

3-1-2019

Going Unconventional in Foreign-Exchange Interventions

Marcelo M. Prates

Follow this and additional works at: <https://scholarlycommons.law.hofstra.edu/jibl>



Part of the [Law Commons](#)

Recommended Citation

Prates, Marcelo M. (2019) "Going Unconventional in Foreign-Exchange Interventions," *Journal of International Business and Law*. Vol. 18: Iss. 2, Article 6.

Available at: <https://scholarlycommons.law.hofstra.edu/jibl/vol18/iss2/6>

This Legal & Business Article is brought to you for free and open access by Scholarship @ Hofstra Law. It has been accepted for inclusion in Journal of International Business and Law by an authorized editor of Scholarship @ Hofstra Law. For more information, please contact lawscholarlycommons@hofstra.edu.

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

*Marcelo M. Prates**

I. ARE CENTRAL BANKS ALLOWED TO PLAY WITH DERIVATIVES?

Derivatives are well known for their instability.¹ For a long period, especially after the 2008 financial crisis, derivatives were viewed as “time bombs” and dangerous “financial weapons of mass destruction.”² Stability, however, lies at the core of central banking. Central banks around the world have a mandate to maintain monetary and, in some cases, financial stability.³ How then can a central bank use this unstable tool to achieve stability? The contradiction here is only apparent.

Derivatives are not necessarily a source of evil; they are instead a powerful risk-management tool.⁴ Derivatives help to make the future more predictable by matching counterparties with opposite exposures, thereby making both parties less exposed to volatility.⁵ On a large scale, the use of derivatives to hedge positions contributes to the overall stability by soothing expectations.⁶ Hedging, however, can turn into speculation, and the difference between the two trading activities may be difficult to notice at times.⁷ But the instrument itself is not the main culprit. Investors, even when not engaging in purely speculative trading, can use a variety of tools in the quest for higher returns, derivatives being just one such tool.⁸ When bets go wrong and a crisis arises, derivatives will bring bad news. Killing the messenger, though, is hardly ever the best solution.

Engaging in derivatives, moreover, may be the best way, if not the only way, to counteract derivatives themselves, speculative or not.⁹ The Brazilian experience in the early 2000’s is illustrative of this notion.¹⁰ In 2002, the Brazilian currency was suffering a

*LL.M. 2015 and S.J.D. 2018, Duke University School of Law. Lawyer at the Central Bank of Brazil. The views and opinions expressed here are mine and do not reflect the position or policy of any of the institutions with which I am affiliated. For comments, please contact marcelo.prates@bcb.gov.br.

¹ See Gunther Capelle-Blancard *Are Derivatives Dangerous? A Literature Survey*, 123 *ECONOMIE INTERNATIONALE* 67-89 (2010).

² The now-famous expressions were used by Warren Buffet in 2002. See *BERKSHIRE HATHAWAY INC., ANNUAL REP.* at 13, 15 (2002).

³ MILTON FRIEDMAN & CHARLES A. E. GOODHART, *INFLATION AND THE CONSTITUTIONAL POSITION OF THE CENTRAL BANK* 91-109 (2002).

⁴ For an illustration of how derivatives can be misrepresented, especially in media coverage, see generally P. Huang, Kimberly Krawiec & Frank Partnoy, *Derivatives on TV: A tale of two derivatives debacles in prime-time*. 4 *GREEN BAG* 257 (2001).

⁵ *Id.*

⁶ See generally PHILIP MCBRIDE JOHNSON & THOMAS LEE HAZEN, *DERIVATIVES REGULATION* (3d ed. 2004).

⁷ Kimberly D. Krawiec, *More Than Just “New Financial Bingo”: A Risk-Based Approach to Understanding Derivatives*, 23 *J. OF CORP. L.* 1 (1997).

⁸ See JOHNSON & HAZEN, *supra* note 6, at 117-29, 123-29; Krawiec, *supra* note 7, at 4-5.

⁹ See Gustavo H. B. Franco, *The Real Plan and The Exchange Rate*, 217 *ESSAYS IN INT’L FIN.* 55-58 (2000).

¹⁰ Márcio Garcia & Tony Volpon, *DNDFs: A More Efficient Way to Intervene in FX Markets*, 621 *PUC Rio Dep’t de Econ.* at 1-4 (2014).

continuous depreciation, although foreign direct investment remained high and no sign of significant capital outflows were present.¹¹ The situation indicated that the higher demand for United States (“U.S.”) dollars was coming from the domestic market, where participants had started to use derivatives more extensively to deal with exchange-rate variations.¹² Many participants were then buying U.S. dollars in the spot market to balance their exposure in the derivatives market. This situation accelerated the depreciation of the national currency.¹³ The interventions of the Central Bank of Brazil (“BCB”) in the spot market aggravated the vicious circle, as the BCB was selling U.S. dollars to curb the pace of the depreciation.¹⁴ It became necessary to find a way to appropriately treat both those in need of foreign currency and those searching for hedging.¹⁵

Instead of insisting on a policy of using foreign reserves to avoid excessive exchange-rate volatility, the BCB also started using derivatives to intervene in the foreign-exchange (“FX”) market—the BCB FX swap.¹⁶ At the first auction, on March 27, 2002, the BCB offered to buy 9,000 contracts of US\$50,000.00 each, with the initial date set for April 11, 2002, and the expiration date set to January 21, 2004.¹⁷ The first swap operation had a small global amount with a long maturity. Many years later, this additional tool for intervention in the FX market has increased in volume and significance.¹⁸ By the end of 2015, 2.1 million swap contracts were outstanding in the Brazilian derivatives market, with an aggregate notional amount of more than US\$108 billion—around 7% of Brazilian Gross Domestic Product (“GDP”).¹⁹ The longevity and size of the swap operations indicate their importance for the BCB, making the BCB FX swap a relevant topic of research and debate to this date.²⁰

The existing literature looks at the BCB FX swap through economic lenses,²¹ whereas this paper approaches the topic from a legal perspective. This paper asserts that the

¹¹ *Id.*

¹² See generally BANCO CENTRAL DO BRASIL, INFLATION REP.: CREDIT, MONETARY AND FISCAL POLICIES (2002), <http://www.bcb.gov.br/htms/relinf/ing/2002/03/ri200203c3i.pdf>.

¹³ *Id.*

¹⁴ This situation is observed in other emerging markets as well, as pointed out by Herman Kamil, *Is Central Bank Intervention Effective Under Inflation Targeting Regimes? The Case of Colombia* 29 (IMF Working Paper WP/08/88, Apr. 2008), <https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Is-Central-Bank-Intervention-Effective-Under-Inflation-Targeting-Regimes-The-Case-of-Colombia-21852>.

¹⁵ Garcia & Volpon, *supra* note 10, at 4-6.

¹⁶ The use of FX swaps by the BCB came also as a response to a limitation created by Lei Complementar nº 101, de 4 de maio de 2000, DIÁRIO OFICIAL DA UNIÃO [D.O.U.] de 5.5.2000 (Braz.), known as Law of Fiscal Responsibility. Under this Law, the BCB lost the legal authority to issue public bonds (Article 34). The BCB, therefore, could not issue NBCE (*Nota do Banco Central do Brasil Série Especial*) anymore. NBCE was a bond indexed to the exchange-rate variation that offered the market protection against sudden appreciation or depreciation of the national currency, helping the BCB to manage currency volatility.

¹⁷ *Id.* at 53-55.

¹⁸ *Id.*

¹⁹ BM&FBOVESPA (n.d.), *Reports. Derivatives. Open interest. Type of contract*, SCS:Dollar Swap (OC1) (Dec. 30, 2015).

²⁰ *Id.*

²¹ See, e.g., Afonso Bevilaqua & Rodrigo Azevedo, *Provision of FX Hedge by the Public Sector: the Brazilian Experience* (BIS Papers No. 24 at 119-126, 2005), <http://www.bis.org/publ/bppdf/bispap24i.pdf>; Marcos

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

BCB FX swap can be a valuable instrument of monetary and exchange-rate policies. The swap can be used together with more traditional tools—like open-market operations, FX interventions in the spot market, and even capital controls—to improve the effectiveness of central banks' actions. A central bank taking part in the derivatives market, however, can be troublesome at times. Several risks are at stake not only for the counterparties engaging in the operation, but also for the market as a whole. A governmental agency acting to implement public policies and holding a multibillion-dollar exposure in the derivatives market is never just another counterparty.

For countries in need of an additional tool to manage currency volatility, the risks may be worth taking.²² By 2000, most countries had moved to a flexible exchange-rate system,²³ acknowledging the inevitability of capital mobility across borders and focusing on attaining price stability through autonomous monetary policy.²⁴ With the “policy trilemma” apparently solved—an economic model posing that any country can only achieve two out of these three objectives: fixed exchange rate, monetary autonomy, and free movement of capital²⁵—these countries would let the national currency float and intervene in the FX market just to avoid excessive volatility. But the significant capital flows resulting from the unconventional measures adopted to stimulate growth after the 2008 financial crisis renewed the debate on the “trilemma” and on the need for further intervention in the FX market.²⁶ To preserve monetary-policy autonomy in times of extensive financial globalization, every instrument that can be used to soften the effects of global capital flows matters.²⁷

The paper begins with a schematic overview of Brazil's monetary and exchange-rate policies, as well as the corresponding legal structure. The paper next describes the swap developed by the BCB to compare it with swaps commonly used by market participants, teasing out characteristics specific to the BCB FX swap. From there, the paper discusses the

Chamon, Marcio Garcia & Laura Souza, *FX Interventions in Brazil: a Synthetic Control Approach* (PUC-Rio, Department of Economics, “Texto para discussão” No. 630, February 2015), <http://www.econ.puc-rio.br/uploads/adm/trabalhos/files/td630.pdf>; Randall Dodd & Stephany Griffith-Jones, *Brazil's Derivatives Markets: Hedging, Central Bank Intervention and Regulation* (unpublished, Dec. 19, 2007), <http://www.stephanygj.net/papers.html>; Garcia & Volpon, *supra* note 8; Emanuel Kohlscheen & Sandro C. Andrade, *Official Interventions through Derivatives: Affecting the Demand for Foreign Exchange* (Braz. Central Bank, Working Paper No. 317, July 2013), <http://www.bcb.gov.br/pec/wps/ingl/wps317.pdf>. See also, for a general perspective, Mario I. Blejer & Liliana Schumacher, *Central Banks Use of Derivatives and Other Contingent Liabilities: Analytical Issues and Policy Implications* (IMF Working Paper, WP/00/66 March 2000), <http://www.imf.org/external/pubs/ft/wp/2000/wp0066.pdf>.

²² See generally *Over-the Counter Derivatives: Modernizing Oversight to Increase Transparency and Reduce Risks: Hearing Before the Subcomm. On Securities, Insurance, and Investment, 11th Cong.* (2009), <https://www.govinfo.gov/content/pkg/CHRG-111shrg54589/pdf/CHRG-111shrg54598.pdf>.

²³ Nikkei, *IMF finds more countries adopting managed floating exchange rate system*, NIKKEI ASIAN REVIEW (Aug 19, 2014, 14:00), <https://asia.nikkei.com/Business/Markets/Forex/IMF-finds-more-countries-adopting-managed-floating-exchange-rate-system>. The notable exception is found in the countries that have adopted the euro, sacrificing, since 1999, monetary autonomy for a fixed exchange rate.

²⁴ See, e.g., Hélène Rey, *Dilemma not Trilemma: The Global Financial Monetary Policy Independence*, FEDERAL RESERVE BANK OF KANSAS CITY ECONOMIC POLICY SYMPOSIUM 285 (2013).

²⁵ See generally MAURICE OBSTFELD & ALAN TAYLOR, *GLOBAL CAPITAL MARKETS: INTEGRATION, CRISIS, AND GROWTH* (2004).

²⁶ See Rey, *supra* note 24.

²⁷ *Id.* at 285-326.

