



SURINAME

SELECTED ISSUES

December 2019

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November 19, 2019

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Department**

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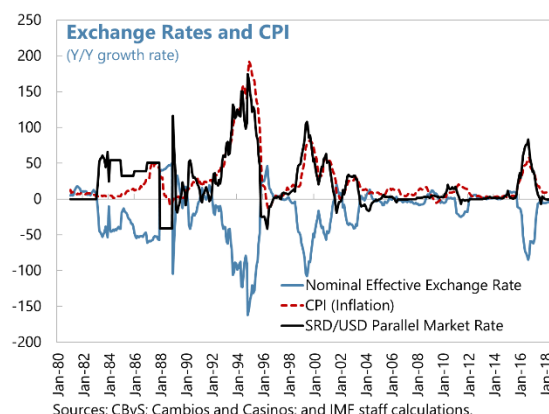
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EXCHANGE RATE PASSTHROUGH IN SURINAME¹

This Selected Issues paper analyzes exchange rate passthrough² in Suriname. The cumulative passthrough is estimated to be 0.4 after six months and 0.6 after a year, calculated for the period of 1980–2019. We also find that the exchange rate passthrough (i) declined slightly in recent years, (ii) became more short-lived, and (iii) is larger for the CPI components that involve large FX transactions, e.g., housing. Based on these results, we suggest that (i) the exchange rate should be made flexible to play an active role in absorbing external shocks, (ii) the CBvS's credibility should be strengthened, and (iii) the CBvS should communicate regularly the reasons for exchange rate movements.

A. Introduction

1. Suriname has experienced multiple episodes of large devaluation and high inflation since 1980. Major episodes of exchange rate depreciation and high inflation include 1987, 1994, 1999, and most recently 2016.³ In 2016, the U.S. dollar exchange rate depreciated by around 82 percent (y/y), and the inflation rate reached a peak of around 59 percent (y/y). In March 2016, the authorities changed the *de jure* monetary regime to reserve money targeting after a long history of fixed exchange rate regime (Box 1). This recent episode of sharp devaluation and high inflation highlights the importance of closely monitoring the exchange rate passthrough to domestic prices.



2. Previous studies found the exchange rate passthrough in Suriname to be relatively high between around 0.6–1.0 over one year. Several previous studies estimated exchange rate passthrough for Suriname for different periods and methodologies. Fritz-Krockow and others (2009) estimated a bivariate vector autoregression of monthly CPI and parallel exchange rate for the sample period of 1992–2004. They found the exchange rate passthrough to be around 0.6 within four months and to be about one after a year. Sonneveld and others (2014) used a regression analysis on the annual data of 1971–2012, controlling for oil price, trade openness, real GDP, money supply and lending rate. They estimated the passthrough to be around 0.6–1.0 after one year. Kim (2016) performed a vector autoregression (VAR) analysis on the monthly log first-difference of the parallel market exchange rate data for 2000–16, controlling for international food and oil prices. She found the exchange rate passthrough to be around 0.7

¹ Prepared by Ippei Shibata (RES).

² We follow the standard definition of pass through: percent change in inflation for one percent depreciation in the exchange rate.

³ There were also less severe exchange rate depreciation episodes in 2000, 2003, and 2011 in Suriname.

within a year. She also showed that the passthrough estimate for Suriname was higher than those of other Caribbean countries.

3. This paper provides a comprehensive analysis of the Exchange Rate Passthrough (ERPT) in Suriname. It estimates a VAR on the monthly series from January 1980 to February 2019. This study differs from the previous studies in several dimensions. First, it covers a long period of monthly time series. This long sample period allows us to estimate possible changes in the exchange rate passthrough over the period using a rolling window. Moreover, monthly series provide a clearer resolution on exchange rate passthrough dynamics in the short term, which could be overlooked by an analysis based on annual series. Second, unlike the previous studies that use the monthly series, the current study considers the economic conditions at monthly frequency by controlling for the monthly economic activity indicator (MEAI) for a sub-period (as a robustness check). Third, while the previous studies exclusively focused on the bilateral exchange rate against the U.S. dollar, this study, in addition, estimates exchange rate passthrough using the nominal effective exchange rate. This is crucial given the strong presence of euros in the economy due to its historic connections with the Netherlands and French Guyana being one of its neighbors. Fourth, our study is the first to investigate how various subcomponents of consumer price index (CPI) respond to exchange rate variations differently for Suriname.

