SELIC_{t-1} + \omega_2 DESV\_INF_{t-3} + \omega_3 EINF_{t-2} + \omega_4 EGAP_{t-3} + \omega_5 GAP_{t-1} + \omega_6 EXCH_{t-3} + \omega_7 CREDTRL_{t-3}[EXCH_{t-3}] + \omega_8 CRISIS + б_t \quad (5)$$

$$SELIC_t = \kappa_0 + \kappa_1 SELIC_{t-1} + \kappa_2 DESV\_INF_{t-3} + \kappa_3 EINF_{t-2} + \kappa_4 EGAP_{t-3} + \kappa_5 GAP_{t-1} + \kappa_6 EXCH_{t-3} + \kappa_7 PC\_CRED_{t-3}[EXCH_{t-3}] + \kappa_8 CRISIS + o_t \quad (6)$$

$$SELIC_t = \psi_0 + \psi_1 INF_{t-2} + \psi_2 SELIC\_R_{t-1} + \psi_3 DESV\_INF_{t-3} + \psi_4 EINF_{t-2} + \psi_5 EGAP_{t-3} + \psi_6 GAP_{t-1} + \psi_7 EXCH_{t-3} + \psi_8 CRISIS + ϙ_t \quad (7)$$

$$SELIC_t = \sigma_0 + \sigma_1 INF_{t-2} + \sigma_2 SELIC\_R_{t-1} + \sigma_3 DESV\_INF_{t-3} + \sigma_4 EINF_{t-3} + \sigma_5 EGAP_{t-3} + \sigma_6 GAP_{t-1} + \sigma_7 EXCH_{t-3} + \sigma_8 CREDCK_{t-3}[EXCH_{t-3}] + \sigma_9 CRISIS + \varpi_t \quad (8)$$

$$SELIC_t = \tau_0 + \sigma_1 INF_{t-2} + \tau_2 SELIC\_R_{t-1} + \tau_3 DESV\_INF_{t-3} + \tau_4 EINF_{t-2} + \tau_5 EGAP_{t-3} + \tau_6 GAP_{t-1} + \tau_7 EXCH_{t-3} + \tau_8 CREDM_{t-3}[EXCH_{t-3}] + \tau_9 CRISIS + \varsigma_t \quad (9)$$

$$SELIC_t = \beta_0 + \beta_1 INF_{t-2} + \beta_2 SELIC\_R_{t-1} + \beta_3 DESV\_INF_{t-3} + \beta_4 EINF_{t-2} + \beta_5 EGAP_{t-3} + \beta_6 GAP_{t-1} + \beta_7 EXCH_{t-3} + \beta_8 CREDSM_{t-3}[EXCH_{t-3}] + \beta_9 CRISIS + \nu_t \quad (10)$$

$$SELIC_t = \theta_0 + \theta_1 INF_{t-2} + \theta_2 SELIC\_R_{t-1} + \theta_3 DESV\_INF_{t-3} + \theta_4 EINF_{t-2} + \theta_5 EGAP_{t-3} + \theta_6 GAP_{t-1} + \theta_7 EXCH_{t-3} + \theta_9 CREDTRL_{t-3}[EXCH_{t-3}] + \theta_{10} CRISIS + \varepsilon_t \quad (11)$$

$$SELIC_t = \phi_0 + \phi_1 INF_{t-2} + \phi_2 SELIC\_R_{t-1} + \phi_3 DESV\_INF_{t-3} + \phi_4 EINF_{t-2} + \phi_5 EGAP_{t-3} + \phi_6 GAP_{t-1} + \phi_7 EXCH_{t-3} + \phi_8 PC\_CRED_{t-3}[EXCH_{t-3}] + \phi_9 CRISIS + \xi_t \quad (12)$$

Where, ϱ, ν, μ , б, o, ϙ, ϖ ,ς , e, ε, ϵ e ξ are random error terms. Regarding the specifications, the lags were determined on an empirical basis, following the general-to-specific method, and on the principle of parsimony. This methodology takes into consideration not only the statistical

[3] In the case of equations using the variables in first differences, the variables $\Delta CRED$ and ΔEXCH are inserted in the places of these variables expressed in level. Thus, for instance, equation (2) becomes:

$$SELIC_t = \gamma_0 + \gamma_1 SELIC_{t-1} + \gamma_2 DESV\_INF_{t-3} + \gamma_3 EINF_{t-2} + \gamma_4 EGAP_{t-3} + \gamma_5 GAP_{t-1} + \gamma_6 \Delta EXCH_{t-3} + \gamma_7 \Delta CREDCK_{t-3}[\Delta EXCH_{t-3}] + \gamma_8 CRISIS + e_t$$

significance of the parameters, but also diagnostic tests, in order to ensure that the chosen model has explanatory power and thus guarantees a parsimonious equation (Hendry, 2001).

It is worth noting that the terms $CRED$ or $\Delta CRED$ (where $CRED$ is $CREDCK$, $CREDM$, $CREDSM$, $CREDTRL$ or PC_CRED) make the coefficient of the exchange rate effect on the reaction of the CBB dependent on credibility. The total exchange rate effect coefficients are given by: $\gamma_6 + \gamma_7$ (Eq. 2), $\eta_6 + \eta_7$ (Eq. 3) $\rho_6 + \rho_7$(Eq. 4) $\omega_6 + \omega_7$ (Eq. 5), $\kappa_6 + \kappa_7$ (Eq. 6), $\sigma_7 + \sigma_8$ (Eq. 8), $\tau_7 + \tau_8$ (Eq. 9), $\beta_7 + \beta_8$ (Eq. 10) $\theta_7 + \theta_8$ (Eq. 11), and $\phi_7 + \phi_8$ (Eq. 12). While the coefficients for the exchange rate term are expected to be positive (γ_6, η_6, ρ_6, ω_6, κ_6, σ_7, τ_7, β_7, θ_7, and $\phi_7 > 0$), on the other hand, for the interaction term, a negative signal is expected (γ_7, η_7, ρ_7, ω_7, κ_7, σ_8, τ_8, β_8, θ_8, and $\phi_8 < 0$). In this sense, when credibility is at high levels, the monetary authority reacts with less intensity to the exchange rate. In turn, if credibility is low, the monetary authority presents a stronger reaction to the exchange rate. The same argument can be used if we consider the specifications with $\Delta CRED$ and ΔEXCH. When there is an improvement in credibility $\Delta CRED > 0$, the CCB reacts with less intensity to exchange rate variations.

The analysis makes use of ordinary least squares (OLS) and the generalized method of moments (GMM). One reason for using GMM is that while OLS estimates have problems of simultaneity and endogeneity of the regressors, which is typical in macroeconomic time series, GMM provides consistent estimations (Hansen 1982). The GMM estimates adopted a standard procedure based on Johnston (1984), i.e., the chosen instruments were dated to the period *t-1* or earlier. Cragg (1983) argues that overidentification has an important role in the selection of instrumental variables to improve the efficiency of the estimators. Hence, a standard J-test was performed with the objective of testing this property for the validity of the overidentifying restrictions, i.e., the J-statistic indicates whether the orthogonality condition is satisfied. Moreover, regarding all GMM estimations, we present the Durbin–Wu–Hausman test (D-W-H test) of the endogeneity of regressors (Durbin 1954; Wu 1973; Hausman 1978).

In order to give robustness to the results and to avoid possible criticisms regarding the choices of the lags in the regressions, we estimate through GMM all the equations previously described using contemporary regressors. In this case, estimates through OLS are not made due to the problems of simultaneity and endogeneity that arise when using contemporary regressors, which justify the use of GMM.