THE JOURNAL OF INTERNATIONAL BUSINESS & LAW

legal issues and risks that arise when a central bank uses this type of derivative. By way of conclusion, the paper considers how a swap similar to the BCB FX swap could prove valuable to countries as different as Switzerland, Argentina, Venezuela, and China.

II. THE ROLE OF THE CENTRAL BANK OF BRAZIL ON MONETARY AND EXCHANGE-RATE POLICIES

Law No. 4.595, enacted at the end of 1964, organizes and regulates the financial system in Brazil.²⁸ Although it originally passed as an “ordinary law,” Law No. 4.595 is considered a “supplementary law” since the Federal Constitution of 1988 was promulgated.²⁹ The change in status—from “ordinary” to “supplementary”—means that an absolute majority vote of both houses of the National Congress (Chamber of Deputies and Federal Senate) is required for a “supplementary law” to pass or modify.³⁰ An “ordinary law,” in contrast, is passed or modified by the vote of a simple majority of deputies and senators if an absolute majority of the members of each house is present in the sessions.³¹

Law No. 4.595 created not only the BCB, but also the National Monetary Council (“CMN”). The CMN is responsible for policymaking, notably for formulating the monetary, credit, exchange-rate, and regulatory policies based on general rules enacted by the legislative and executive branches and also on international standards.³² The BCB acts to implement and enforce these policies, while also supervising the nation’s banking and financial systems to ensure their safety and soundness and to tackle systemic risk.³³

In 1999, the legal framework for executing monetary and exchange-rate policies was overhauled.³⁴ In January, Brazil abandoned the currency peg to the U.S. dollar and started adopting a flexible exchange-rate system, even though the BCB can use FX interventions to manage excessive currency volatility.³⁵ In June of the same year, following the exit from the exchange-rate peg, Brazil adopted an inflation-targeting regime.³⁶ Under this regime, the BCB is authorized to set a short-term interest rate benchmark and to use monetary tools,

²⁸ Lei No. 4.595, de 31 de dezembro de 1964, DIÁRIO OFICIAL DA UNIÃO [D.O.U.] de 31.1.1965

²⁹ *Understanding the National Monetary Council*, BANCO CENTRAL DO BRASIL, https://www.bcb.gov.br/pre/cmn/entenda_o_cmn_en.asp (last visited Apr. 17, 2019).

³⁰ CONSTITUIÇÃO FEDERAL [C.F.] art. 69, https://www.constituteproject.org/constitution/Brazil_2014.pdf.

³¹ C.F. art. 47.

³² *Understanding the National Monetary Council*, BANCO CENTRAL DO BRASIL https://www.bcb.gov.br/pre/cmn/entenda_o_cmn_en.asp (last visited Apr. 17, 2019).

³³ C.F. art. 164 (Regarding the legal mandate of the BCB, Article 164 of the Federal Constitution is also relevant, because it sets the authority of the central bank to issue currency, make loans to financial institutions, and purchase and sell government securities to manage the money supply. The BCB, however, is not the direct supervisor of insurance companies and pension funds. Securities regulation and the related supervision also fall outside the responsibilities of the BCB. Regarding, however, the supervision of certain financial institutions that operate in the Brazilian securities market, the BCB shares some regulatory functions with the primary agency that supervises that market.)

³⁴ Armínio Fraga, *Monetary Policy During the Transition to a Floating Exchange Rate: Brazil’s Recent Experience*, INT’L MONETARY FUND, <https://www.imf.org/external/pubs/ft/fandd/2000/03/fraga.htm>.

³⁵ See BANCO CENTRAL DO BRASIL, *Comunicado No. 6.565* (Jan. 18, 1999).

³⁶ See DECRETO NO. 3.088, art. 1, Braz. (Jun. 21, 1999) (Establishing the system of “inflation target” as a guideline for the monetary policy regime and other measures).

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

mainly open-market operations, to pursue the benchmark.³⁷ Therefore, the primary goal of the BCB is to meet the inflation target that the CMN sets in advance.³⁸

Additionally, in the midst of the 2008 financial crisis, the BCB was authorized to provide liquidity assistance also in U.S. dollars through the discount window.³⁹ At that time, markets were frozen on a global scale, a situation that made it hard for participants in the financial markets to obtain funds in U.S. dollars.⁴⁰ As a lender of last resort, the BCB can offer short-term loans to financial institutions in need of liquidity, as long as the borrower presents enough collateral to secure the loan.⁴¹ If the financial institution grants a collateral denominated in U.S. dollars, the BCB has the authority to make the loan not in the Brazilian currency, but directly in U.S. dollars from the FX reserves.⁴²

III. THE BCB FX SWAP: KEY FEATURES

A. Legal Mandate

On March 26, 2002, the CMN edited Resolution No. 2.939, which provides the legal mandate for the BCB to operate with swaps in FX interventions.⁴³ It is a short Resolution consisting of only three articles.⁴⁴ The first provision, Article 1, authorizes the BCB “to perform, with the aim of conducting monetary and exchange-rate policies, swap operations based on interest rate and on the variation of the exchange rate.”⁴⁵ At least two relevant considerations arise from the specific language of Article 1.

First, the BCB is authorized to perform only swap operations based on two different underlying references, that is, interest rates and exchange rates.⁴⁶ Such restrictive language renders the BCB unable to use other types of derivatives, like *futures* or *options*, in FX interventions, or to use swaps based on different underlying references.⁴⁷ The restriction would not be as strong if the term “swap operations” could be interpreted in a broader sense, without a direct connection to the economic meaning of the expression.⁴⁸ This broad use appears, for instance, in the American regulation of derivatives, in which the term “swap” is

³⁷ *Id.*

³⁸ *Id.*

³⁹ Under Medida Provisória [Provisional Measure] No. 442, enacted by the President of Brazil on October 6, 2008, and later on turned into Law No. 11.882.

⁴⁰ See Ramon Moreno, *Central Bank Instruments to Deal with the Effects of the Crisis on Emerging Market Economies*, 54 BANK INT’L SETTLEMENT PAPERS 73, 73-74 (2011), <https://www.bis.org/publ/bppdf/bispap54d.pdf>.

⁴¹ See Medida Provisória No. 442, *supra* note 39.

⁴² *Id.*

⁴³ Resolução No. 2.939, BANCO CENTRAL DO BRASIL (Mar. 26, 2002), https://www.bcb.gov.br/pre/normativos/res/2002/pdf/res_2939_v1_O.pdf.

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ Resolução No. 2.939, BANCO CENTRAL DO BRASIL (Mar. 26, 2002), https://www.bcb.gov.br/pre/normativos/res/2002/pdf/res_2939_v1_O.pdf.

⁴⁸ *Id.*

used in a general way and encompasses different types of derivatives.⁴⁹ Even so, the limitation on the underlying references that the BCB can use to construct the derivative would still be unavoidable. Second, the BCB was authorized to use swaps not only to intervene in the FX market with the goal of conducting exchange-rate policy, but also to execute monetary policy.⁵⁰ Although the BCB has been using swap operations within the FX market, nothing prevents the BCB from using swap operations also to stabilize prices and control inflation.⁵¹

The sole paragraph of the referred Article 1, in turn, provides that the BCB should operate in the derivatives market and trade on organized exchanges like any other participant. In Brazil, the leading exchange is the BM&FBovespa S.A.—Bolsa de Valores, Mercadorias e Futuros, now B3,⁵² a private entity that runs the securities and derivatives markets⁵³ in a natural-monopoly situation.⁵⁴ So, in the swap operations, the BCB observes all the conditions and requirements established by the BM&FBovespa.⁵⁵ The BCB uses standardized contracts, posts initial margin (usually government securities), makes daily adjustments of position (variation margin), and even responds to margin calls if a daily adjustment reduces the margin deposited below the minimum required level.⁵⁶

In the related rule-making process, on March 26, 2002, the BCB issued Circular No. 3.099, which defines what the BCB FX swap operations are and stipulates how they work.⁵⁷ Article 1 of Circular No. 3.099 defines BCB FX swaps as operations to be settled at a future date involving the exchange of the differential (“spread”) that results from applying the effective interest rate and the exchange-rate variation against amounts to receive and to pay.⁵⁸ The definition might be considered somewhat convoluted, especially after being translated into English. But the definition merely describes a swap operation with its two legs: one of the counterparties is exposed to the risk of the Brazilian base interest rate, and the other is exposed to the exchange-rate risk related to the price of U.S. dollar (“USD” or “US\$”) in terms of Brazilian real (“BRL” or “R\$”).⁵⁹ A closer look at the standard contract of the BCB FX swap will help clarify the operation and its mechanics.

⁴⁹ See GARY E. KALBAUGH, *DERIVATIVES LAW AND REGULATION* 71-77 (2014).

⁵⁰ See *generally Derivatives markets in Brazil*, BIS QUARTERLY REVIEW (Dec. 11, 2016), https://www.bis.org/publ/qtrpdf/r_qt1612x.htm.

⁵¹ *Id.*

⁵² *CME Group Strategic Partnership with B3*, CME GROUP, <https://www.cmegroup.com/international/partnership-resources/bmfbovespa-resources.html> (last visited Feb. 8, 2019).

⁵³ See *Who we are: One of the World's Leading Financial Market Infrastructure Companies*, B3, http://www.b3.com.br/pt_br/b3/institucional/quem-somos/ (last visited Feb. 10, 2019).

⁵⁴ Dodd & Griffith-Jones, *supra* note 21.

⁵⁵ BM&FBOVESPA, *supra* note 19.

⁵⁶ BANK FOR INT'L SETTLEMENTS AND INT'L ORG. SEC. COMMISSIONS, *SECOND CONSULTATIVE DOCUMENT: MARGIN REQUIREMENTS FOR NON-CENTRALLY CLEARED DERIVATIVES* 10 (2013), <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD403.pdf>.

⁵⁷ Circular No. 3099, BANCO CENTRAL DO BRASIL (Mar. 2002), https://www.bcb.gov.br/pre/normativos/busca/downloadNormativo.asp?arquivo=/Lists/Normativos/Attachment/s/46940/Circ_3099_v1_O.pdf.

⁵⁸ *Id.*

⁵⁹ *Id.*

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

B. Mechanics

The standard contract the BCB currently uses in the swap operations is named “U.S. Dollar Swap with Reset Referencing One-Day Repurchase Agreements,” and the ticker for negotiations and quotations is SCS (“SCS contracts”). SCS contracts are sold or bought by the BCB at auctions in which only financial institutions are allowed to participate. After closing the transaction with the BCB, the financial institutions can offer the SCS contracts within the organized exchange, the BM&FBovespa, to their customers or to other financial institutions, creating a secondary market for the BCB FX swaps.⁶⁰

The original trade of the BCB FX swap is performed in a transparent and straightforward fashion. Usually, the BCB issues a Comunicado, an announcement informing the market that, on the next day, the BCB will promote an auction of SCS contracts.⁶¹ The Comunicado also reveals how many contracts will be offered, what their initial and expiration dates are, and which position the BCB will take in the contracts with respect to the interest rate—long (buying contracts) or short (selling contracts).⁶² The SCS contracts maturity can range from thirty days to several years, depending on the demand from the market and on the strategy the BCB is willing to pursue in a particular period.⁶³

At the opening of the auction, each financial institution presents up to five bids, which will be used to create the value of the initial coupon.⁶⁴ The financial institution also informs the BCB the number of contracts the institution is willing to negotiate.⁶⁵ The BCB, based on the offers presented, announces the minimum value for the bid that will be accepted.⁶⁶ In the end, all bids that offered a value equal to or higher than the minimum value set by the BCB are accepted. The minimum value, however, is applied to all winning offers, so that all contracts negotiated at a certain date have the same initial coupon.⁶⁷ From the initial date of the SCS contract until the day before its expiration date, the SCS contract can be freely traded on the secondary market, within the designated exchange.⁶⁸

⁶⁰ See BANCO CENTRAL DO BRASIL, INFLATION REP., *supra* note 12.

⁶¹ See generally Kohlscheen & Andrade, *supra* note 21.