B. Empirical Strategy

4. This paper estimates vector autoregressions (VAR) on the monthly series. The CPI and exchange rates in this study are found to be not cointegrated, and thus the use of VAR is justified. The number of lags is at 12 months based on the Akaike Information Criterion. The variables in the baseline specification include the inflation rate, exchange rate (either NEER or U.S. parallel market rate), oil price, and international food price for the period between January 1980 and February 2019. All the variables are log differenced year over year.

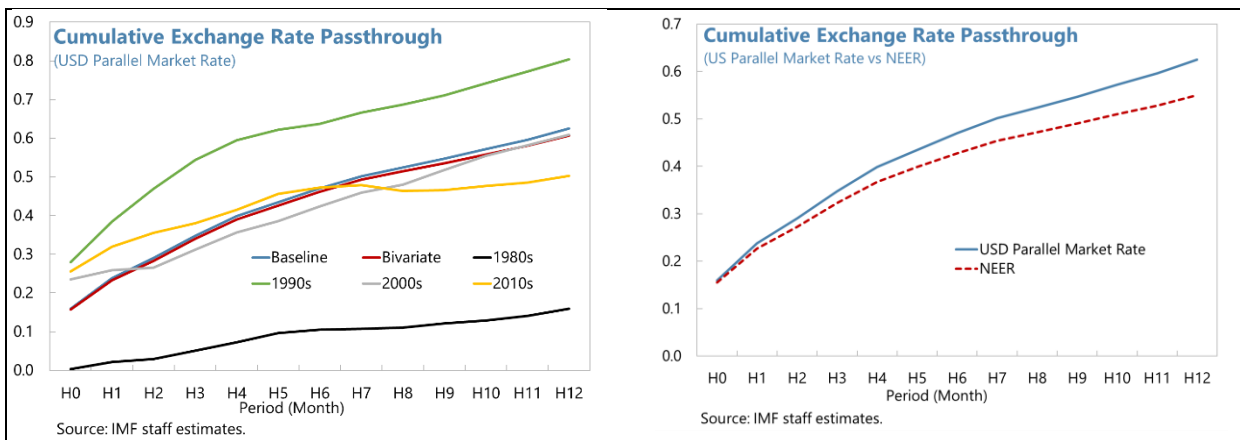
C. Data

5. Monthly data from different sources are compiled for January 1980 through February 2019. In the analysis (including a battery of robustness checks), the overall CPI and nominal effective exchange rates (NEER), and the U.S. CPI were retrieved from the IMF's International Financial Statistics. Parallel market exchange rate data is obtained from Cambios and Casinos in Suriname, oil price from Thomson Reuters data stream, international food price index from Bloomberg. The MEAI and its sectoral subcomponents are also available for 2011–19 from the CBvS, as are the subcomponents of the CPI for 2005–19.

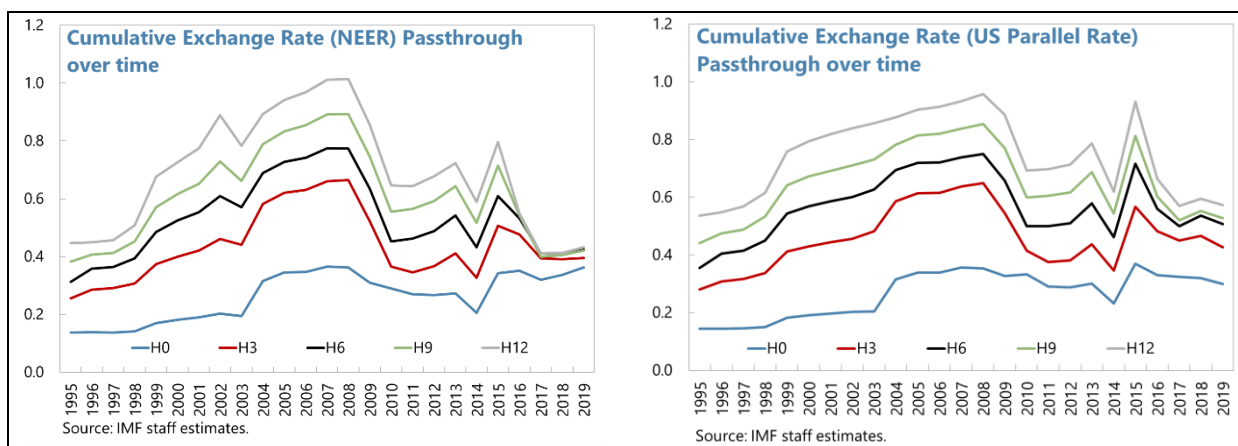
D. Results

6. Our results suggest a cumulative exchange rate passthrough of around 0.4 (0.6) over six months and 0.6 (0.7) over one year for the entire sample of 1980–2019 (2000–19). Text chart shows results for various specifications: (i) baseline—controlling for international food