2.3 – Estimates and results

Tables 3 and 4 show the estimates through OLS and GMM, respectively, for equations (1) to (12), using both variables CRED and EXCH in level. Tables 5 and 6 present the estimates through OLS and GMM, respectively, for the same equations, but using the variables $\Delta CRED$ and ΔEXCH, instead of the variables in level.

The results reported in tables 3, 4, 5 and 6 reveal that all estimated coefficients present the expected signs and are in agreement with the theoretical perspective. Regarding the estimated coefficients of the variables traditionally analyzed in empirical studies using Taylor rules, the findings corroborate the results already reported in the literature and suggest, with statistical significance: (i) the existence of a positive relationship between the inflation rate and the reaction of the CBB through the basic interest rate, (ii) the existence of a positive relationship between the deviation of inflation from the target and the reaction of the CBB, and (iii) the existence of a positive relationship between the output gap and the reaction of the CBB. Moreover, the findings suggest the CBB reacted to the international financial crisis.

Besides, the results also suggest that the CBB acts in a forward-looking way. Estimates reveal positive coefficients for the reaction of the CBB in relation to inflation expectations and also in relation to expectations for economic activity.

Regarding the relationship between the exchange rate and the reaction of the CBB, all estimated coefficients are positive and statistical significance was found in most of the coefficients. The estimated coefficients for the variable ΔEXCH obtained through OLS were the exception since none of them presented statistical significance. However, when obtained through GMM, all estimated coefficients for the variable ΔEXCH present the expected signs and statistical significance. Thus, the results indicate the CBB reacts through the basic interest rate and suggests the existence of a behavior compatible with the notion of fear of floating.

With respect to the hypothesis that monetary policy credibility is important to reduce the fear of floating, the results presented in tables 3 and 4, based on the estimates of equations (2) to (6) and (8) to (12), show the higher the credibility, the lower the reaction of the CBB in relation to the exchange rate. It is important to note that the estimated coefficients for the interactive variables formed by the exchange rate and the different monetary policy credibility indexes are negative in all equations and statistically significant in most of them.

Besides, due to the fact that the fear of floating is directly related to exchange rate fluctuations, we estimate the same equations with the first difference of the exchange rate and the first difference of the monetary policy credibility indexes. Tables 5 and 6 show the estimates through OLS and GMM, respectively. Again, all estimated coefficients have the expected signs and corroborate the theoretical view. The results are similar to those in Tables 3 and 4 that consider the equations with the exchange rate and the types of monetary policy credibility indexes in level. The results reinforce the idea that credibility is able to reduce the fear of floating, because if there is an improvement in credibility, the CBB becomes less susceptible to react to exchange rate pressures.

With relation to the estimates through GMM for all the equations using contemporary regressors, the results corroborate the findings already reported above.[4] In particular, the estimates strengthen the idea that the improvement of monetary policy credibility can reduce the fear of floating.

[4] The results can be obtained upon request.

Table 3 - OLS estimates: effect of credibility on fear of floating

Dependent Variable: SELIC	Eq. (1)	Eq. (2)	Eq. (3)	Eq. (4)	Eq.(5)	Eq. (6)	Eq. (7)	Eq. (8)	Eq. (9)	Eq. (10)	Eq. (11)	Eq. (12)
Estimator:	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
C	0.373	0.295	-0.270	0.378	0.073	0.178	1.512	1.228	0.391	1.576	0.707	0.864
	(0.821)	(0.83)	(1.088)	(0.86)	(0.892)	(0.87)	(1.384)	(1.379)	(1.801)	(1.357)	(1.619)	(1.562)
	[0.454]	[0.355]	[-0.248]	[0.44]	[0.082]	[0.204]	[1.093]	[0.891]	[-0.217]	[1.161]	[0.437]	[0.553]
SELIC(-1)	0.878***	0.885***	0.877***	0.878***	0.883***	0.885***						
	(0.03)	(0.03)	(0.029)	(0.032)	(0.028)	(0.029)						
	[29.687]	[29.282]	[30.712]	[27.426]	[31.536]	[30.25]						
INF(-2)							0.557***	0.594***	0.575***	0.559***	0.592***	0.596***
							(0.067)	(0.069)	(0.058)	(0.076)	(0.059)	(0.066)
							[8.345]	[8.635]	[9.958]	[7.389]	[10.06]	[9.094]
SELIC_R(-1)							0.660***	0.691***	0.658***	0.662***	0.693***	0.687***
							(0.044)	(0.044)	(0.044)	(0.047)	(0.044)	(0.044)
							[15.006]	[15.764]	[14.875]	[14.087]	[15.778]	[15.789]
DESV_INF(-3)	0.049**	0.031	0.0461**	0.0488*	0.034	0.032	0.146***	0.087*	0.129***	0.141**	0.100**	0.089**
	(0.02)	(0.025)	(0.019)	(0.026)	(0.021)	(0.023)	(0.041)	(0.048)	(0.034)	(0.058)	(0.039)	(0.045)
	[2.41]	[1.26]	[2.458]	[1.858]	[1.605]	[1.377]	[3.53]	[1.811]	[3.751]	[2.437]	[2.561]	[1.978]
EINF(-2)	0.055***	0.051***	0.0387*	0.055***	0.054***	0.048***	0.224***	0.206***	0.164***	0.223***	0.216***	0.195***
	(0.019)	(0.016)	(0.022)	(0.018)	(0.016)	(0.016)	(0.035)	(0.049)	(0.055)	(0.061)	(0.048)	(0.049)
	[2.991]	[3.241]	[1.778]	[3.035]	[3.443]	[3.042]	[3.807]	[4.24]	[2.975]	[3.666]	[4.522]	[3.981]
EGAP(-3)	0.034	0.035*	0.021	0.035	0.035*	0.034*	0.039	0.042	0.001	0.042	0.043	0.039
	(0.022)	(0.019)	(0.019)	(0.023)	(0.019)	(0.019)	(0.044)	(0.038)	(0.038)	(0.047)	(0.039)	(0.039)
	[1.579]	[1.806]	[1.131]	[1.473]	[1.85]	[1.785]	[0.892]	[1.119]	[0.029]	[0.894]	[1.122]	[1.011]
GAP(-1)	0.769***	0.706***	0.759***	0.767***	0.709***	0.710***	1.552***	1.382***	1.572***	1.546***	1.386***	1.420***
	(0.199)	(0.212)	(0.199)	(0.208)	(0.207)	(0.208)	(0.314)	(0.303)	(0.327)	(0.313)	(0.32)	(0.308)
	[3.854]	[3.33]	[3.808]	[3.678]	[3.422]	[3.419]	[4.952]	[4.564]	[4.802]	[4.935]	[4.325]	[4.609]
EXCH(-3)	0.033	0.694*	0.112*	0.051	0.200***	0.028	0.112*	2.120**	0.332***	0.347	0.543***	0.099*
	(0.033)	(0.411)	(0.062)	(0.408)	(0.053)	(0.031)	(0.064)	(0.827)	(0.096)	(0.985)	(0.145)	(0.053)
	[0.998]	[1.69]	[1.826]	[0.125]	[3.788]	[0.893]	[1.745]	[2.564]	[3.459]	[0.352]	[3.736]	[1.895]
CRISIS	-2.082	-1.752	-1.341	-2.082	-1.502	-1.607	-6.100*	-5.043*	-3.891	-6.102*	-4.508*	-4.642*
	(1.457)	(1.411)	(1.664)	(1.459)	(1.432)	(1.45)	(2.802)	(2.621)	(3.005)	(2.805)	(2.701)	(2.772)
	[-1.429]	[-1.242]	[-0.806]	[-1.427]	[-1.049]	[-1.108]	[-2.177]	[-1.924]	[-1.295]	[-2.176]	[-1.669]	[-1.674]
EXCH(-3)*CREDCK(-3)		-0.712						-2.159**				
		(0.451)						(0.895)				
		[-1.578]						[-2.412]				
EXCH(-3)*CREDM(-3)			-0.173						-0.473***			
			(0.111)						(0.149)			
			[-1.563]						[-3.166]			
EXCH(-3)*CREDSM(-3)				-0.018						-0.236		
				(0.427)						(0.988)		
				[-0.042]						[-0.239]		
EXCH(-3)*CREDTRL(-3)					-0.232***						-0.597***	
					(0.069)						(0.162)	
					[-3.368]						[-3.679]	
EXCH(-3)*PC_CREDM(-3)						-0.040**						-0.115***
						(0.02)						(0.036)
						[-1.983]						[-3.199]
R^2	0.97	0.97	0.97	0.97	0.97	0.97	0.88	0.89	0.89	0.88	0.89	0.89
Adj. R^2	0.97	0.97	0.97	0.97	0.97	0.97	0.87	0.88	0.88	0.87	0.89	0.88
Ramsey RESET (1)	1.02	0.27	1.17	1.02	0.01	0.25	2.66	0.45	2.41	2.61	1.28	0.59
Prob. Ramsey RESET (1)	0.31	0.79	0.24	0.31	1.00	0.80	0.01	0.66	0.02	0.01	0.20	0.55
ARCH(1) test	106.18	100.78	90.59	106.24	89.76	94.80	17.84	18.47	22.51	17.74	32.23	24.62
Prob. ARCH(1) test	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LM(1) test	190.06	185.55	192.75	189.01	192.44	191.63	118.47	96.51	116.23	117.20	109.64	105.66
Prob. LM(1) test	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jaque-bera	1.89	2.85	1.42	1.90	5.05	2.78	6.18	14.67	3.58	6.68	3.94	8.67
Prob. Jaque-bera	0.38	0.24	0.49	0.38	0.08	0.24	0.04	0.00	0.16	0.03	0.13	0.01
F-statistic	731.76	666.23	666.69	636.06	705.71	675.20	134.02	131.34	129.12	118.43	140.70	133.20
Prob. F-statistic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Observations	159	159	159	159	159	159	159	159	159	159	159	159