⁶² See *Comunicado No. 27.558*, BANCO CENTRAL DO BRASIL (Mar. 30, 2015).

⁶³ See *U.S. Dollar Swap with Reset Referencing One-Day Repurchase Agreements: Specifications*, BRASIL BOLSA BALCÃO, http://www.b3.com.br/en_us/products-and-services/trading/interest-rates/u-s-dollar-swap-with-reset-referencing-one-day-repurchase-agreements.htm (last visited May 5, 2019).

⁶⁴ In Portuguese, the coupon of that transaction is known as “cupom cambial” [“exchange-rate coupon”], which is usually equivalent to the differential (“spread”) between the effective base interest rate in Brazil, known as *Selic*, and the exchange-rate variation (USD/BRL) in a given period. In a general perspective, the “cupom cambial” is the interest rate charged in operations that take place in Brazil, but involve assets denominated in U.S. dollars. The London Interbank Offered Rate (LIBOR) is a typical example of “cupom cambial” used in Brazil. About the “cupom cambial”, see generally Mark R. Stone, W. Christopher Walker, & Yosuke Yasui, *From Lombard Street to Avenida Paulista: Foreign Exchange Liquidity Easing in Brazil in Response to the Global Shock of 2008–09* 5 (IMF Working Paper WP/09/259, Nov. 2009), <https://www.imf.org/external/pubs/ft/wp/2009/wp09259.pdf>.

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ See BANCO CENTRAL DO BRASIL, INFLATION REP., *supra* note 12.

⁶⁸ See BM&FBovespa, *supra* note 19.

Some basic definitions used in the contract, as the referred “initial coupon,” should be highlighted to clarify the contract mechanics:

Initial Value (“IV”): *Final Value* of the contract discounted by the *Initial Coupon* (“IC”) negotiated between the counterparties during the SCS contracts auction;

Final Value (“FV”): the notional amount of the contract, US\$50,000.00;

Current Coupon Value (“CCV”): IV of the contract indexed to the *Current Coupon* (“CC”). And the *Current Coupon* is the result of the differential (“spread”) between the effective base interest rate (known as *Selic* in Brazil)⁶⁹ and the exchange-rate variation (Δexr) for each period beginning on the initial date of the transaction. The value of the exchange-rate variation is positive when the national currency depreciates, and negative when the national currency appreciates;

Final Coupon Value (“FCV”): *Initial Value* of the contract indexed to the effective base interest rate (*Selic*) for the period;

Purchase of a Contract: entering into a long position in interest rate (*Selic*)—and, into a short position in U.S. dollars. Here, the purchaser acquires the right to receive the CCV—the floating leg—and the obligation to pay the FV, which is the notional amount of the contract, US\$50,000.00—the fixed leg. The BCB purchases SCS contracts when it wants to offer liquidity to the foreign-exchange market, thus avoiding a sharp depreciation of the national currency. This operation is known as a “traditional swap”;⁷⁰

Sale of a Contract: entering into a short position in interest rate (*Selic*)—and, on the other hand, into a long position in U.S. dollars. Here the seller acquires the right to receive the FV, which is the notional amount of the contract, US\$50,000.00—the fixed leg, and the obligation to pay the CCV—the floating leg. The BCB sells SCS contracts when it wants to curb the sudden appreciation of the national currency. This operation is known as a “reverse swap”;⁷¹

⁶⁹ The effective *Selic* rate, based on the interest rate used in one-day repurchase agreements, is defined in the model SCS contract as the “adjusted average daily financing rate calculated by the Special System for Settlement and Custody (SELIC) for federal securities. Daily financing is considered for transactions with federal securities in custody with SELIC and in systems managed by clearing houses or clearing and settlement service providers covered by Law 10.214/2001.”

⁷⁰ As explained by Kohlscheen & Andrade, *supra* note 21, at 11, if “the Central Bank is offering to buy these derivative contracts the financial institution receives the equivalent of the exchange rate variation over the time of the contract plus a local onshore US\$ interest rate, *all paid in Brazilian Reals*. At the same time, the Central Bank receives the cumulative interbank interest rate. (. . .) The local market convention has been to label auctions as *traditional swaps* when the Central Bank is buying contracts to limit the depreciation of the Brazilian Real, and as *reverse swaps* when the Central Bank is selling contracts to limit appreciation of the currency.”

⁷¹ *Id.*

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

Settlement: all SCS contracts are settled in cash at their expiration date, and the settlement is based on the differential between the fixed leg and the floating leg and also on the position, long or short, each counterparty entered into with respect to the interest rate. Although the notional amount of the contract and the exposure of the counterparties are expressed in U.S. dollars, the net obligation of the contract will be converted into the national currency at the maturity date. As a consequence, the settlement currency will be Brazilian real.

Since 2013, the BCB has intervened in the FX market with the use of derivatives mostly when facing the depreciation of the national currency.⁷² Under this scenario, the BCB offers liquidity by purchasing SCS contracts (“traditional swap”) instead of selling U.S. dollars from the FX reserves in the spot market.⁷³ Because the BCB engages in swap operations to promote the stability of the national currency, the BCB purchases SCS contracts with the objective of offering a hedge to the market against sudden depreciations.⁷⁴ By offering this protection, the BCB tries to ease expectations, and, in turn, to avoid excessive demand for U.S. dollars in the spot market.⁷⁵ The first step toward this goal is to properly set the value of the *Initial Coupon*, or IC, during the auction of the SCS contracts.⁷⁶ The counterparties will negotiate the IC based on the value of the base interest rate in the national and foreign markets, on the price of U.S. dollar in the spot market, and on the counterparties’ purposes and projections.⁷⁷

Recall that the *Initial Value*, or IV, of an SCS contract is equivalent to US\$50,000.00 (the *Final Value*) discounted by the IC that is negotiated between the counterparties during the auction.⁷⁸ The definition of the IV is critical because it is the amount based on which the floating rate will be calculated.⁷⁹ In an ideal scenario of absolute stability, the IV would be indexed only to the base interest rate (*Selic*), and the product would be the final value of the *Current Coupon Value*.⁸⁰ If the interest rate were expected to be stable during this period, the optimal value of the IC, to achieve the BCB’s goal of stability, would be close to the current value of the interest rate (*Selic*).⁸¹ What would be discounted at

⁷² See João Pedro Scalco Macalos, *Foreign Exchange Swaps: a near substitute for international reserves in peripheral countries? The case of Brazil*, 1 (Oct. 14, 2017), https://www.boeckler.de/pdf/v_2017_11_10_macalos.pdf.

⁷³ See generally Chamon, Garcia & Souza, *supra* note 21.

⁷⁴ Bevilaqua & Azevedo, *supra* note 21, at 124.

⁷⁵ Chamon, Garcia & Souza, *supra* note 21, at 1-2.

⁷⁶ Márcio Garcia, *A macroeconomia do dólar futuro [The macroeconomics of the futures price of U.S. dollars]*. RESENHA BM&F, 4,7 (Jun. 1997), <http://www.economia.puc-rio.br/Mgarcia/Artigos/Macrometrical/MACROMT.RIC/macdol.pdf>.

⁷⁷ *Id.*

⁷⁸ See *infra* fig. 2.

⁷⁹ Chamon, Garcia & Souza, *supra* note 21, at 2.

⁸⁰ *Id.* at 4.

⁸¹ *Id.* at 6. Even in that case, the *Initial Coupon* would be close to the actual *Selic*, but never equal in value, for two main reasons. First, because they will be charged over different principal amounts, a bigger one in the case of the *Initial Coupon*, which is the *Final Value*. Second, because compound interest will interfere in the value of the *Initial Coupon* if the exchange-rate variation is not zero.

the beginning of the contract from the *Final Value* (the IC), would be added at the end of an SCS contract (the *Selic* interest rate). An illustration helps to elucidate the situation further:⁸²:

Table 1						
Initial scenario: <i>Selic</i> (effective rate) = 10% per annum (0.10); US\$1.00 = R\$2.00 Value of the <i>Initial Coupon</i> (IC) set at the auction = 9.09% per annum (0.0909) Transaction: BCB buys 1 contract with <i>Final Value</i> (FV) = US\$50,000.00 (notional amount) ⇒ BCB receives the <i>Current Coupon Value</i> (CCV) and pays the <i>Final Value</i> Final scenario (expiration date): <i>Selic</i> (effective rate) = 10% per annum (0.10); US\$1.00 = R\$2.00						
	Initial Value US\$	Selic	Δ exr	Floating leg US\$	Fixed leg US\$ 50,000.00	Net Amount Payable US\$ - each period (BCB receives positive amounts and pays negative ones)
Initial date t+0	45,455.00	0.10	–	–	–	–
Expiration date	–	0.10	0	50,000.50	50,000.00	0.50

Although the described ideal scenario, of absolute stability, may be useful to demonstrate the importance of setting an adequate value to the IC, this scenario will seldom occur, especially because of the inherent volatility of the exchange rate. Table 2, then, simulates the effect of a series of variations on the exchange rate, with a total depreciation of the national currency of 15.75% at the end of the period, although the interest rate remains stable.⁸³

⁸² All rates mentioned in the illustrations throughout the paper are noted on an annual basis to make comparisons easier.

⁸³ See *infra* tbl. 2.

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

Table 2

Initial scenario: *Selic* (effective rate) = 10% per annum (0.10); US\$1.00 = R\$2.00
 Value of the *Initial Coupon* (IC) set at the auction = 9.09% per annum (0.0909)
 Transaction: BCB buys 1 contract with *Final Value* (FV) = US\$50,000.00 (notional amount) \Rightarrow BCB receives the *Current Coupon Value* (CCV) and pays the *Final Value*
 Subsequent scenarios (variation in the exchange rate only):
 t+1: *Selic* (effective rate) = 10% per annum; US\$1.00 = R\$2.10
 t+2: *Selic* (effective rate) = 10% per annum; US\$1.00 = R\$2.205
 t+3 (expiration date): *Selic* (effective rate) = 10% per annum; US\$1.00 = R\$2.315

	Initial Value US\$	Selic	Δ exr	Floating leg US\$	Fixed leg US\$ 50,000.00	Net Amount Payable US\$ - each period (BCB receives positive amounts and pays negative ones)
Initial date t+0	45,455.00	0.10	–	–	–	–
t+1	–	0.10	0.05	47,727.75	50,000.00	-2,272.25
t+2	–	0.10	0.102 5	45,341.36	50,000.00	-2,386.39
t+3 (expiratio n date)	–	0.10	0.157 5	42,841.34	50,000.00	-2,500.02
Total settlement						-7,158.66

Up to this point, the proposed scenarios show that the SCS contracts the BCB uses to intervene in the FX market can be similar to a futures contract of U.S. dollars. The BCB is exposed to the exchange-rate variation (short in U.S. dollars), becoming a net payer when the national currency depreciates. The swap operation, however, is not the exact equivalent of a futures contract of U.S. dollars, a general idea disseminated in the market.⁸⁴ In a futures

⁸⁴ Kohlscheen & Andrade, *supra* note 21, at 11. This general idea might have been formed during the first swap operations, when the purchase of a swap contract was necessarily associated with the purchase of a Brazilian government security indexed to the base interest rate. See BANCO CENTRAL DO BRASIL, INFLATION REP., *supra* note 12 (For a detailed explanation of the combined operations used at the beginning of the swap operations).

contract of U.S. dollars, once the counterparties agree on a price to exchange U.S. dollars for Brazilian real at a future date, only the exchange-rate variation during the contract will affect each party's financial position. Variations of the base interest rate (*Selic*) in the period of the U.S. dollars futures contract will have no influence whatsoever on the gains or losses of the contracting parties. For the financial result of the SCS contracts, on the other hand, variations of the base interest rate will be of crucial importance, especially when the variations do not come in line with what the counterparties originally expected.⁸⁵

To illustrate the difference, Table 3 simulates the effect on an SCS contract of a series of variations in the exchange rate and also in the base interest rate.⁸⁶ Table 3 demonstrates that a sharp rise in the benchmark interest rate and, in consequence, in the effective interest rate could neutralize part of the depreciation of the national currency.⁸⁷ A rise in the interest rate could even turn the BCB into a net receiver if the exchange rate remained stable in any given period.