and oil prices for the entire sample period (1980–2019); (ii) bivariate VAR with only CPI and bilateral exchange rate with the U.S. dollar (parallel market rate), which virtually shows no difference in exchange rate passthrough estimates; (iii) estimates for the 1980s (labeled as 1980s); (iv) the 1990s (labeled as 1990s); (v) the 2000s and (vi) the 2010s.⁴ We find that: (i) inclusion of oil price and international food price do not change the estimates of the exchange rate passthrough; and (ii) the exchange rate passthrough seems to be much weaker in the 1980s than in the 1990s, the 2000s, and the 2010s. The NEER also has similar magnitudes of exchange rate passthrough.



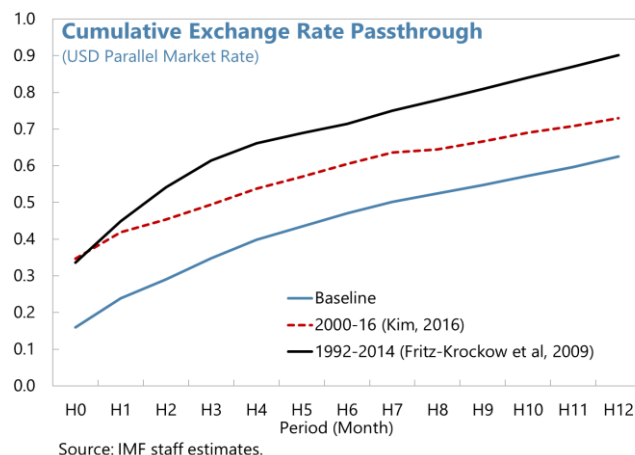
7. A more systemic analysis (using a rolling window) suggests that the exchange rate passthrough has been declining and becoming more short-lived in recent years. Text figures show cumulative exchange rate passthrough for different horizons (H6, for instance shows 6-month cumulative exchange rate passthrough). While the standard errors for the results are large, the VAR results based on a 15-year rolling window suggest that the exchange rate passthrough seems to have declined and became more short-lived in recent years for both NEER



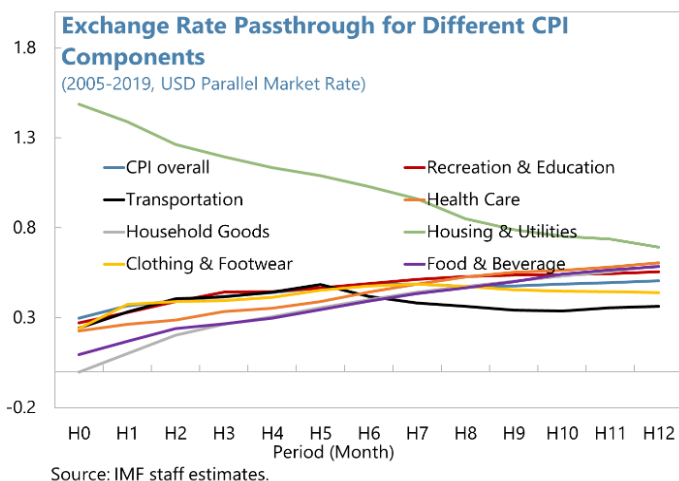
⁴ Note that the estimates for 2000–2019 were not so different from those for 2000–15, which excludes the large devaluation period.

and parallel market rates. Sharp spikes coincide with the episodes of large devaluation while the periods of lower exchange rate passthrough coincide with those of relatively strong growth and low inflation.