Source: Table prepared by authors. Marginal significance levels: *** denotes 0.01, ** denotes statistical significance at the 0.05 and * denotes statistical significance at the 0.1; standard-error in parentheses and t-statistic in square-brackets. Due to the problems of autocorrelation and heteroscedasticity diagnosed above (see LM test and ARCH test), all OLS estimates present Newey-West (1987) robust standard errors.

Table 4 - GMM estimates: effect of credibility on fear of floating

Dependent Variable: SELIC	Eq.(1)	Eq.(2)	Eq. (3)	Eq.(4)	Eq.(5)	Eq. (6)	Eq.(7)	Eq.(8)	Eq. (9)	Eq.(10)	Eq.(11)	Eq. (12)
Estimators:	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM
C	0.589	0.590	-1.369	0.988	0.545	0.625	-0.739	-1.497	-3.259	1.436	0.201	-1.938
	(1.004)	(1.05)	(1.489)	(0.862)	(1.04)	(1.058)	(1.828)	(1.396)	(2.885)	(2.142)	(1.755)	(1.661)
	[0.586]	[0.561]	[-0.919]	[1.147]	[0.523]	[0.591]	[-0.404]	[-1.073]	[-1.13]	[0.671]	[0.115]	[-1.167]
SELIC(-1)	0.849***	0.883***	0.831***	0.876***	0.837***	0.863***						
	(0.037)	(0.035)	(0.029)	(0.042)	(0.032)	(0.033)						
	[23.032]	[24.946]	[29.009]	[20.645]	[25.859]	[26.009]						
INF(-2)							0.646***	0.656***	0.646***	0.649***	0.647***	0.641***
							(0.053)	(0.038)	(0.037)	(0.058)	(0.048)	(0.037)
							[12.152]	[17.055]	[17.349]	[11.227]	[13.375]	[17.447]
SELIC_R(-1)							0.731***	0.767***	0.699***	0.773***	0.773***	0.758***
							(0.065)	(0.058)	(0.053)	(0.045)	(0.041)	(0.059)
							[11.281]	[13.131]	[13.318]	[17.117]	[18.75]	[12.926]
DESV_INF(-3)	0.063***	0.028	0.062***	0.037	0.037*	0.044*	0.079*	0.044	0.0788	0.068**	0.039*	0.056*
	(0.023)	(0.024)	(0.016)	(0.03)	(0.022)	(0.023)	(0.032)	(0.034)	(0.026)	(0.035)	(0.021)	(0.033)
	[2.754]	[1.141]	[3.858]	[1.223]	[1.683]	[1.923]	[2.439]	[1.289]	[3.006]	[1.987]	[1.852]	[1.705]
EINF(-2)	0.063**	0.055**	0.027	0.059***	0.074***	0.053**	0.199***	0.185***	0.108**	0.264***	0.258***	0.201***
	(0.025)	(0.022)	(0.031)	(0.021)	(0.027)	(0.026)	(0.048)	(0.044)	(0.055)	(0.064)	(0.045)	(0.045)
	[2.501]	[2.525]	[0.874]	[2.804]	[2.781]	[2.045]	[4.155]	[4.179]	[1.979]	[4.147]	[5.719]	[4.493]
EGAP(-3)	0.029	0.066*	0.002	0.109**	0.002	0.068**	0.145	0.131*	0.034	0.165*	0.094**	0.181**
	(0.04)	(0.035)	(0.033)	(0.054)	(0.043)	(0.037)	(0.101)	(0.078)	(0.064)	(0.09)	(0.046)	(0.091)
	[0.755]	[1.902]	[0.053]	[2.03]	[0.066]	[1.816]	[1.441]	[1.69]	[0.537]	[1.84]	[2.061]	[1.993]
GAP(-1)	1.274***	1.026***	1.449***	1.033***	1.134***	1.242***	1.744***	1.558***	2.187***	0.958*	1.089**	1.399**
	(0.306)	(0.344)	(0.251)	(0.355)	(0.275)	(0.318)	(0.578)	(0.512)	(0.476)	(0.526)	(0.488)	(0.548)
	[4.163]	[2.986]	[5.775]	[2.906]	[4.119]	[3.902]	[3.019]	[3.043]	[4.592]	[1.82]	[2.231]	[2.553]
EXCH(-3)	0.070*	0.928**	0.237***	0.986	0.412***	0.063*	0.158**	2.550***	0.488**	1.768**	0.819***	0.172***
	(0.04)	(0.443)	(0.09)	(0.71)	(0.149)	(0.037)	(0.074)	(0.743)	(0.187)	(0.867)	(0.198)	(0.061)
	[1.753]	[2.096]	[2.647]	[1.388]	[2.768]	[1.691]	[2.13]	[3.433]	[2.602]	[2.039]	[4.15]	[2.811]
CRISIS	-4.189*	-3.586	-0.902	-4.765**	-4.668*	-4.059*	-0.389	3.659	3.211	-5.576	-2.588	3.093
	(2.277)	(2.308)	(2.761)	(2.276)	(2.486)	(2.235)	(4.434)	(3.88)	(5.033)	(4.469)	(3.353)	(3.994)
	[-1.839]	[-1.553]	[-0.327]	[-2.094]	[-1.878]	[-1.814]	[-0.088]	[0.943]	[0.638]	[-1.248]	[-0.772]	[0.775]
EXCH(-3)*CREDCK(-3)		-0.948*						-2.543***				
		(0.481)						(0.815)				
		[-1.972]						[-3.119]				
EXCH(-3)*CREDM(-3)			-0.338*						-0.621*			
			(0.179)						(0.347)			
			[-1.892]						[-1.792]			
EXCH(-3)*CREDSM(-3)				-0.934						-1.710*		
				(0.721)						(0.872)		
				[-1.296]						[-1.96]		
EXCH(-3)*CREDTRL(-3)					-0.466***						-0.953***	
					(0.209)						(0.242)	
					[-2.228]						[-3.943]	
EXCH(-3)*PC_CREDM(-3)						-0.048*						-0.123***
						(0.027)						(0.046)
						[-1.809]						[-2.684]
R^2	0.97	0.97	0.97	0.96	0.97	0.97	0.86	0.86	0.87	0.86	0.89	0.86
Adj. R^2	0.97	0.97	0.96	0.96	0.96	0.96	0.85	0.85	0.86	0.85	0.88	0.85
Observations	156	155	155	155	155	155	156	156	155	154	154	156
RANK	20	23	25	22	24	25	20	25	26	24	27	25
J-statistic	11.53	15.11	17.65	12.81	16.11	16.25	12.33	13.93	18.33	12.91	14.76	16.67
p-value(J-stat)	0.48	0.37	0.34	0.46	0.37	0.44	0.34	0.53	0.30	0.53	0.61	0.34
D-W-H test	4.20	4.76	2.59	7.76	5.23	4.42	10.24	6.82	4.46	9.81	7.40	6.67
p-value(D-W-H)	0.76	0.78	0.96	0.46	0.73	0.82	0.25	0.66	0.88	0.37	0.60	0.67