⁸⁵ MARCOS CARREIRA & RICHARD BROSTOWICZ, BRAZILIAN DERIVATIVES AND SECURITIES: PRICING AND RISK MANAGEMENT OF FX AND INTEREST-RATE PORTFOLIOS FOR LOCAL AND GLOBAL MARKETS 157, 159, 162 (2016).

⁸⁶ See *infra* tbl. 3.

⁸⁷ *Id.*

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

Table 3

Initial scenario: *Selic* (effective rate) = 10% per annum (0.10); US\$1.00 = R\$2.00

Value of the *Initial Coupon* (IC) set at the auction = 9.09% per annum (0.0909)

Transaction: BCB buys 1 contract with *Final Value* (FV) = US\$50,000.00 (notional amount) ⇒ BCB receives the *Current Coupon Value* (CCV) and pays the *Final Value*

Subsequent scenarios:

t+1: *Selic* (effective rate) = 11% per annum; US\$1.00 = R\$2.10

t+2: *Selic* (effective rate) = 13% per annum; US\$1.00 = R\$2.205

t+3: *Selic* (effective rate) = 15% per annum; US\$1.00 = R\$2.315

t+4 (expiration date): *Selic* (effective rate) = 16% per annum; US\$1.00 = R\$2.315

	Initial Value US\$	Selic	Δ exr	Floating leg US\$	Fixed leg US\$ 50,000.00	Net Amount Payable US\$ - each period (BCB receives positive amounts and pays negative ones)
Initial date t+0	45,455.00	0.10	-	-	-	-
t+1	-	0.11	0.05	48,182.30	50,000.00	-1,817.70
t+2	-	0.13	0.1025	46,705.01	50,000.00	-1,477.29
t+3	-	0.15	0.1575	45,114.09	50,000.00	-1,590.93
t+4 (expiratio n date)	-	0.16	0.1575	45,568.64	50,000.00	454.55
Total settlement						-4,431.36

Although the total exchange-rate variation in the examples of Table 3 is the same shown in Table 2, 15.75%, the BCB would pay less at the expiration date of the model contract this time.⁸⁸ Therefore, the variation of the base interest rate during the period of the SCS contract plays a major role in the BCB FX swap.

⁸⁸ See *supra* tbl. 3.

THE JOURNAL OF INTERNATIONAL BUSINESS & LAW

Finally, Table 4 builds on the situations described in Table 3, but, this time, an appreciation of the national currency is simulated, a circumstance that would require the BCB to use “reverse swaps.”⁸⁹ In this case, the BCB would sell SCS contracts, thus taking a short position in interest rate (*Selic*) and a long position in U.S. dollars. The BCB would then receive from the financial institutions the fixed leg (US\$50,000.00) and would pay them the floating leg (CCV).⁹⁰ Here, decreases in the benchmark interest rate can have the effect of neutralizing part of the appreciation of the national currency.

⁸⁹ See *infra* tbl. 4.

⁹⁰ *Id.*

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

Table 4

Initial scenario: *Selic* (effective rate) = 10% per annum (0.10); US\$1.00 = R\$2.00

Value of the *Initial Coupon* (ic) set at the auction = 9.09% per annum (0.0909)

Transaction: BCB sells 1 contract with *Final Value* (FV)= US\$50,000.00 (notional amount) ⇒ BCB receives the *Final Value* and pays the *Current Coupon Value* (CCV)

Subsequent scenarios:

t+1: *Selic* (effective rate) = 10% per annum; US\$1.00 = R\$1.90

t+2: *Selic* (effective rate) = 9% per annum; US\$1.00 = R\$1.80

t+3 (expiration date): *Selic* (effective rate) = 7% per annum; US\$1.00 = R\$1.80

	Initial Value US\$	Selic	Δ exr	Fixed leg US\$ 50,000.00	Floating leg US\$	Net Amount Payable US\$ - each period (BCB receives positive amounts and pays negative ones)
Initial date t+0	45,455.00	0.10	-	-	-	-
t+1	-	0.10	-0.05	50,000.00	52,273.25	-2,273.25
t+2	-	0.09	-0.10	50,000.00	54,091.45	-1,818.20
t+3 (expiration date)	-	0.07	-0.10	50,000.00	53,182.35	-1,364.15
Total settlement						-5,455.60

These examples depict extreme situations to show, in theory, all the possibilities and costs of the BCB FX swap operations.⁹¹ In practice, the counterparties have several opportunities to adjust their risk exposure in SCS contracts. The first opportunity appears

⁹¹ See *supra* tbl. 1-4.

when the counterparties negotiate the IC, taking into consideration their preferences and expectations. After that, risk exposure can be adjusted daily in the secondary market, where the counterparties can negotiate SCS contracts based on the most recent information and forecasts. Finally, risk exposure can also be mitigated when old contracts are rolled over. As another auction occurs with the rollover operation, the counterparties have a new possibility for negotiating the IC and for adjusting exposures based on changes in the economic scenario.

C. Statistics

To finish this part dedicated to presenting the BCB FX swap, two sets of data are displayed.⁹² The data offer a first glimpse into the size and significance of the swap operations and also into the risks and costs involved.⁹³ Figure 1 shows a comparison between the volume of the Brazilian FX reserves and the total volume of the BCB FX swaps in the years that ended with the BCB holding a long position in interest rate and a short position in U.S. dollars (“traditional swap”).⁹⁴ In these years, the BCB was offering liquidity to the foreign-exchange market and, thus, performing an FX intervention that would be close to selling U.S. dollars from the FX reserves in the spot market.⁹⁵

⁹² BANCO CENTRAL DO BRASIL, MGMT. REP. (Jul. 4, 2013), <https://www.bcb.gov.br/?RED-MGMTREPORT> (English Version) and <http://www.bcb.gov.br/?RELADM> (Portuguese Version). (Data collected from the English version, from 2008 to 2012, and from the Portuguese version for the other years. All data used to create Figures 1 and 2 are relative to December of each year. The value of the FX reserves takes into account only cash assets. The aggregate notional amount of the BCB FX swaps states the net position of all contracts held at the end of each year [“traditional” v. “reverse” swaps]. From 2005 to 2007, the BCB ended the years holding a short position in interest rate [“reverse swap”], since the national currency was appreciating. In 2009 and 2010, the aggregate notional amount of the BCB FX swaps was null, as the program was interrupted after the 2008 financial crisis, and in 2011 and 2012, that amount was equal to or smaller than US\$2 billion, whereas the FX reserves were greater than US\$350 billion.)

⁹³ *Id.*

⁹⁴ See *infra* fig. 1.

⁹⁵ BANCO CENTRAL DO BRASIL, MGMT. REP., *supra* note 92.

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

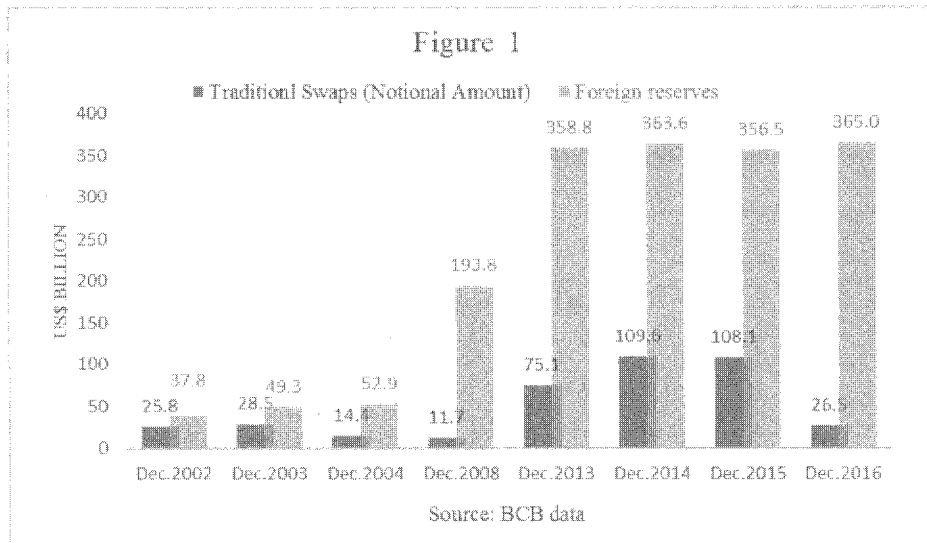


Figure 1 demonstrates that the BCB has never operated leveraged in its swap transactions, as the notional amount of the “traditional swaps” has always been smaller than the volume of U.S. dollars held in the FX reserves.⁹⁶ Although the settlement currency of the BCB FX swap is Brazilian real, the volume of FX reserves is still relevant because this volume reassures the market that the BCB would be able to adjust even in the most extreme situation: even if all the counterparties of the “traditional” BCB FX swap were to close their positions in the derivatives market and transition back to the spot market to buy U.S. dollars.⁹⁷

This situation is not expected to occur in practice, since it requires all the counterparties to have the same need for currency at the same time. Nonetheless, the theoretical exercise demonstrates the interaction between the notional exposure and the availability of the underlying asset is of critical importance to the BCB FX swap.⁹⁸ With the swap operations, the BCB deals with expectations about the exchange-rate volatility. For successful interventions in the FX market, confidence in the BCB’s ability to offer market participants the needed or required protection is crucial.⁹⁹

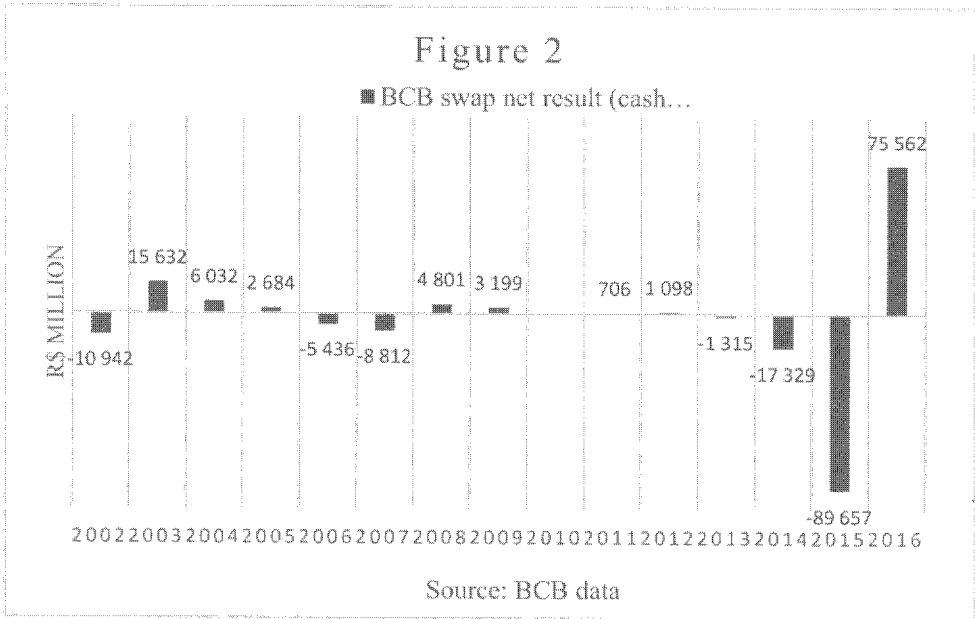
⁹⁶ See *supra* fig. 1.

⁹⁷ See Garcia & Volpon, *supra* note 10, at 10-11.

⁹⁸ Illustrating the importance of the interaction between the notional exposure and the availability of the underlying asset in the BCB FX swap, see Jonathan Wheatley, *Brazil: Net Debtor to the World*, BEYONDBRICS FT BLOG (Jan. 15, 2014), <http://blogs.ft.com/beyond-brics/2014/01/15/brazil-net-debtor-to-the-world/> (stating that some analysts argue that the aggregate notional amount of the BCB FX swaps should be netted out from the total value of the FX reserves).