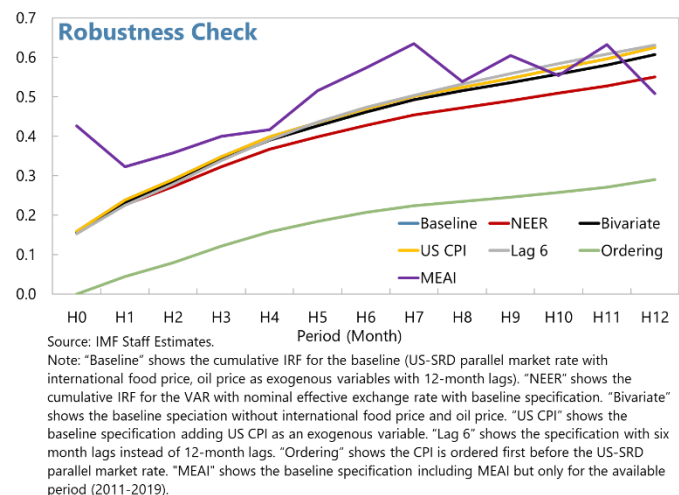
8. The present study also corroborates the estimates of the previous studies. We re-estimate the baseline specification based on the same sample periods for Fritz-Krockow and others (2009) and Kim (2016). The exchange rate passthrough is estimated at close to 1 after a year for 1992–2004 (similar to Fritz-Krockow and others, 2009) and around 0.7 after a year for 2000–16 (similar to Kim, 2016).



9. Our results also suggest that there is significant heterogeneity in the degrees of exchange rate passthrough among different CPI subcomponents. Text chart suggests that exchange rate passthrough (for the U.S. dollar parallel rate) is much higher for housing & utilities than any other subcomponent. This is intuitive given that rents in Suriname are often paid in foreign currency.



10. The results are generally robust to various specifications. They are robust to: (i) using the nominal effective exchange rate (NEER) instead of the U.S. dollar parallel rate; (ii) excluding international food price and (Bivariate); (iii) including the U.S. CPI index (US CPI); and (iv) changing the lag length to 6 months (Lag 6) instead of 12 months. However, ordering inflation first (Ordering) instead of exchange rate results in a weaker passthrough. Granger causality tests show that exchange rate granger causes inflation and that inflation granger causes



exchange rate. Nonetheless, the test statistics from granger causality are higher for the first—i.e., it is more likely that the exchange rate granger causes inflation. Therefore, we assume that the ordering in the baseline specification is reasonable. Lastly, the specification including the monthly economic activity indicator (MEAI) shows non-smooth cumulative exchange rate passthrough estimates. However, the indicator is only available since 2011 and the estimates are not precise.

E. Conclusion

11. This paper provides several new insights on exchange rate passthrough in Suriname. The exchange rate passthrough in Suriname:

- Has been around 0.7 since 2000, but is much weaker at around 0.4 over six months for the entire sample period of 1980–19;
- Seems to have declined and become more short-lived in recent years; and
- Is largest for the CPI components that involve large FX transactions (housing).

12. There are several policy implications:

- 1) **The exchange rate should be made more flexible.** A flexible exchange rate would play an active role in absorbing external shocks and would prevent abrupt and large changes in the exchange rate.
- 2) **The CBvS's credibility should be strengthened.** Higher credibility could bring the passthrough down through better anchoring expectations.
- 3) **The CBvS should communicate the reasons of exchange rate movements.** This could reduce the uncertainty formed by market participants and could also help lower the passthrough.

Box 1. History of Exchange Rate Arrangements in Suriname¹

- *1975- October 1992* (Fixed Exchange Rate and Parallel Market Rate): Between the country's independence in 1975 and October 1992, the Surinamese guilder was fixed at the rate of 1.785 Suriname guilder per U.S. dollar. As inflationary pressures built up in the 1980s, a parallel exchange market came into being. The parallel market rate reflected both the monetary expansion in the 1980s and the scarcity of foreign currency arising from the reduction in export earnings and the suspension of development assistance from the Netherlands in 1982.
- *October 1992–June 1994* (Multiple Official Exchange Rates): Seven official exchange rates were established in October 1992. Among those, there were three fixed exchange rates: (i) *the official rate* which was used for imports of consumer goods and debt service payments; (ii) *the tourist rate* which was used for foreign exchange sold by tourists; and (iii) *the bauxite rate* which was used by local expenses

¹ The information of exchange rate regimes is based on "Suriname: Toward Stability and Growth" (Fritz-Krockow and others, 2009).