Source: Table prepared by authors. Marginal significance levels: *** denotes 0.01, ** denotes statistical significance at the 0.05 and * denotes statistical significance at the 0.1; standard-error in parentheses and t-statistic in square-brackets. Due to autocorrelation and heteroscedasticity of unknown forms, all GMM estimates present Newey-West (1987) robust standard errors.

Table 5 - OLS estimates: effect of credibility on fear of floating (first differences)

Dependent Variable: SELIC	Eq. (1)	Eq. (2)	Eq. (3)	Eq. (4)	Eq.(5)	Eq. (6)	Eq. (7)	Eq. (8)	Eq. (9)	Eq. (10)	Eq. (11)	Eq. (12)
Estimator:	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
C	0.379	0.538	0.411	0.435	0.469	0.539	1.812	2.213*	1.726	2.073	2.044	2.216
	(0.831)	(0.818)	(0.825)	(0.826)	(0.801)	(0.814)	(1.434)	(1.37)	(1.426)	1.367366	(1.317)	(1.351)
	[0.456]	[0.658]	[0.499]	[0.526]	[0.587]	[0.662]	[1.264]	[1.616]	[1.21]	1.516336	[1.552]	[1.641]
SELIC(-1)	0.886***	0.877***	0.887***	0.881***	0.8779***	0.877***						
	(0.028)	(0.03)	(0.028)	(0.029)	(0.029)	(0.029)						
	[31.195]	[28.8]	[31.994]	[29.933]	[30.683]	[29.781]						
INF(-2)							0.564***	0.551***	0.559***	0.557***	0.559***	0.556***
							(0.069)	(0.06)	(0.07)	(0.061)	(0.055)	(0.057)
							[8.172]	[9.134]	[7.995]	[9.096]	[10.18]	[9.784]
SELIC_R(-1)							0.681***	0.673***	0.683***	0.682***	0.68***	0.676***
							(0.05)	(0.05)	(0.049)	(0.05)	(0.048)	(0.05)
							[13.506]	[13.465]	[14.019]	[13.718]	[14.2]	[13.561]
DESV_INF(-3)	0.045**	0.047***	0.045**	0.047***	0.043**	0.046**	0.142***	0.146***	0.144***	0.148***	0.134***	0.142***
	(0.02)	(0.021)	(0.02)	(0.021)	(0.021)	(0.021)	(0.045)	(0.044)	(0.045)	(0.046)	(0.039)	(0.042)
	[2.254]	[2.221]	[2.262]	[2.261]	[2.059]	[2.225]	[3.168]	[3.347]	[3.189]	[3.231]	[3.414]	[3.368]
EINF(-2)	0.064***	0.071***	0.064***	0.065***	0.077***	0.072***	0.262***	0.277***	0.266***	0.266***	0.294***	0.28***
	(0.015)	(0.014)	(0.016)	(0.015)	(0.015)	(0.014)	(0.058)	(0.05)	(0.059)	(0.055)	(0.044)	(0.047)
	[4.205]	[5.096]	[4.124]	[4.326]	[5.048]	[5.167]	[4.536]	[5.554]	[4.541]	[4.878]	[6.751]	[5.91]
EGAP(-3)	0.034	0.032	0.034	0.032	0.035	0.033	0.035	0.034	0.035	0.03	0.042	3.50E-02
	(0.022)	(0.022)	(0.022)	(0.023)	(0.022)	(0.022)	(0.044)	(0.044)	(0.043)	(0.045)	(0.042)	(0.044)
	[1.519]	[1.458]	[1.542]	[1.407]	[1.629]	[1.475]	[0.807]	[0.783]	[0.807]	[0.674]	[0.986]	[0.798]
GAP(-1)	0.658***	0.688***	0.648***	0.678***	0.661***	0.681***	1.175***	1.212***	1.182***	1.218***	1.139***	1.194***
	(0.176)	0.182	(0.173)	(0.18)	(0.179)	(0.179)	(0.415)	(0.417)	(0.403)	(0.424)	(0.409)	(0.424)
	[3.735]	3.784	[3.735]	[3.77]	[3.702]	[3.796]	[2.829]	[2.907]	[2.93]	[2.867]	[2.785]	[2.817]
ΔEXCH(-3)	0.034	0.014	0.027	0.027	-0.002	0.003	0.086	0.029	0.111	0.048	-0.012	0.001
	(0.05)	(0.044)	(0.047)	(0.046)	(0.043)	(0.043)	(0.089)	(0.091)	(0.091)	(0.09)	(0.1)	(0.099)
	[0.686]	[0.317]	[0.562]	[0.58]	[-0.054]	[0.062]	[0.964]	[0.328]	[1.224]	[0.538]	[-0.117]	[0.013]
CRISIS	-2.071	-2.220	-2.150	-2.158	-2.183	-2.283*	-6.429**	-6.693***	-6.123**	-6.702***	-6.587***	-6.844***
	(1.41)	(1.402)	(1.418)	(1.423)	(1.373)	(1.406)	(2.595)	(2.504)	(2.602)	(2.562)	(2.451)	(2.508)
	[-1.469]	[-1.583]	[-1.517]	[-1.516]	[-1.59]	[-1.624]	[-2.478]	[-2.673]	[-2.353]	[-2.616]	[-2.687]	[-2.729]
ΔEXCH(-3)*ΔCREDCK(-3)		-5.210***						-13.142***				
		(1.732)						(4.122)				
		[-3.008]						[-3.189]				
ΔEXCH(-3)*ΔCREDM(-3)			-0.332						1.231**			
			(0.359)						(0.617)			
			[-0.927]						[1.995]			
ΔEXCH(-3)*ΔCREDSM(-3)				-3.350**						-15.118***		
				(1.287)						(4.366)		
				[-2.603]						[-3.463]		
ΔEXCH(-3)*ΔCREDTRL(-3)					-1.162***						-3.023***	
					(0.299)						(0.655)	
					[-3.893]						[-4.616]	
ΔEXCH(-3)*ΔPC_CREDM(-3)						-0.139***						-0.363***
						(0.034)						(0.083)
						[-4.078]						[-4.383]
R^2	0.97	0.97	0.97	0.97	0.97	0.97	0.87	0.88	0.88	0.88	0.89	0.89
Adj. R^2	0.97	0.97	0.97	0.97	0.97	0.97	0.87	0.88	0.87	0.88	0.88	0.88
Ramsey RESET (1)	0.24	0.02	0.26	0.17	0.29	0.06	2.49	2.15	2.31	2.33	2.42	2.39
Prob. Ramsey RESET (1)	0.81	0.98	0.79	0.86	0.77	0.95	0.01	0.03	0.02	0.02	0.02	0.02
ARCH(1) test	111.55	56.41	89.29	82.89	35.34	50.07	15.83	21.91	15.07	11.56	6.67	10.21
Prob. ARCH(1) test	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.01	0.00
LM(1) test	197.66	169.98	187.57	188.21	161.98	165.25	123.97	103.39	121.83	107.97	90.05	97.35
Prob. LM(1) test	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Jaque-bera	2.36	1.48	2.53	2.88	9.86	3.13	7.64	2.15	5.54	0.96	1.55	0.81
Prob. Jaque-bera	0.30	0.47	0.28	0.23	0.00	0.20	0.02	0.03	0.06	0.61	0.45	0.66
F-statistic	734.73	670.95	641.79	649.60	665.91	677.80	129.66	124.11	116.44	125.37	128.61	127.05
Prob. F-statistic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Observations	158	158	158	158	155	158	158	158	158	158	158	158