⁹⁹ See Garcia & Volpon, *supra* note 10, at 15-19.

Figure 2 displays a view of the annual net results of the BCB FX swaps, which is a useful indicator of the direct costs associated with the operation.¹⁰⁰ Since the BCB participates in swap operations to offer the market protection, soothe expectations, and prevent excessive volatility of the national currency, profit is not a primary goal.¹⁰¹ But the costs of swap operations can impose limitations if these costs cannot be properly managed or if they outweigh the benefits generated.¹⁰²



¹⁰⁰ BANCO CENTRAL DO BRASIL, MGMT. REP., *supra* note 92, at 101. (There is no result for 2010 because the use of BCB FX swaps was interrupted during 2009 and 2010, right after the 2008 financial crisis. The data also show that, although BCB FX swap operations resumed in 2011, it was not until mid-2013 that the program reached significant levels again, after the “tapering talk” started in the U.S. Moreover, the accumulated result each year is reported on a “cash basis,” i.e., based on the value actually paid by the BCB as a result of the net settlements of the BCB FX swaps in a given year).

¹⁰¹ See generally JOHNSON & HAZEN, *supra* note 6 (In fact, having gains or losses is not the main objective in any derivative used for hedging. The main point in hedging is predictability, is establishing in advance what the needs of the counterparties are and which risks each of the counterparties is willing to counteract. The structure of the plain vanilla interest rate swap, the most basic derivative, provides a clear illustration of that situation).

¹⁰² For a critical view on the costs and effectiveness of the BCB FX swap, see generally Chamon, Garcia & Souza, *supra* note 21. See also Cristiane Lucchesi, Ye Xie & Josue Leonel, *Brazil’s \$101 Billion Derivatives Gambit Hangs Over Vote*, BLOOMBERG BUS. (Oct 24, 2014), <http://www.bloomberg.com/news/2014-10-24/brazil-101-billion-swaps-position-looms-before-election.html>.

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

The annual net results reveal that losses with BCB FX swap operations have been relatively balanced against the positive results. Even in 2015, when the Brazilian currency declined more than 47% (in nominal terms)—leading to the hugest negative annual result since the BCB started using swaps in FX interventions, of approximately US\$23 billion or 1.5% of Brazilian GDP—the losses were somewhat softened by the gains in 2016.¹⁰³ Losses in the swap operations, however, can have a significant fiscal cost.¹⁰⁴ These losses contribute to inflating the government's budget deficit since, for accounting purposes, the losses are treated as part of Brazil's gross public debt (interest payments).¹⁰⁵

On the other hand, losses with BCB FX swaps, which are always denominated in the national currency, can be eased by the appreciation of the FX reserves.¹⁰⁶ The budgetary offset is possible because reserves are held in U.S. dollars, but are denominated in Brazilian real in the BCB's balance sheet.¹⁰⁷ While the BCB can lose in the swap operations when the national currency is depreciating, as happened in 2014 and 2015, the FX reserves will increase in value since the reserves have to be converted to the national currency.¹⁰⁸ The appreciation of the FX reserves can, thus, alleviate losses with the BCB FX swaps and also reduce the opportunity cost of holding FX reserves.¹⁰⁹

Gains with FX reserves, however, do not have a direct fiscal effect.¹¹⁰ Yet, the final result will still be positive for the BCB's balance sheet. First, because the volume of FX reserves is more than three times bigger than the volume of the aggregate notional amount of BCB FX swaps.¹¹¹ And second, because a loss greater than the total notional amount of BCB FX swaps is unlikely—although possible.¹¹² All in all, if the BCB FX swap contributes to cutting demand for U.S. dollars in the spot market and, in the end, to avoiding a decrease in FX reserves, the swap can still be useful despite its relative costs.¹¹³

¹⁰³ See *supra* fig. 2.

¹⁰⁴ *Id.*

¹⁰⁵ For a critique of the BCB FX swaps and their fiscal repercussions, see Edmar Bacha, *A Ponte do PMDB e os Swaps do Banco Central [The PMDB Bridge and the BCB FX swaps]*, O Estado de S. Paulo (Braz.), Jan. 3, 2016, at B08.

¹⁰⁶ Under Lei No. 11.803, de 5 de Novembro de 2008, art. 6 D.O.U. de 6.11.2008 (Braz.).

¹⁰⁷ *Id.* Technically, the costs incurred because of the use of BCB FX swaps, and any other cost related to the exchange-rate variation for that matter, will not stay in the BCB's balance sheet. These costs will be instead transferred to the Treasury through an operation known as “equalização cambial” (exchange-rate equalization).

¹⁰⁸ See *supra* fig. 2.

¹⁰⁹ About the opportunity cost of holding FX reserves, see, e.g., Dani Rodrik, *The Social Cost of Foreign Exchange Reserves*, 20 INT'L ECON. J. no. 3, at 253 (2006).

¹¹⁰ See Bacha, *supra* note 105.

¹¹¹ See *supra* fig. 1.

¹¹² See *infra* Part III, C.

¹¹³ Now that the features of the BCB FX swap are clearer, it is possible to note that this type of swap used by the Central Bank of Brazil is different from the “swap lines” arranged between the U.S. Federal Reserve (Fed)—through the Federal Reserve Bank of New York “acting at the direction of the Federal Open Market Committee”—and certain foreign central banks to exchange U.S. dollars for the foreign currency. The main purpose of the “swap lines” nowadays is to allow the Fed to provide foreign central banks with liquidity of U.S. dollars so that they can meet the internal demand for the currency, especially in times of crisis. For a critique of the swap lines, see Colleen M. Baker, *The Federal Reserve's Use of International Swap Lines*, 55 ARIZ. L. REV. 603 (2013).

IV. FINDING THE PLACE OF BCB FX SWAPS IN THE WORLD OF DERIVATIVES

Organizing derivatives in categories and contrasting them are challenging missions because flexibility is one of the core characteristics of derivatives.¹¹⁴ Derivatives can be created, modified, or adjusted in different forms and to different ends. It is possible, however, to identify certain features that all or most of derivatives have in common, and, in consequence, to select some essential aspects to be considered when drawing comparisons. A derivative can be defined¹¹⁵ as an instrument whose value is derived from the value or variation of one or more underlying references, like an asset, index or even a situation, as the “number of twins to be born in Nebraska in 2020.”¹¹⁶

Derivatives are formalized in a contract and can be divided into four major categories¹¹⁷: *forward contract*, which is “an agreement between two parties to buy or sell an asset at a specified future time, referred to as the delivery date, for a specified price;”¹¹⁸ *futures contract*, a standardized forward contract publicly traded on exchanges;¹¹⁹ *option*, which is “a contract that gives the owner the right to buy or sell an asset at a specified price (termed the exercise or strike price) on or before a specified future date;”¹²⁰ and *swap*, “a contract between two parties, referred to as counterparties, to exchange a series of cash flows over time. (...) Swap payments are calculated on the basis of hypothetical quantities of the underlying asset referred to as ‘notionals.’”¹²¹ The key feature usually associated with derivatives is risk. For one thing, derivatives are used to manage risk as they allow market participants to increase, limit or offset their level of exposure to risk and volatility depending on the need for protection or inclination to pursue higher yields.¹²² But derivatives are also a source of risk themselves, mainly because of leverage.¹²³ When engaging in a derivatives operation, a contracting party seldom has to make any initial payment when trading in the over-the-counter (“OTC”) markets.¹²⁴ Even when trading on an organized exchange, a counterparty usually has to pay only a small amount upfront (the initial margin or an option)

¹¹⁴ ALAN N. RECHTSCHAFFEN, CAPITAL MARKETS, DERIVATIVES AND THE LAW: EVOLUTION AFTER CRISIS 153-54 (2014).

¹¹⁵ For other definitions of derivatives, see KALBAUGH, *supra* note 49, at 2; Krawiec, *supra* note 7, at 6-9; RECHTSCHAFFEN, *supra* note 114, at 148.

¹¹⁶ BERKSHIRE HATHAWAY INC. (2002), *supra* note 2, at 13.

¹¹⁷ See Krawiec, *supra* note 7, at 9 (opting for a more straightforward organization, claiming that every derivative is “based on one of two relatively simple models: the forward or the option,” with “forward-based derivatives” encompassing forward contracts, futures contracts, and swap transactions); KALBAUGH, *supra* note 49 at 2-9; RECHTSCHAFFEN, *supra* note 114, at 155-63.

¹¹⁸ See Roberta Romano, *A Thumbnail Sketch of Derivative Securities and Their Regulation*, 55 MD. L. REV. 1, 7 (1996).

¹¹⁹ *Id.* at 10.

¹²⁰ *Id.* at 40.

¹²¹ *Id.* at 46.

¹²² See U.S. GEN. ACCOUNTING OFF., GAO/GGD-94-133, FINANCIAL DERIVATIVES: ACTIONS NEEDED TO PROTECT THE FINANCIAL SYSTEM 25-26 (1994); RECHTSCHAFFEN, *supra* note 114, at 148

¹²³ RECHTSCHAFFEN, *supra* note 114, at 153-54.

¹²⁴ Although a counterparty in the OTC market can require collateral to engage in a derivative operation, a requirement that will represent the initial cost to the counterparty offering the collateral.

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

relative to the notional value of the operation.¹²⁵ This seemingly simple and inexpensive way to establish a position in the derivatives market can, however, turn into a considerable loss. The turn of events occurs when the variation of the value of the underlying reference is too large, too abrupt, or different from the variation the market participant initially expected.¹²⁶

Finally, the main distinction among derivatives takes into account whether they are traded and settled on an exchange.¹²⁷ Exchange-traded derivatives are standardized contracts “available for trading on a centralized exchange [and] for settlement with a clearing house associated with the exchange.”¹²⁸ Off-exchange derivatives, also labeled OTC derivatives, are bilaterally negotiated, traded, and settled.¹²⁹ OTC derivatives can, though, display some degree of standardization when the contracting parties opt for using the model documentation prepared and provided by the International Swaps and Derivatives Association (“ISDA”).¹³⁰

A. Differences of the BCB FX Swap

1. BCB FX Swap as a Policy Tool

The primary aim of the BCB in using FX swaps is to prevent instability in the foreign-exchange market.¹³¹ By purchasing or selling SCS contracts, the BCB offers a hedge to market participants against sudden currency volatility,¹³² trying to soothe expectations and to reduce the pressure in the FX spot market.¹³³ Here, a distinctive characteristic of the BCB FX swap appears. By engaging in this derivative transaction, the BCB is not shifting risk to its counterparties, the financial institutions that transact directly with the BCB and, eventually, the financial and corporate markets.¹³⁴ Instead, the BCB is taking risk out of these markets and concentrating the risk in itself, so that the markets can operate more smoothly without fear of abrupt exchange-rate variations.¹³⁵ As a consequence, the BCB also manages the volatility of the national currency and protects currency stability, in a typical operation of exchange-rate policy. In the end, the increased stability of the national currency can also contribute to the stability of internal prices, with positive outcomes for monetary policy.¹³⁶

¹²⁵ *Id.*

¹²⁶ U.S. GEN. ACCOUNTING OFF., *supra* note 122, at 62.

¹²⁷ KALBAUGH, *supra* note 49, at 9-10; Krawiec, *supra* note 7, at 7-8; RECHTSCHAFFEN, *supra* note 114, at 151-52.

¹²⁸ KALBAUGH, *supra* note 49, at 9-10.

¹²⁹ *Id.*

¹³⁰ *Id.* at 299-315.

¹³¹ Kohlscheen & Andrade, *supra* note 21, at 205.

¹³² Bevilaqua & Azevedo, *supra* note 21, at 124.

¹³³ See BANCO CENTRAL DO BRASIL, INFLATION REP., *supra* note 12.