Box 1. History of Exchange Rate Arrangements in Suriname (Concluded)

and tax liabilities of the bauxite companies. In addition, there were four flexible rates: (iv) *the auction rate* for imports of raw materials and capital goods, (v) *the banana rate*, (vi) *the rice rate*, and (v) *the exports rate*. In 1993, a *fuel rate* was also added for gasoline and diesel imports.

- *July 1994–August 2002* (Unified Official Exchange Rate): In July 1994, the official exchange rates were unified into one single rate. The rate was set at 180 SRD per U.S. dollar and was limited to foreign exchange license holders (mainly importers). A legal parallel market was also introduced for commercial banks and cambios. The CBvS gradually deregulated the exchange rate restrictions, including stopping exchange rate interventions in 1995 and eliminating the surrender requirement for all sectors except mining in 2002.
- *September 2002–March 2016*: The exchange rate stabilized since 2002 and the authorities continued its efforts in unifying the exchange rate. Restrictions on the bank-cambio rate was partially eliminated in mid-2003 and later completely eliminated in mid-2004. In January 2004, the CBvS replaced the Surinamese guilder with the Surinamese dollar at the rate of 1000:1. By devaluing the official exchange rate by 4 percent to 2.735 SRD per U.S. dollar, the spread with the parallel rate was reduced to less than 2-1/2 percent.
- *March 2016–Present*: The Surinamese authorities floated the exchange rate in March 2016 and have maintained it de jure flexible since then. The exchange rate is currently assessed as a de facto stabilized arrangement.

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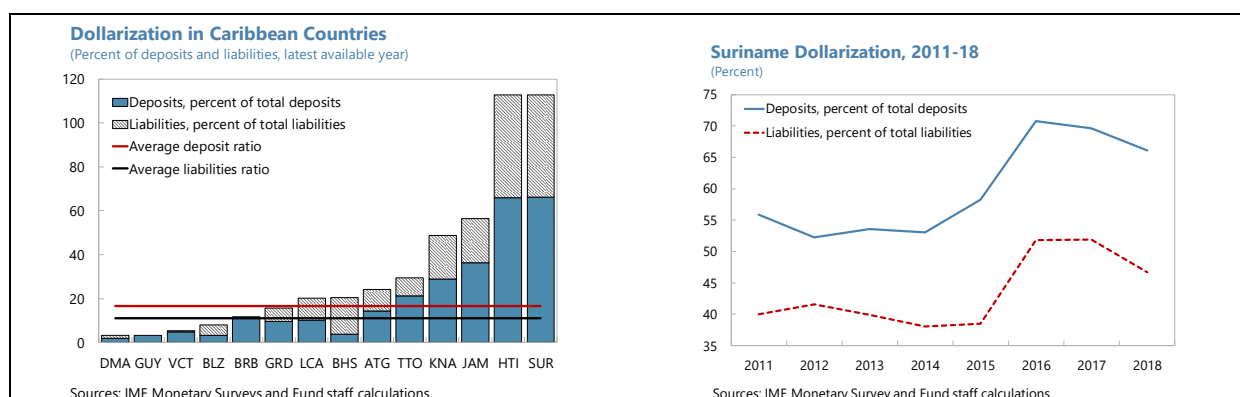
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DOLLARIZATION IN SURINAME: CURSE OR CURE?¹

This Selected-Issues paper documents the high levels of dollarization in Suriname. Notwithstanding the data limitations, the paper also investigates the association of dollarization with inflation, growth, and financial deepening in Suriname. While dollarization has developed as a hedging facilitator in Suriname, the paper finds it associated with higher risks and without any other clear macroeconomic benefits for Suriname. The paper also proposes some policy measures to bring down dollarization in Suriname, drawing on a case study of Peru.

A. Introduction

1. Suriname has the highest levels of dollarization in the Caribbean.² Dollarization was very high in 2018 for both deposits (65.3 percent of total deposits) and liabilities (47.7 percent of liabilities) in Suriname. These are well above the Caribbean averages (of 16.5 percent for deposits and 11.1 percent for liabilities). A history of high inflation and a series of policies have led to such high levels of dollarization in Suriname. The policies include the introduction of foreign currency deposits by residents (1992), the introduction of foreign currency loans to residents (1995), and the liberalization of the foreign exchange market (2002) as surrender requirements for non-mining companies were abolished. In addition, historically low credibility of the central bank and dollars from informal or illegal activities filtering into the formal system may have boosted dollarization. On the other hand, few policies have pushed towards lower dollarization. The most notable one is the guideline by Central Bank of Suriname (CBvS) in 2017 limiting bank lending in foreign currency to agents who do not have foreign currency earnings.