Source: Table prepared by authors. Marginal significance levels: *** denotes 0.01, ** denotes statistical significance at the 0.05 and * denotes statistical significance at the 0.1; standard-error in parentheses and t-statistic in square-brackets. Due to the problems of autocorrelation and heteroscedasticity diagnosed above (see LM test and ARCH test), all OLS estimates present Newey-West (1987) robust standard errors.

Table 6 - GMM estimates: effect of credibility on fear of floating (first differences)

Dependent Variable: SELIC	Eq.(1)	Eq.(2)	Eq. (3)	Eq.(4)	Eq.(5)	Eq. (6)	Eq.(7)	Eq.(8)	Eq. (9)	Eq.(10)	Eq.(11)	Eq. (12)
Estimators:	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM
C	1.427	2.106***	0.285	0.58	2.209***	2.788**	5.671***	5.617***	6.791***	6.639***	4.836***	3.941
	(0.876)	(0.672)	(1.2)	(1.022)	(0.706)	(1.122)	(2.049)	(1.661)	(1.439)	(0.822)	(1.169)	(2.463)
	[1.63]	[3.135]	[0.238]	[0.567]	[3.127]	[2.486]	[2.767]	[3.382]	[4.718]	[8.076]	[4.135]	[1.6]
SELIC(-1)	0.86***	0.861***	0.82***	0.841***	0.836***	0.83***						
	(0.031)	(0.024)	(0.039)	(0.019)	(0.029)	(0.037)						
	[27.959]	[35.868]	[21.028]	[43.223]	[28.473]	[22.533]						
INF(-2)							0.538***	0.538***	0.511***	0.498***	0.526***	0.423***
							(0.071)	(0.053)	(0.047)	(0.028)	(0.026)	(0.044)
							[7.554]	[10.231]	[10.861]	[17.866]	[20.273]	[9.6]
SELIC_R(-1)							0.698***	0.756***	0.646***	0.705***	0.71***	0.566***
							(0.053)	(0.048)	(0.048)	(0.027)	(0.029)	(0.081)
							[13.209]	[15.81]	[13.501]	[25.945]	[24.574]	[7.003]
DESV_INF(-3)	0.052***	0.02	0.039*	0.053***	0.055***	0.062***	0.141***	0.124***	0.138***	0.155***	0.12***	0.147***
	(0.017)	(0.014)	(0.02)	(0.013)	(0.019)	(0.018)	(0.032)	(0.03)	(0.035)	(0.021)	(0.021)	(0.025)
	[3.088]	[1.449]	[1.938]	[4.053]	[2.894]	[3.428]	[4.332]	[4.109]	[3.889]	[7.233]	[5.648]	[5.754]
EINF(-2)	0.081***	0.18***	0.131***	0.119***	0.148***	0.118***	0.372***	0.512***	0.459***	0.474***	0.477***	0.416***
	(0.019)	(0.027)	(0.024)	(0.016)	(0.027)	(0.031)	(0.087)	(0.064)	(0.055)	(0.048)	(0.049)	(0.061)
	[4.208]	[6.595]	[5.388]	[7.677]	[5.56]	[3.801]	[4.277]	[8.027]	[8.274]	[9.805]	[9.665]	[6.813]
EGAP(-3)	0.004	0.021*	0.045*	0.036**	0.005	0.007	0.007	0.024	0.017	2.60E-02	2.40E-02	0.01
	(0.021)	(0.012)	(0.025)	(0.018)	(0.026)	(0.029)	(0.074)	(0.037)	(0.042)	(0.034)	(0.036)	(0.047)
	[0.214]	[1.779]	[1.777]	[1.982]	[0.213]	[0.251]	[0.096]	[0.658]	[0.402]	[0.766]	[0.674]	[0.222]
GAP(-1)	0.849***	0.507***	0.952***	0.777***	0.78***	0.865***	0.887	0.053	0.866*	0.111	0.35	1.606**
	(0.198)	(0.148)	(0.267)	(0.139)	(0.167)	(0.219)	(0.609)	(0.408)	(0.451)	(0.319)	(0.297)	(0.714)
	[4.291]	[3.433]	[3.56]	[5.597]	[4.673]	[3.956]	[1.456]	[0.131]	[1.922]	[0.348]	[1.178]	[2.248]
ΔEXCH(-3)	0.142**	0.067*	0.162**	0.104**	0.148*	0.21**	0.52**	0.312*	0.227**	0.255**	0.202*	0.324**
	(0.068)	(0.04)	(0.072)	(0.048)	(0.078)	(0.101)	(0.262)	(0.177)	(0.114)	(0.107)	(0.114)	(0.164)
	[2.082]	[1.668]	[2.253]	[2.152]	[1.898]	[2.073]	[1.986]	[1.764]	[1.998]	[2.388]	[1.772]	[1.98]
CRISIS	-5.368***	-6.474***	-1.306	-4.411***	-7.828***	-8.786***	-16.241***	-16.467***	-19.869***	-19.795***	-13.986***	-11.165**
	(1.788)	(1.204)	(3.06)	(0.92)	(1.537)	(2.6)	(4.296)	(3.027)	(3.194)	(1.899)	(2.194)	(5.39)
	[-3.003]	[-5.377]	[-0.427]	[-4.793]	[-5.092]	[-3.379]	[-3.781]	[-5.441]	[-6.221]	[-10.424]	[-6.374]	[-2.071]
ΔEXCH(-3)*ΔCREDCK(-3)		-2.776*						-1.249				
		(1.443)						(4.123)				
		[-1.925]						[-0.303]				
ΔEXCH(-3)*ΔCREDM(-3)			-1.243**						-2.598*			
			(0.549)						(1.542)			
			[-2.266]						[-1.684]			
ΔEXCH(-3)*ΔCREDSM(-3)				-2.547**						-6.768*		
				(1.265)						(4.075)		
				[-2.013]						[-1.661]		
ΔEXCH(-3)*ΔCREDTRL(-3)					-1.106*						-3.249***	
					(0.664)						(1.197)	
					[-1.667]						[-2.714]	
ΔEXCH(-3)*ΔPC_CREDM(-3)						-0.378*						-0.466***
						(0.108)						(0.148)
						[-3.518]						[-3.149]
R^2	0.97	0.97	0.97	0.97	0.96	0.95	0.83	0.84	0.82	0.83	0.86	0.85
Adj. R^2	0.97	0.97	0.96	0.97	0.96	0.95	0.82	0.82	0.80	0.82	0.85	0.84
Observations	154	145	151	150	151	153	153	147	151	150	150	153
RANK	30	42	29	40	36	26	20	39	36	47	43	29
J-statistic	15.04	18.16	15.64	18.35	13.76	13.84	10.34	18.98	19.10	22.81	22.71	13.24
p-value(J-stat)	0.86	0.98	0.74	0.96	0.98	0.68	0.50	0.92	0.83	0.97	0.91	0.83
D-W-H test	4.16	1.67	4.30	4.14	4.50	7.37	8.98	2.86	2.64	2.83	2.98	8.82
p-value(D-W-H)	0.76	0.99	0.83	0.90	0.81	0.50	0.34	0.97	0.98	0.97	0.97	0.45

Source: Table prepared by authors. Marginal significance levels: *** denotes 0.01, ** denotes statistical significance at the 0.05 and * denotes statistical significance at the 0.1; standard-error in parentheses and t-statistic in square-brackets. Due to autocorrelation and heteroscedasticity of unknown forms, all GMM estimates present Newey-West (1987) robust standard errors.