¹³⁴ See *Id.*

¹³⁵ See BANCO CENTRAL DO BRASIL, INFLATION REP., *supra* note 12.

¹³⁶ About the interaction between monetary and exchange-rate policies, see generally Sebastian Edwards, *The Relationship between Exchange Rates and Inflation Targeting Revisited* (Nat'l Bureau of Econ. Research, Working Paper No. 12163, 2006), <http://www.nber.org/papers/w12163>; André Minella et al., *Inflation Targeting in Brazil: Constructing Credibility under Exchange Rate Volatility* (Braz. Central Bank, Working Paper No. 77, July 2003), <https://www.bcb.gov.br/pec/wps/ingl/wps77.pdf>; and M S Mohanty and Philip

Although the BCB FX swap involves a great deal of risk management, especially for the counterparties contracting with the BCB, the swap operations are essentially a tool for implementing exchange-rate and monetary policies, goals not typically associated with derivatives. Another unique feature of the BCB FX swap is the presence of a governmental agency as the leading counterparty in the derivatives operation. The BCB can hardly be seen as just another counterparty in the world of exchange-traded derivatives.

2. BCB as the Insider

When compared to other swap counterparties, the BCB has at least one ability that no other counterparty has: the ability to influence, even if indirectly, the value of both underlying references involved in the swap contract.¹³⁷ Under Brazil's inflation-targeting regime, the BCB is authorized to set a short-term interest rate benchmark and to use monetary tools to achieve this benchmark.¹³⁸ In this way, the BCB's decisions on monetary policy directly influence the effective base interest rate.¹³⁹ In other words, the BCB can legitimately act to raise or decrease the effective base interest rate.¹⁴⁰ An identical situation occurs with the exchange rate. To implement the exchange-rate policy, the BCB, in addition to using swap contracts, can also buy or sell U.S. dollars in the spot market, thereby directly affecting the variation of the exchange rate.¹⁴¹

One of the counterparties, the BCB, can therefore, move the price of both references that are used to determine the net obligation of the BCB FX swap, while the other counterparty has no equivalent power.¹⁴² Is there a conflict of interest in the BCB FX swap? This is likely not the case, as both the swap operations and the BCB's actions that could affect the references used in the swaps are aspects of the same reality: the execution of monetary and exchange-rate policies. Open-market operations, FX interventions in the spot market, and BCB FX swap operations are just different tools used in different circumstances and at different moments, but with a similar objective.¹⁴³ Since these tools are interrelated, they continuously influence and reinforce each other.

The BCB could even be forced to "bet against itself" in the derivatives market by having to set a lower benchmark for the base interest rate even when facing a depreciation of the national currency. If the BCB set a lower benchmark interest rate to avert a situation of

Turner, *Intervention: what are the domestic consequences?* (BIS Papers No. 24 at 56-81, 2005), <http://www.bis.org/publ/bppdf/bispap24e.pdf>.

¹³⁷ Kohlscheen & Andrade, *supra* note 21, 9-12.

¹³⁸ *Id.*

¹³⁹ See Jose R. Alfonso, Eliane C. Araujo & Bernardo G. Fajardo, *The role of fiscal and monetary policies in the Brazilian economy: understanding recent institutional reforms and economic changes*, 62 THE QUARTERLY REVIEW OF ECONOMICS AND FINANCE 49 (2016), https://ac.els-cdn.com/S1062976916300527/1-s2.0-S1062976916300527-main.pdf?_tid=aa714b6d-5565-4371-a7a9-8ff338a5344d&acdnat=1549646059_b78423eb5bffa5f12a9e7a19497bd703.

¹⁴⁰ *Id.*

¹⁴¹ Kohlscheen & Andrade, *supra* note 21, 202-16.

¹⁴² See Milan Nedeljkovic & Christian Saborowski, *The Relative Effectiveness of Spot Derivatives Based Intervention: The Case of Brazil* 6-8 (IMF, Working Paper No. 17/11, 2016).

¹⁴³ Kohlscheen & Andrade, *supra* note 21.

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

economic downturn, for instance, the position of the BCB in the “traditional swaps” would be worsened. This hypothetical scenario is unlikely since the depreciation of the national currency is often linked to rising inflation, a circumstance that would require the central bank to raise the benchmark interest rate, not decrease it.¹⁴⁴ But this illustration demonstrates how interrelated the BCB FX swap is with other monetary and exchange-rate tools.

The initial counterparties of the BCB FX swap are, moreover, sophisticated financial institutions, which have the capacity and the means to analyze the available information and fend for themselves. These financial institutions are, in fact, the first risk takers, engaging in the swap operation with the BCB largely to offset their exposure to the exchange-rate variation.¹⁴⁵ And financial institutions have this kind of exposure because they are the ones who directly meet the market demand for hedging against the variation of the national currency.¹⁴⁶ Despite being a privileged counterparty, the BCB acts not to improve its position or to obtain financial gains, but to implement public policies and also meet the demand of the private counterparties.¹⁴⁷

3. BCB as the Elephant in the Room

The BCB is also an unusual counterparty when it comes to its relationship with the exchange and the related clearinghouse where the BCB FX swap is traded, cleared, and settled. Participants in an organized exchange have to comply not only with the applicable legal framework, but also with the rules and prudential standards enacted by the exchange and the related clearinghouse.¹⁴⁸ These rules and standards exist to reduce risk since the trades that occur on an exchange are cleared through a clearinghouse that acts as the central counterparty to all the market participants. As the central clearinghouse guarantees the transactions even if one of the counterparties defaults in its obligations, counterparty risk is mitigated.¹⁴⁹

The rules and prudential standards are enforced by the exchange and also by the affiliated clearinghouse, which acts as a gatekeeper to the benefit of the entire clearing and trading system.¹⁵⁰ Although exchanges originally developed those rules and standards in a self-regulatory effort, national regulators have been creating sets of minimum regulatory responsibilities that exchanges and clearinghouses must observe.¹⁵¹ The U.S. Commodity Futures Trading Commission, for example, has issued a set of core principles that exchanges and clearinghouses must observe to obtain or maintain the status of a registered trading facility or a clearing organization.¹⁵²

¹⁴⁴ *Id.*

¹⁴⁵ Kolscheen & Andrade, *supra* note 21.

¹⁴⁶ BANCO CENTRAL DO BRASIL, INFLATION REP., *supra* note 12.

¹⁴⁷ *Id.*

¹⁴⁸ JOHNSON & HAZEN, *supra* note 6, at 495, 530-36.

¹⁴⁹ *Id.* at 189-91, 490-94. See also RECHTSCHAFFEN, *supra* note 114, at 155-63, 151-52.

¹⁵⁰ JOHNSON & HAZEN, *supra* note 6, at 174-78, 189-95, 536-42.

¹⁵¹ *Id.* at 530-36.

¹⁵² See 77 FR § 36611 (2012) (Core Principles And Other Requirements For Designated Contract Markets) and 76 FR § 69334 (2012) (Derivatives Clearing Organization General Provisions and Core Principles).

The question here is how effectively an organized exchange can require compliance with its rules when one of the participants is a central bank. Some sets of rules create challenging situations for the exchange dealing with a central bank. First, the rules related to position limitations, or rules that allow the exchange to limit the trade volume of a market participant for each contract to prevent excessive or abusive trading.¹⁵³ As the BCB held 100% of the open interest in all the more than two million FX swap contracts outstanding at the end of 2015,¹⁵⁴ the exchange could have decided to limit the position of the BCB on this contract owing to excessive trading. But such a limitation could have been seen as an undue interference of the exchange in the implementation of public policies.

It is also problematic the requirement that the exchange continuously presents adequate capitalization to have enough financial resources to perform its functions and cover the operating costs.¹⁵⁵ Because of the size of the BCB FX swaps, and the risk concentration inherent in the operation, the exchange could be considered unprepared to face billion-dollar losses that an unlikely, yet still possible, default of the BCB could motivate.¹⁵⁶ Here, two qualifications are required: one, the aggregate notional amount of the BCB FX swaps will rarely materialize into a net amount of the same value since the operation is structured to be cash settled based on the differential between the fixed and the floating leg.¹⁵⁷ Furthermore, the biggest negative annual result occurred in 2015—a total loss of approximately US\$23 billion at the time.¹⁵⁸ This loss was equivalent to 21.3% of the aggregate notional amount outstanding at the end of that year,¹⁵⁹ a relative amount that may be a better indicator of the ultimate risk associated with the BCB FX swap.

Finally, regarding the enforcement powers of the exchange, it would be challenging for the exchange, a private entity, to sanction¹⁶⁰ the central bank, a governmental agency, on the grounds of a rule violation. The situation would be even more complicated if the conflict were not settled, and an independent court had to solve the disagreement. In this case, difficult questions about jurisdiction and governing law would arise, especially because the participation of a governmental agency in arbitration proceedings—the usual method of solving disputes with the exchange—is debated.¹⁶¹

¹⁵³ JOHNSON & HAZEN, *supra* note 6, 417-20.

¹⁵⁴ BM&FBOVESPA, *supra* note 19.

¹⁵⁵ Bergljot B. Barkbu & Li Lian Ong, *FX Swaps: Implications for Financial and Economic Stability* 13-14 (International Monetary Fund, Working Paper No. 10/55, 2010).

¹⁵⁶ *See infra* Part III, C.

¹⁵⁷ *See supra* Part II, B (The notional amount of the contract would only turn into a net amount of the same value in the extreme circumstance that the exchange-rate variation were greater than 100% in the period and big enough to wipe off the value of the effective base interest rate).

¹⁵⁸ Maryse Farhi, *Foreign Exchange Derivatives and Financial Fragility in Brazil*, in *THE BRAZILIAN ECONOMY SINCE THE GREAT FINANCIAL CRISIS OF 2007/2008* 330 (Philip Arestis et al. eds., 2017).

¹⁵⁹ Press Release, Fiscal Policy Data Released – January 2016, BANCO CENTRAL DO BRASIL (Feb. 26, 2016).

¹⁶⁰ JOHNSON & HAZEN, *supra* note 6, 548-54 (About the sanctioning powers of organized exchanges).

¹⁶¹ *See* Kirby Behre, *Arbitration: A Permissible or Desirable Method for Resolving Disputes Involving Federal Acquisition and Assistance Contracts?*, 16 PUB. CONT. L. J. 66 (1986); Robert Braucher, *Arbitration Under Government Contracts*, 17 LAW & CONTEMP. PROBS. 473 (1952).

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

These illustrations show how difficult it can be for the exchange to enforce risk-control measures when one of the counterparties is a central bank. The BCB is not just another counterparty in the BM&Fbovespa, since the BCB is also executing public policies under the authority of the Constitution and the related legal framework. Unless clear exemptions are established in the internal rules and the appropriate statutes, the exchange could be left in a difficult position. The exchange would have to deal with one counterparty that is not in compliance with the applicable rules, but, at the same time, that cannot be effectively required to do so or, otherwise, to take responsibility for the potential violations.

B. The BCB FX Swap is Not a Futures Contract in Disguise

The “traditional swap,” in which the BCB purchases contracts, is quite often described as a sale of U.S. dollars in the futures market by the BCB.¹⁶² In fact, some swap contracts can be taken as a series of futures, particularly, commodities futures.¹⁶³ Swap contracts could also be viewed as an “equivalent to a portfolio of forward contracts.”¹⁶⁴ This perception is particularly strong when considering the “plain vanilla” interest rate swap, or even a basic FX swap involving the actual exchange of the notional principal amounts (the two currencies) at the beginning and end of the transaction.¹⁶⁵

But comparing the “traditional swap” to a futures contract in which the BCB sells U.S. dollars in the future at a pre-agreed price is misleading. The comparison fails to appreciate the relevance of the interest rate variation during the term of the BCB FX swap contract, as this variation can mitigate or even neutralize a depreciation of the national currency. If searching for an equivalent is relevant, the BCB FX swap would be closer to the selling of a Brazilian government security denominated in U.S. dollars. The net payments of the BCB FX swap are influenced not only by the exchange-rate variation—which determines the outcome of a typical cash-settled FX futures or swap¹⁶⁶—but also by the value of the correspondent interest rates.¹⁶⁷

The BCB FX swap represents, therefore, a contract between two parties (the BCB and the private counterparties) to exchange a series of cash flows over time based on the variation of underlying references (the “notionals”), which are represented by the fixed and the floating legs.¹⁶⁸ But which type of swap is it? The BCB FX swap is similar to a cross-currency swap, also referred to as cross-currency basis swap, or cross-currency interest rate

¹⁶² Kohlscheen & Andrade, *supra* note 21.