3. Estimates for the expectations related to the fear of floating

Due to the fact that expectations play a key role in countries adopting IT, monetary policy credibility can serve as an important mechanism for reducing the expected effects of the exchange rate on the expected reaction of the CBB through the basic interest rate. One can argue that in an environment with high credibility, agents expect a smoother reaction of the CBB in relation to the exchange rate. Hence, representing a novelty (and thus a contribution) to the literature related to fear of floating, another issue examined in the present study concerns the perception of the experts of the financial market about the fear of floating. Therefore, we estimate the following equations:

$$E_t(SELIC_t) = \chi_0 + \chi_1 E_t(SELIC_{t-6}) + \chi_2 DESV\_INF_t + \chi_3 EINF_{t-6} + \chi_4 EGAP_{t-6} + \chi_5 GAP_t + \chi_6(EXP\_EXCH_{t-2}) + \chi_7 CRISIS + u_t \quad (13)$$

$$E_t(SELIC_t) = \delta_0 + \delta_1 E_t(SELIC_{t-6}) + \delta_2 DESV_{INF_t} + \delta_3 EINF_{t-6} + \delta_4 EGAP_{t-6} + \delta_5 GAP_t + \delta_6(EXP_{EXCH_{t-2}}) + \delta_7 CREDCK_{t-2}[(EXP\_EXCH_{t-2})] + \delta_8 CRISIS + z_t \quad (14)$$

$$E_t(SELIC_t) = \lambda_0 + \lambda_1 E_t(SELIC_{t-6}) + \lambda_2 DESV\_INF_t + \lambda_3 EINF_{t-6} + \lambda_4 EGAP_{t-6} + \lambda_5 GAP_t + \lambda_6(EXP\_EXCH_{t-2}) + \lambda_7 CREDM_{t-2}[(EXP\_EXCH_{t-2})] + \lambda_8 CRISIS + q_t \quad (15)$$

$$E_t(SELIC_t) = \iota_0 + \iota_1 E_t(SELIC_{t-6}) + \iota_2 DESV\_INF_t + \iota_3 EINF_{t-6} + \iota_4 EGAP_{t-6} + \iota_5 GAP_t + \iota_6(EXP\_EXCH_{t-2}) + \iota_7 CREDSM_{t-2}[(EXP\_EXCH_{t-2})] + \iota_8 CRISIS + l_t \quad (16)$$

$$E_t(SELIC_t) = \mathrm{a}_0 + \mathrm{a}_1 E_t(SELIC_{t-6}) + \mathrm{a}_2 DESV\_INF_t + \mathrm{a}_3 EINF_{t-6} + \mathrm{a}_4 EGAP_{t-6} + \mathrm{a}_5 GAP_t + \mathrm{a}_6(EXP\_EXCH_{t-2}) + \mathrm{a}_7 CREDTRL_{t-2}[(EXP\_EXCH_{t-2})] + \mathrm{a}_8 CRISIS + h_t \quad (17)$$

$$E_t(SELIC_t) = \text{б}_0 + \text{б}_1 E_t(SELIC_{t-6}) + \text{б}_2 DESV\_INF_t + \text{б}_3 EINF_{t-6} + \text{б}_4 EGAP_{t-6} + \text{б}_5 GAP_t + \text{б}_6(EXP\_EXCH_{t-2}) + \text{б}_7 PC\_CRED_{t-2}[(EXP\_EXCH_{t-2})] + \text{б}_8 CRISIS + p_t \quad (18)$$

where, u, z, q, l, h, and p are random error terms. The lags were determined on an empirical basis, following the general-to-specific method, and on the principle of parsimony.

Besides, we also estimate all the equations from 13 to 18 using the first difference for the variables of monetary policy credibility ($\Delta CRED$), as well as the first difference for the exchange rate (ΔEXP_EXCH).

Once again, the analysis makes use of ordinary least squares (OLS) and the generalized method of moments (GMM). Aiming at giving robustness to the results and to avoid possible criticisms regarding the choices of the lags in the regressions, we estimate through GMM all the equations from 13 to 18 using contemporary regressors. In this case, estimates through OLS are not made due to the problems of simultaneity and endogeneity that arise when using contemporary regressors, which justify the use of GMM.

Table 7 presents OLS and GMM estimates for equations (13) to (18). The estimates are consistent with the results previously presented. The evidence shows that when inflation deviates from the inflation target and inflation expectations increase, the experts of the financial market expect the CBB will raise the basic rate interest. The estimates also reveal positive coefficients in relation to expectations for economic activity (EGAP) and for the output gap (GAP). Moreover, the findings indicate a positive relation between EXP_EXCH and EXP_SELIC, i. e., when the experts of the financial market expect a higher exchange rate they also expect the CBB will increase the basic interest rate. Regarding the effects of monetary policy credibility on the perception of the experts of the financial market about the fear of floating, the results show that they perceive a reduction in the fear of floating when credibility is enhanced. In addition, the results for the estimates using contemporary regressors (table A.4 in the Appendix) are consistent with the findings presented in table 7.

Table 8, in turn, presents the estimates of equations (13) to (18), however with the variation of the exchange rate (ΔEXCH) and the variation of the different monetary policy credibility indexes. The results for the control variables corroborate the theoretical view as well as the findings presented in Table 8. In turn, the findings reveal that when the experts of the financial market expect a higher positive exchange rate variation they expect the CBB will increase the basic interest rate. In relation to the effects of monetary policy credibility variations on the perception of the experts of the financial market about the fear of floating, once again the results show that they perceive a reduction in the fear of floating when credibility is enhanced. Moreover, the results for the estimates using contemporary regressors, but with the variation of the exchange rate (ΔEXCH) and the variation of the different monetary policy credibility indexes, are consistent with the findings presented in table 8.[5]

Table 7 - OLS and GMM estimates: effect of credibility on expectations about fear of floating

Dependent Variable: SELIC	Eq. (13)	Eq. (14)	Eq. (14)	Eq. (16)	Eq.(17)	Eq. (18)	Eq. (13)	Eq. (14)	Eq. (14)	Eq. (16)	Eq.(17)	Eq. (18)
Estimator:	OLS	OLS	OLS	OLS	OLS	OLS	GMM	GMM	GMM	GMM	GMM	GMM
C	0.791	-0.09	-4.576	1.889	0.479	-0.427	2.985	-1.083	-4.535	1.886	-0.916	-1.671
	(2.477)	(2.374)	(3.224)	(2.329)	(2.699)	(2.515)	(2.776)	(2.819)	(3.424)	(3.262)	(2.119)	(2.905)
	[0.319]	[-0.038]	[-1.42]	[0.811]	[0.178]	[-0.17]	[1.076]	[-0.384]	[-1.325]	[0.578]	[-0.432]	[-0.575]
EXP_SELIC(-6)	0.156*	0.2**	0.178**	0.155*	0.154*	0.173**	0.175**	0.207**	0.158**	0.127*	0.163**	0.167**
	(0.087)	(0.079)	(0.072)	(0.087)	(0.087)	(0.08)	(0.07)	(0.085)	(0.072)	(0.07)	(0.08)	(0.08)
	[1.786]	[2.546]	[2.489]	[1.774]	[1.779]	[2.175]	[2.489]	[2.438]	[2.213]	[1.822]	[2.048]	[2.092]
DESV_INF	0.251***	0.212***	0.247***	0.239***	0.241***	0.224***	0.235***	0.166***	0.222***	0.232***	0.214***	0.19***
	(0.044)	(0.046)	(0.046)	(0.043)	(0.044)	(0.046)	(0.039)	(0.047)	(0.045)	(0.034)	(0.041)	(0.039)
	[5.728]	[4.645]	[5.42]	[5.597]	[5.49]	[4.821]	[5.962]	[3.52]	[4.911]	[6.814]	[5.261]	[4.869]
EINF(-6)	0.116**	0.109**	0.096*	0.121**	0.114**	0.11**	0.138**	0.143**	0.112**	0.135**	0.072	0.101
	(0.05)	(0.053)	(0.052)	(0.052)	(0.051)	(0.052)	(0.06)	(0.066)	(0.053)	(0.053)	(0.076)	(0.073)
	[2.304]	[2.064]	[1.841]	[2.341]	[2.227]	[2.101]	[2.29]	[2.153]	[2.114]	[2.558]	[0.956]	[1.386]
EGAP(-6)	0.154**	0.136*	0.108	0.162**	0.15**	0.138*	0.285***	0.339***	0.196**	0.315***	0.214***	0.324***
	(0.078)	(0.073)	(0.065)	(0.076)	(0.075)	(0.071)	(0.086)	(0.112)	(0.083)	(0.068)	(0.068)	(0.085)
	[1.984]	[1.862]	[1.646]	[2.135]	[2.003]	[1.942]	[3.308]	[3.04]	[2.351]	[4.606]	[3.148]	[3.808]
GAP	3.78***	3.649***	3.572***	3.744***	3.835***	3.736***	4.833***	4.494***	5.537***	4.692***	5.23***	5.082***
	(0.729)	(0.745)	(0.73)	(0.711)	(0.756)	(0.742)	(0.667)	(0.847)	(0.546)	(0.771)	(0.699)	(0.707)
	[5.185]	[4.9]	[4.893]	[5.264]	[5.07]	[5.039]	[7.25]	[5.307]	[10.145]	[6.088]	[7.482]	[7.183]
EXP_EXCH(-2)	0.245*	4.184***	0.685***	3.826**	0.52	0.214	0.194*	5.35***	0.718**	4.005***	0.879**	0.234*
	(0.142)	(1.256)	(0.222)	(1.619)	(0.452)	(0.145)	(0.108)	(1.066)	(0.287)	(0.788)	(0.402)	(0.124)
	[1.726]	[3.33]	[3.091]	[2.364]	[1.15]	[1.478]	[1.79]	[5.02]	[2.505]	[5.079]	[2.187]	[1.886]
CRISIS	-5.582	-4.812	-0.52	-6.641	-5.18	-4.357	-14.229**	-7.452	-1.17	-9.096	-6.232	-3.98
	(5.028)	(4.778)	(5.348)	(4.854)	(5.206)	(4.828)	(6.917)	(6.112)	(5.373)	(7.544)	(4.534)	(6.851)
	[-1.11]	[-1.007]	[-0.097]	[-1.368]	[-0.995]	[-0.902]	[-2.057]	[-1.219]	[-0.218]	[-1.206]	[-1.374]	[-0.581]
EXP_EXCH(-2)*CREDCK(-2)		-4.25***						-5.528***				
		(1.389)						(1.188)				
		[-3.059]						[-4.655]				
EXP_EXCH(-2)*CREDM(-2)			-1.122***						-0.991*			
			(0.39)						(0.558)			
			[-2.875]						[-1.776]			
EXP_EXCH(-2)*CREDSM(-2)				-3.614**						-3.865***		
				(1.633)						(0.835)		
				[-2.213]						[-4.629]		
EXP_EXCH(-2)*CREDTRL(-2)					-0.36						-0.843*	
					(0.574)						(0.47)	
					[-0.627]						[-1.794]	
EXP_EXCH(-2)*PC_CREDM(-2)						-0.207**						-0.169***
						(0.091)						(0.058)
						[-2.26]						[-2.929]
R^2	0.60	0.63	0.65	0.61	0.60	0.63	0.53	0.58	0.58	0.59	0.58	0.58
Adj. R^2	0.58	0.61	0.63	0.59	0.58	0.61	0.51	0.55	0.56	0.56	0.55	0.55
Ramsey RESET (1)	0.98	0.30	0.91	0.51	0.35	0.42						
Prob. Ramsey RESET (1)	0.33	0.77	0.36	0.61	0.73	0.67						
ARCH(1) test	64.77	42.36	25.16	53.12	48.78	33.23						
Prob. ARCH(1) test	0.00	0.00	0.00	0.00	0.00	0.00						
LM(1) test	213.75	218.52	178.80	208.69	205.88	203.86						
Prob. LM(1) test	0.00	0.00	0.00	0.00	0.00	0.00						
Jaque-bera	9.18	11.10	4.85	13.24	10.70	10.93						
Prob. Jaque-bera	0.01	0.00	0.08	0.00	0.00	0.00						
F-statistic	31.23	30.97	34.36	29.02	27.60	30.92						
Prob. F-statistic	0.00	0.00	0.00	0.00	0.00	0.00						
Observations	156	156	156	156	156	156	150	150	152	150	148	149
RANK							24	17	25	26	27	25
J-statistic							11.36	12.14	15.23	13.10	13.34	14.28
p-value(J-stat)							0.79	0.14	0.51	0.73	0.77	0.58
D-W-H test							6.94	8.77	6.67	8.47	7.97	5.99
p-value(D-W-H)							0.44	0.36	0.57	0.39	0.44	0.65

Source: Table prepared by authors. Marginal significance levels: *** denotes 0.01, ** denotes statistical significance at the 0.05 and * denotes statistical significance at the 0.1; standard-error in parentheses and t-statistic in square-brackets. Due to the problems of autocorrelation and heteroscedasticity diagnosed above (see LM test and ARCH test), all OLS estimates present Newey-West (1987) robust standard errors. Moreover, due to autocorrelation and heteroscedasticity of unknown forms, all GMM estimates present Newey-West (1987) robust standard errors.

[5] The results can be obtained upon request.

Table 8 - OLS and GMM estimates: effect of credibility on expectations about fear of floating (first differences)