¹⁶³ KALBAUGH, *supra* note 49, at 6.

¹⁶⁴ Romano, *supra* note 118, at 49.

¹⁶⁵ Romano, *supra* note 118, at 46-68. As Romano observes, even if a “taxonomy of generic derivatives could include swaps as a species of forward contract,” it would still be helpful “to distinguish swap contracts for two reasons. First, swaps are not truly a redundant instrument” since they have lower transaction costs and higher liquidity than forward contracts. “Second, the swap market has been a principal focus of current regulatory concern.” *Id.* at 49.

¹⁶⁶ KALBAUGH, *supra* note 49, at 13; *see also* RECHTSCHAFFEN, *supra* note 114, at 170-71.

¹⁶⁷ *See* BANCO CENTRAL DO BRASIL, INFLATION REP., *supra* note 12, at 53-55. *See also* Bevilacqua & Azevedo, *supra* note 21, at 124; Kohlscheen & Andrade, *supra* note 21, at 10.

¹⁶⁸ Romano *supra* note 118, at 46.

THE JOURNAL OF INTERNATIONAL BUSINESS & LAW

swap, which “operates like an interest rate swap between two currencies”¹⁶⁹ and has the following mechanics:

At the onset of the swap, one party (“Party A”) provides a principal amount of a currency (“X”) in exchange for a principal amount of another currency (“Y”) from the other party (“Party B”). These amounts could be the actual amounts or notional equivalents depending on what the parties have agreed. On a periodic basis, Party A pays Party B interest on Y in exchange for the receipt of interest on X from Party B. The interest could be fixed, based on a floating reference, or one leg could be fixed and the other floating. At maturity, the parties return to each other (physically or notionally, as agreed) the principal exchanged at the onset of the swap.¹⁷⁰

The BCB FX swap is organized somewhat differently, but the final result is similar to the result of a cross-currency swap.¹⁷¹ First, the counterparties are notionally exchanging a principal amount of one currency, U.S. dollars, for a principal amount of another currency, Brazilian real. Although no initial exchange of principal occurs, the BCB FX swap is denominated in U.S. dollars, but the daily adjustment of positions and the final settlement are made with the use of the national currency, Brazilian real. This arrangement creates an outcome that is similar to the result obtained by exchanging different currencies.

Second, two different interest rates, one fixed and one floating, are also exchanged in the BCB FX swap. The fixed rate is the *Initial Coupon*, which the counterparties negotiate during the auction of the SCS contracts and is used only once, to discount the principal amount in U.S. dollars (US\$50,000.00) and to form the *Initial Value* of the SCS contract. The floating rate is the *Current Coupon*, which is calculated for each period beginning on the initial date of the transaction. The *Current Coupon* is used to index the *Initial Value* and to set the value of the daily adjustment of positions, also influencing the final settlement of the net obligation.¹⁷²

C. The BCB FX Swap is Not a Risk-Free Derivative

The BCB FX swap also raises distinctive questions regarding the risks it generates. At first glance, the BCB FX swap seems to be a risk-free derivative. Not only is the swap traded on a registered exchange for settlement within a clearinghouse, but all swap payments are made using the national currency. And a central bank is not expected to default on financial obligations denominated in the national currency since the central bank could always issue more money—in fact, more reserves into the banks’ reserve accounts.¹⁷³ Inflationary pressure could, though, be a side effect and, eventually, a limitation.¹⁷⁴ A

¹⁶⁹ KALBAUGH, *supra* note 49, at 14.

¹⁷⁰ *Id.*

¹⁷¹ See *supra* Part II, B.

¹⁷² *Id.*

¹⁷³ See Franco, *supra* note 9, at 58.

¹⁷⁴ See, e.g., Robert E. Hall & Ricardo Reis, *Maintaining Central-Bank Financial Stability under New-Style Central Banking* (2015), <http://personal.lse.ac.uk/reisr/papers/99-HallReissolvency.pdf>; Peter Stella, *Do*

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

comprehensive analysis of distinct categories of financial risks will, however, demonstrate that the first impression is not one that should last.

Credit risk is greatly eliminated in exchange-traded derivatives because the clearinghouse associated with the exchange acts as the central counterparty to all market participants, guaranteeing each contract against a counterparty's default.¹⁷⁵ Moreover, the "clearinghouse itself is less likely to default than any individual trading partner, (...) because of exchange-imposed margin and mark-to-market requirements, as well as the loss-sharing provisions an exchange requires of its members."¹⁷⁶ In the case of BCB FX swaps, BM&FBovespa, the organized exchange, requires all private counterparties and also the BCB to post initial and variation margins, so that the positions and exposures can be adjusted daily to reduce risk. Finally, the creditworthiness of the counterparties involved in the transaction contributes to the perceived lower level of credit risk associated with the BCB FX swap.

*Market risk*¹⁷⁷ is an essential component of the BCB FX swap. In fact, the primary goal of the BCB FX swap is to offer protection against one of the most common macroeconomic factors that can affect the value of all other assets, i.e., exchange-rate variations. Private counterparties can use the BCB FX swap to manage market risk associated with exchange-rate variations, while the BCB is voluntarily taking this risk, balanced by the interest-rate risk (another macroeconomic factor), to pursue monetary and exchange-rate policies.¹⁷⁸ As the counterparties are sophisticated, they can control risk exposure based on their predictions and expectations, although unforeseen events can increase volatility in certain periods and create risks different from those initially anticipated.¹⁷⁹ The unwanted excessive exposure, however, can be adjusted, or mitigated when new swap contracts are negotiated, when swap contracts are traded in the secondary market, or when old swap contracts are rolled over.¹⁸⁰ Private counterparties can also rely on other financial instruments, like government securities indexed to the base interest rate, to balance their exposure to the risks inherent in the BCB FX swap.

*Liquidity risk*¹⁸¹ tends to be low in the BCB FX swap. First, because the BCB FX swap is exchange-traded and based on a standardized contract, the SCS contract, features that make it easier for the counterparties to negotiate swap contracts in the secondary market. Second, because the settlement currency of the BCB FX swap is Brazilian real, and the BCB has the power to issue the national currency.¹⁸² Third, because the BCB FX swap is primarily a tool for the execution of public policies. The BCB could, therefore, use other tools to enhance the liquidity of BCB FX swaps, or the BCB could even adjust the terms of existing operations to avoid detrimental situations in times of crisis. As one of the roles of any central

Central Banks Need Capital?, (International Monetary Fund, Working Paper No. 97/83, 1997), <https://www.imf.org/external/pubs/ft/wp/wp9783.pdf>.

¹⁷⁵ Krawiec, *supra* note 7, at 32-33; RECHTSCHAFFEN, *supra* note 114, at 151-52.

¹⁷⁶ RECHTSCHAFFEN, *supra* note 114, at 152.

¹⁷⁷ Krawiec, *supra* note 7, at 17-20; RECHTSCHAFFEN, *supra* note 114, at 154-55.

¹⁷⁸ Dodd & Griffith-Jones, *supra* note 21.

¹⁷⁹ See GAO FINANCIAL DERIVATIVES, *supra* note 122, at 62.

¹⁸⁰ *Id.*

¹⁸¹ Krawiec, *supra* note 7, at 1-63; RECHTSCHAFFEN, *supra* note 114, at 356.

¹⁸² C.F. art. 164.

bank is to act as a lender of last resort,¹⁸³ the BCB FX swap should remain liquid even under extreme circumstances.

*Operational risk*¹⁸⁴ should not be a major concern in the BCB FX swap either. As the counterparties involved in the operation are sophisticated, and all trades are made on an organized exchange, it would be surprising if one of the counterparties attributed losses to inadequate understanding or management of the transaction—or to any other failure related to internal controls. Nonetheless, operational failure can emerge even in institutions that have a reputation for efficient internal controls, largely owing to single “rogue traders” who go unchecked for a time.¹⁸⁵

*Legal risk*¹⁸⁶ should be insignificant since the BCB has an explicit and clear legal mandate to engage in swap transactions to implement monetary and exchange-rate policies. The legal mandate was, however, questioned, and a case was brought before the Tribunal de Contas da União (“TCU”), which is the Brazilian equivalent of the U.S. Government Accountability Office (“GAO”). During the procedure, which started at the beginning of 2003 and ended in mid-2007, the TCU investigated allegations of lack of proper legal authority for the BCB to use swaps and to operate like any other counterparty on the designated exchange; of failure in the execution of the exchange-rate policy because of the significant losses the BCB FX swaps caused; and of a potential violation of legal requirements related to fiscal responsibility.¹⁸⁷ In the end, the TCU, at a plenary session held on June 27, 2007, rejected all the allegations and closed the investigation.¹⁸⁸ The procedure serves, however, as a reminder that the capacity of a public-sector entity to enter into a derivative contract remains a critical and quite often disputed issue.¹⁸⁹

*Political risk*¹⁹⁰ is also at stake since the leading counterparty of the BCB FX swap is a governmental agency. Political risk, here, means the risk that a change in the political and institutional situation of the country leads the central bank to change its attitude towards the swap operations and to breach past agreements. Political risk would be harmful because it could unfold risks that are otherwise insignificant to the BCB FX swap. Political risk could eventually create *sovereign risk*,¹⁹¹ the risk that the BCB would be unwilling or unable to meet swap obligations. It follows that in the unlikely event that the BCB defaulted in the exchange-traded swap operations, the clearinghouse associated with the exchange would have to guarantee the performance of all the BCB FX swaps outstanding. The clearinghouse would

¹⁸³ See FREDERIC S. MISHKIN & STANLEY G. EAKINS, FINANCIAL MARKETS AND INSTITUTIONS 180-84 (6th ed. 2009).

¹⁸⁴ Krawiec, *supra* note 7, at 39; RECHTSCHAFFEN, *supra* note 114, at 353-61.

¹⁸⁵ Krawiec, *supra* note 7, at 39-45.

¹⁸⁶ Krawiec, *supra* note 7, at 35-39; RECHTSCHAFFEN, *supra* note 114, at 255-356; Romano, *supra* note 118, at 52-54.

¹⁸⁷ See TRIBUNAL DE CONTAS DA UNIÃO, Processo No. TC-012.015/2003-0 (Representação), Acórdão No. 1278/2007 (Decisão do Plenário), Relator: Ministro Marcos Vinícios Rodrigues Vilaça, 27.6.2007 (Braz.) (on file with author).

¹⁸⁸ *Id.*

¹⁸⁹ Romano, *supra* note 118, at 52-54.

¹⁹⁰ See Claire A. Hill, *How Investors React To Political Risk*, 8 DUKE J. COMP. & INT’L L. 283 (1998); and Stephen J. Koblin, *Political Risk: A Review and Reconsideration*, 10 J. INT’L BUS. STUD. 67 (1979).

¹⁹¹ *Id.*

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

be able to use the margin collected from the BCB before the default to absorb part of the losses. But given the size of the BCB FX swap operations, the clearinghouse would still be left with a considerable financial obligation.

*Systemic risk*¹⁹² could, therefore, be the final step of this inconceivable turn of events. As the BM&FBovespa operates in a natural-monopoly situation,¹⁹³ and clearinghouses can be sources of systemic risk themselves because of risk concentration,¹⁹⁴ the financial and capital markets could be affected in the end. This hypothetical scenario is certainly extreme and remote. However, the scenario illustrates the importance of a proper risk assessment when designing and implementing a derivative instrument for central banks to use.