Dependent Variable: **SELIC**	Eq. (13)	Eq. (14)	Eq. (14)	Eq. (16)	Eq.(17)	Eq. (18)	Eq. (13)	Eq. (14)	Eq. (14)	Eq. (16)	Eq.(17)	Eq. (18)
Estimator:	OLS	OLS	OLS	OLS	OLS	OLS	GMM	GMM	GMM	GMM	GMM	GMM
C	1.381	1.496	1.262	1.494	1.377	1.528	-2.775	0.156	-2.794	-3.598	0.159	-0.75
	(2.649)	(2.731)	(2.655)	(2.7)	(2.679)	(2.707)	(3.26)	(2.148)	(3.621)	(2.614)	(2.855)	(2.773)
	[0.521]	[0.548]	[0.475]	[0.553]	[0.514]	[0.565]	[-0.851]	[0.073]	[-0.772]	[-1.377]	[0.056]	[-0.271]
EXP_SELIC(-6)	0.149	0.151	0.154*	0.152	0.149	[0.152	0.145*	0.141**	0.188***	0.173***	0.119*	0.169**
	(0.092)	(0.092)	(0.092)	(0.093)	(0.093)	(0.092)	(0.086)	(0.068)	(0.072)	(0.064)	(0.068)	(0.078)
	[1.616]	[1.638]	[1.687]	[1.645]	[1.611]	[1.647]	[1.691]	[2.083]	[2.614]	[2.707]	[1.755]	[2.154]
DESV_INF	0.23***	0.225***	0.227***	0.225***	0.23***	0.224***	0.234***	0.229***	0.22***	0.184***	0.222***	0.188***
	(0.052)	(0.056)	(0.051)	(0.055)	(0.052)	(0.055)	(0.054)	(0.047)	(0.047)	(0.051)	(0.043)	(0.054)
	[4.407]	[4.047]	[4.413]	[4.062]	[4.404]	[4.094]	[4.316]	[4.842]	[4.713]	[3.587]	[5.171]	[3.486]
EINF(-6)	0.19***	0.191***	0.186***	0.191***	0.19***	0.191***	0.23***	0.224***	0.193***	0.196***	0.245***	0.209***
	(0.037)	(0.037)	(0.037)	(0.038)	(0.037)	(0.037)	(0.046)	(0.027)	(0.043)	(0.038)	(0.04)	(0.04)
	[5.082]	[5.118]	[5.076]	[5.074]	[5.078]	[5.133]	[4.956]	[8.246]	[4.537]	[5.116]	[6.102]	[5.228]
EGAP(-6)	0.131	0.132	0.126	0.133*	0.131	0.131	0.192*	0.199**	0.138	0.206***	0.027	0.169**
	(0.079)	(0.08)	(0.081)	(0.08)	(0.081)	(0.08)	(0.099)	(0.079)	(0.086)	(0.058)	(0.098)	(0.076)
	[1.652]	[1.643]	[1.55]	[1.664]	[1.629]	[1.632]	[1.944]	[2.529]	[1.604]	[3.54]	[0.277]	[2.237]
GAP	3.739***	3.74***	3.759***	3.728***	3.738***	3.741***	5.343***	5.068***	5.487***	5.177***	5.656***	5.426***
	(0.746)	(0.746)	(0.746)	(0.744)	(0.762)	(0.746)	(0.886)	(0.624)	(0.804)	(0.774)	(0.698)	(0.781)
	[5.014]	[5.01]	[5.04]	[5.009]	[4.908]	[5.017]	[6.032]	[8.121]	[6.825]	[6.692]	[8.106]	[6.943]
ΔEXP_EXCH(-2)	0.797*	0.776*	0.788*	0.765*	0.796*	0.772*	1.294**	0.708**	1.114**	0.848**	1.145***	0.944**
	(0.437)	(0.45)	(0.438)	(0.436)	(0.433)	(0.451)	(0.497)	(0.35)	(0.444)	(0.428)	(0.422)	(0.422)
	[1.822]	[1.725]	[1.8]	[1.755]	[1.837]	[1.71]	[2.603]	[2.025]	[2.51]	[1.979]	[2.711]	[2.238]
CRISIS	-7.173	-7.253	-7.194	-7.259	-7.169	-7.286	-1.569	-7.821	-1.01	1.297	-9.796	-2.531
	(5.081)	(5.098)	(5.076)	(5.114)	(5.099)	(5.104)	(8.157)	(5.239)	(9.686)	(6.459)	(7.602)	(7.152)
	[-1.412]	[-1.423]	[-1.417]	[-1.42]	[-1.406]	[-1.428]	[-0.192]	[-1.493]	[-0.104]	[0.201]	[-1.289]	[-0.354]
ΔEXP_EXCH(-2)*ΔCREDCK(-2)		-1.814						-10.445*				
		(3.777)						(6.281)				
		[-0.48]						[-1.663]				
ΔEXP_EXCH(-2)*ΔCREDM(-2)			-3.036						-8.56*			
			(2.657)						(4.723)			
			[-1.143]						[-1.812]			
ΔEXP_EXCH(-2)*ΔCREDSM(-2)				-2.03						-8.836*		
				(3.013)						(5.17)		
				[-0.674]						[-1.709]		
ΔEXP_EXCH(-2)*ΔCREDTRL(-2)					0.037						-6.052*	
					(1.191)						(3.576)	
					[0.031]						[-1.693]	
ΔEXP_EXCH(-2)*ΔPC_CREDM(-2)						-0.066						-0.352*
						(0.099)						(0.205)
						[-0.669]						[-1.717]
R^2	0.58	0.58	0.59	0.58	0.58	0.58	0.56	0.58	0.54	0.56	0.55	0.57
Adj. R^2	0.56	0.56	0.57	0.56	0.56	0.56	0.54	0.56	0.52	0.53	0.52	0.54
Ramsey RESET (1)	1.29	1.36	1.01	1.46	1.29	1.40						
Prob. Ramsey RESET (1)	0.20	0.18	0.31	0.15	0.20	0.17						
ARCH(1) test	82.42	83.28	86.81	81.57	82.28	83.68						
Prob. ARCH(1) test	0.00	0.00	0.00	0.00	0.00	0.00						
LM(1) test	228.67	226.57	217.22	224.76	231.26	225.60						
Prob. LM(1) test	0.00	0.00	0.00	0.00	0.00	0.00						
Jaque-bera	6.94	6.79	7.78	6.87	6.95	6.81						
Prob. Jaque-bera	0.03	0.03	0.02	0.03	0.03	0.03						
F-statistic	29.69	25.84	26.29	25.85	25.81	25.87						
Prob. F-statistic	0.00	0.00	0.00	0.00	0.00	0.00						
Observations	156	156	156	156	156	156	152	152	153	150	153	152
RANK							24	37	28	40	29	28
J-statistic							15.53	17.77	15.46	20.79	15.62	14.25
p-value(J-stat)							0.49	0.93	0.69	0.92	0.74	0.77
D-W-H test							4.54	3.06	5.49	3.49	5.40	5.83
p-value(D-W-H)							0.72	0.93	0.70	0.90	0.71	0.67

Source: Table prepared by authors. Marginal significance levels: *** denotes 0.01, ** denotes statistical significance at the 0.05 and * denotes statistical significance at the 0.1; standard-error in parentheses and t-statistic in square-brackets. Due to the problems of autocorrelation and heteroscedasticity diagnosed above (see LM test and ARCH test), all OLS estimates present Newey-West (1987) robust standard errors. Moreover, due to autocorrelation and heteroscedasticity of unknown forms, all GMM estimates present Newey-West (1987) robust standard errors.

3. Conclusions

Based on the theoretical argument of Calvo and Reinhart (2002) that monetary policy credibility is important to reduce the fear of floating, we empirically analyzed this hypothesis for the Brazilian case. Since Brazil is an IT developing country, expectations play a key role. In this sense, we go further and suggest that monetary policy credibility is also important to affect the expectations of the experts of the financial market about the fear of floating of the Central Bank. Thus, besides Calvo and Reinhart's hypothesis, we also empirically analyzed whether monetary policy credibility affects the perception of the experts of the financial market about the fear of floating. The main contributions of the paper are twofold: First, to our knowledge, the paper is the first to empirically analyze Calvo and Reinhart's theoretical argument, and; second, the paper is the first to propose and to empirically analyze the effect of monetary policy credibility on the perception of the forecasters of the financial market about the fear of floating.

For this, we made use of different functional forms of the Taylor rule as well as different credibility indexes. Based on the estimates, we provide empirical evidence that monetary policy credibility is important to reduce the fear of the monetary authority in relation to exchange rate fluctuations, i.e., the findings corroborate Calvo and Reinhart's theoretical argument. Furthermore, the estimates also suggest that the improvement of monetary policy credibility is important to reduce the expectations formed by the forecasters of the financial market about the fear of floating of the CBB.

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