V. THE OUTLOOK FOR CENTRAL-BANK SWAPS IN FX INTERVENTIONS

The BCB FX swap is a derivative developed by an unusual counterparty, the BCB, to serve a unique purpose, the execution of public policies. This swap carries some distinctive questions about legitimacy as well as risk. The BCB FX swap falls, thus, into a seldom explored category of the derivatives world: the category of central-bank derivatives. As Franco notes, central-bank interventions using derivatives should not come as a surprise. At least since the 1990s, “[c]urrency forwards and swaps are widely used worldwide as instruments of foreign-exchange intervention and monetary policy. Futures and options are less frequently seen but are also used.”¹⁹⁵ The difference in the case of Brazil is that the BCB developed its own instrument in 2002, the BCB FX swap, to use in its policy interventions. The BCB FX swap serves to demonstrate that central banks may have good reasons to add derivatives to their toolkit, particularly if central banks want to improve the effectiveness of FX interventions. Taking this unconventional step brings challenges, but all things considered, the Brazilian experience with FX swaps is noteworthy.

The analysis here provides a platform for identifying other situations and countries that could benefit from employing this unusual type of swap.¹⁹⁶ Three recent cases can be picked to illustrate this exercise: (1) Switzerland and some Nordic countries dealing with a persistent appreciation of their national currencies after the Euro-Area crisis started in 2011; (2) South American countries struggling with weakening currencies while holding a low level

¹⁹² See Krawiec, *supra* note 7, 47-51

¹⁹³ See generally Dodd & Griffith-Jones, *supra* note 21.

¹⁹⁴ RECHTSCHAFFEN, *supra* note 114, at 239-40. As the author properly expresses, “the counterparty risk otherwise borne by counterparties is concentrated in the clearinghouse, such that the clearinghouse becomes a ‘singular point of failure.’ (footnote omitted) In this conception, the clearinghouse is a source of systemic risk—the failure of a clearinghouse would lead to losses for all members that were exposed to the clearinghouse, as opposed to the failure of a counterparty, which will only directly affect its counterparties (though of course the failure of one counterparty can indirectly affect many other market participants).” *Id.* at 239.

¹⁹⁵ Franco, *supra* note 9, at 56.

¹⁹⁶ Garcia & Volpon, *supra* note 10, at 19 (arguing, in contrast, that the Brazilian experience would hardly be useful to other countries. The authors associate the effectiveness of the BCB FX swap with the “specific features of the Brazilian financial markets and its legislation,” raising the question “whether other emerging market countries with different characteristics would profit from adopting a similar approach”).

of FX reserves; and (3) China trying to control the depreciation of the renminbi in 2015 and 2016.

First, the case of Switzerland is emblematic, although other countries, like Denmark and Sweden, have faced a similar challenge.¹⁹⁷ Since 2011, the Swiss National Bank (“SNB”) was trying to control the strengthening of the Swiss franc. Owing to the dismal economic performance of the Euro-Area, and in anticipation of the European quantitative easing policy, more investors had flocked to the Swiss franc, which is considered a “safe haven.” To avoid the appreciation of the franc, the SNB had tried pegging the franc to the euro, but the costs to keep the exchange-rate peg have taken their toll.¹⁹⁸ In January 2015, the SNB, in a surprising decision, abandoned its policy of capping the Swiss franc to the euro.¹⁹⁹ The costs, however, of letting the Swiss franc suddenly float without restrictions were also considerable.²⁰⁰

Under this scenario, and knowing that the SNB might have used derivatives in FX interventions before,²⁰¹ could the SNB have used FX swaps to help curb excessive volatility of the Swiss currency? The SNB could have used “reverse swaps” to ease the appreciation of the Swiss franc. SNB counterparties engaging in a “reverse swap” would have had a strong incentive against the appreciation of the Swiss franc. The counterparties would have gained if the currency had stayed stable and even greater gains if the currency had depreciated, as long as the Swiss effective base interest rate had remained neutral or slightly positive. Ultimately, SNB counterparties would have held a Swiss franc-denominated credit, finding there a cherished yet synthetic “safe haven.”

Would the synthetic “safe haven” have been enough to discourage market participants from buying currency in the spot market? Because most of the participants were looking for safety, they could have seen the underlying asset as more valuable than the protection offered by the corresponding derivative, ignoring the swaps altogether. This perception would have posed additional difficulties to the SNB. On the other hand, if most of the market participants decided to follow the SNB’s move to engage in the derivatives transaction, another problem could have arisen. Since the Swiss franc is a convertible currency,²⁰² the aggregate notional amount of the swaps could have become so large that it

¹⁹⁷ See Mark Gilbert, *Currency Wars Have a Nuclear Option*, BLOOMBERGVIEW (Feb. 12, 2015), <https://www.bloomberg.com/opinion/articles/2015-02-12/currency-wars-have-a-nuclear-option>.

¹⁹⁸ *Id.*

¹⁹⁹ See Tommy Stubbington, *Swiss Franc Rockets After SNB Scraps Currency Cap*, WALL ST. J. (Jan. 15, 2015, 12:03 PM), <http://www.wsj.com/articles/swiss-national-bank-scraps-minimum-exchange-rate-1421315392>.

²⁰⁰ See David Jolly & Neil Irwinjan, *Swiss Franc Soars After Central Bank Drops Cap*, N.Y. TIMES (Jan. 15, 2015), <http://www.nytimes.com/2015/01/16/business/swiss-national-bank-euro-franc-exchange-rate.html>.

²⁰¹ See Eric Burroughs, *Swiss Central Bank May Be Intervening via FX Options*, REUTERS (Sep. 8, 2011), <http://uk.reuters.com/article/2011/09/08/uk-swiss-snb-intervention-idUKTRE78723920110908>.

²⁰² For a definition and critique of convertible currencies, see generally RONALD I. MCKINNON, *MONEY IN INTERNATIONAL EXCHANGE: THE CONVERTIBLE CURRENCY SYSTEM* (1979). The International Monetary Fund (IMF) uses a different term, “freely usable currency”, which is defined in Article XXX (f) of its Articles of Agreement: “A freely usable currency means a member’s currency that the Fund determines (i) is, in fact, widely used to make payments for international transactions, and (ii) is widely traded in the principal exchange markets.” See *Articles of Agreement of the International Monetary Fund*, IMF, <https://www.imf.org/external/pubs/ft/aa/#art30>.

GOING UNCONVENTIONAL IN FOREIGN-EXCHANGE INTERVENTIONS

would have rendered the swap operations unmanageable, because of the excessive risk exposure for the SNB.

Second, the complex interaction between a derivative instrument and its underlying references also appears when contemplating the usefulness of central-bank FX swaps for countries like Argentina²⁰³ or Venezuela.²⁰⁴ In the mid-2010s, these countries were dealing with the instability of their national currencies while holding a low level of FX reserves. The “traditional swap” would be the suitable tool since the usual problem would be the persistent depreciation of the national currency. Because the net payments of central-bank FX swaps would be made with the use of the national currency, the aggregate notional amount of the swaps would not have to be limited by the volume of the existing FX reserves. Assuming that a liquid market for the swaps existed,²⁰⁵ leverage would play a positive role in widening the scope of the intervention in the FX market. Leverage would also allow these countries to extend monetary and exchange-rate policies beyond the limitations the size of FX reserves typically impose.²⁰⁶

The volume of FX reserves held by a country, however, would still be relevant since using FX swaps involves a great deal of controlling expectations. And expectations could only be controlled if market participants were confident that the central bank had the means to execute its policies and to respond swiftly to changing demands of the market.²⁰⁷ If, moreover, the depreciation of the national currency were caused by a lack of confidence of market participants in the political and macroeconomic situation of those countries, central-bank FX swaps would have a limited effect. These swaps are not designed to directly solve balance of payment issues, like massive capital outflows, but to offer an alternative for market participants in need of hedging.²⁰⁸ For countries dealing with a low level of FX reserves, though, every initiative with the potential to prevent the depletion of reserves would still be invaluable.

Finally, even for China, the country with the largest FX reserves in the world, the central-bank FX swap could have offered some help. Since 2015, the renminbi was suffering from a sharp depreciation pressure because of a combination of slower economic growth, declining exports, growing public and private debt, and massive capital outflows. In early 2016, the Chinese currency hit a five-year low, despite all the efforts of the People’s Bank of

²⁰³ At the beginning of 2016, before the massive bond issuance in April, Argentina held less than \$23 billion in foreign reserves. See *Argentina: International Reserves/Foreign Currency Liquidity*, IMF, <https://www.imf.org/external/np/sta/ir/IRProcessWeb/data/arg/eng/curarg.htm> (last visited Apr. 26, 2016).

²⁰⁴ See Corina Pons, *Venezuela Central Bank in Talks with Deutsche Bank on Gold Swap*, REUTERS (Feb. 5, 2016), <http://www.reuters.com/article/us-venezuela-economy-exclusive-idUSKCN0VE1AT> (reporting that “around 64 percent of Venezuela’s \$15.4 billion in foreign reserves were held in gold bars”).

²⁰⁵ About the importance of a liquid derivatives market for interventions in the FX market through central-bank swaps, see Garcia & Volpon, *supra* note 10, at 4-8.

²⁰⁶ On the leveraged effect of foreign-exchange derivatives on the spot market, and the possibilities they open for central-bank intervention, see Franco, *supra* note 9, at 57-58.

²⁰⁷ Garcia & Volpon, *supra* note 10, at 15-18.

²⁰⁸ BANCO CENTRAL DO BRASIL, *INFLATION REP.*, *supra* note 12.

China (“PBOC”) to manage the sudden depreciation.²⁰⁹ The PBOC was selling as much as \$100 billion monthly from the FX reserves without being able to curb the volatility of the national currency.²¹⁰ Since mid-2014, the Chinese FX reserves may have dropped by almost \$1 trillion.²¹¹

Although Chinese reserves remained above \$3 trillion in 2016,²¹² the volume and pace of the decline could reinforce bets against the currency, creating a vicious circle that would aggravate monetary and financial instability.²¹³ The situation was so dire that even the International Monetary Fund abandoned its decades-long position against capital controls and started acknowledging that some control would be needed for emerging economies to limit money flows and manage currency volatility.²¹⁴ A model based on the “traditional swap” would, then, have offered the PBOC one more option to avoid the fast depletion of the FX reserves. Central-bank FX swaps could have been used to soften the pressure on the national currency in the spot market, particularly if speculation—and not necessarily the will to send money abroad—had motivated some of the foreign-currency purchases in the spot market.

These final thoughts and the related conundrums illustrate how the subject of central-bank derivatives still offers plenty of room for exploration and debate. After all, derivatives may also be financial weapons of maximal stability, useful tools that central banks should keep close at hand.

²⁰⁹ See Ye Xie, Lyubov Pronina, & Andrea Wong, *Yuan Seen Needing Bigger Depreciation for China to Reap Benefits*, BLOOMBERG (Jan. 8, 2016), <http://www.bloomberg.com/news/articles/2016-01-08/yuan-seen-needing-bigger-depreciation-for-china-to-reap-benefits>.

²¹⁰ *Id.*

²¹¹ See Wei Gu & Chuin-Wei Yap, *China, Fighting Money Exodus, Squeezes Business*, WALL ST. J. (Mar. 8, 2016), <http://www.wsj.com/articles/china-fighting-money-exodus-squeezes-business-1457475908>.

²¹² *Id.*

²¹³ See Barry Eichengreen, *China's Exchange-Rate Trap*, PROJECT SYNDICATE (Feb. 9, 2016), <https://www.project-syndicate.org/commentary/china-renminbi-crisis-capital-controls-by-barry-eichengreen-2016-02>.

²¹⁴ See Mike Bird, *The Hottest Idea in Finance: Capital Controls Are Good*, WALL ST. J. (Feb. 4, 2016), <http://www.wsj.com/articles/the-hottest-idea-in-finance-capital-controls-are-good-1454581800>.