2. Prior work has associated dollarization with 3 key macroeconomic variables: inflation, growth, and financial deepening. Edwards and Magendzo (2003) find that dollarization is associated with lower inflation but also lower growth, while Alvarez-Plata and

¹ Prepared by Thomas Dowling (WHD).

² The Caribbean in this Selected-Issues Paper refers to the group of Caribbean countries for which data are available (see text chart).

Garcia-Herrero (2007) find that the degree of dollarization matters, and that higher dollarization is correlated with higher inflation. Quispe-Agnoli (2002) finds that partial dollarization can promote financial deepening but reduces the effectiveness of monetary policy and its lender of last resort role. They also find that dollarization increases capital flight and depreciation risks for the financial system. However, Bannister et. al (2018) find that dollarization has a negative impact on financial deepening.

3. This paper adds to previous work by studying macroeconomic effects of dollarization on the Surinamese economy. The analysis is somewhat limited due to the lack of a long time series of publicly available monetary data. Some literature has looked at the costs and benefits of high dollarization in Suriname. Nozaki and others (2005) find that in Suriname, dollarization reduced exchange rate flexibility, lowered real seignorage, contributed to financial deepening, but increased liquidity and balance sheet risks during 1996–2005. Adhin (2012) finds that the Surinamese authorities have tried to address risks from high dollarization but have not actively tried to lower levels of dollarization, due in part to weak institutions and political appetite.

B. Dollarization and the Macroeconomy in Suriname

4. The data is limited for Suriname, so this paper examines the correlations relative to the broader Caribbean. We measure changes in dollarization in percentage points for the total dollarization ratio of deposits and liabilities. Inflation is measured by the percent change in the consumer price index in each country. Growth corresponds to the real GDP growth rate. Financial deepening is measured by the percentage point change in private sector credit growth. The table below lists the contemporaneous correlation, the correlation with the 1-period lag of the macro variable, and the correlation with the 1-period lag of dollarization. The lags help give a sense of causality.

5. Dollarization in Suriname is contemporaneously associated with inflation. The correlation coefficients for Suriname are larger than the rest of the Caribbean countries suggesting inflation plays a larger a role in dollarization for Suriname. Clearly the strongest relationship is the contemporaneous one suggesting that inflation and dollarization are driven by similar factors.

6. Suriname’s relationship between dollarization and GDP growth is different than in other Caribbean countries. The Caribbean has a contemporaneous weak negative correlation between real growth

Correlations with Changes in Dollarization

	Suriname	Caribbean
Inflation		
Contemporaneous	0.86	0.43
Determined by macro variable	-0.32	-0.06
Determined by dollarization	0.28	0.20
Growth		
Contemporaneous	-0.64	-0.10
Determined by macro variable	-0.34	0.06
Determined by dollarization	-0.10	-0.01
Financial Deepening		
Contemporaneous	-0.08	-0.01
Determined by macro variable	0.72	0.12
Determined by dollarization	-0.50	0.12

Sources: IMF International Financial Statistics and Fund staff calculations.

and dollarization. Suriname exhibits a stronger negative correlation between growth and dollarization. A possible explanation is that dollarization occurs as a flight to safety and decreases once growth improves (not vice versa). Economic agents in Suriname appear to use dollarization as a tool to hedge against economic downturns much more strongly than the rest of the Caribbean.

7. In Suriname, financial deepening precedes dollarization. There is a positive correlation between lagged credit growth and dollarization, suggesting financial deepening drives dollarization. One reason could be that there is a strong preference for dollars, so loans are denominated in dollars rather than SRDs, although this could fall given the policy shift by the CBvS in 2017 to foreign currency loans requiring foreign currency earnings. This result is in contrast to the broader Caribbean in which there does not appear to be a strong relationship between dollarization and credit.

8. On balance, Suriname's macroeconomy appears to have accrued some benefits from dollarization but they may be outweighed by costs and the risks associated with higher dollarization. It functions as a safety valve when growth is falling but financial deepening and inflation are not benefitting in any significant way. The costs range from loss of seigniorage to lower effectiveness of monetary policy, Higher dollarization also brings risks including balance sheet risks for both financial and nonfinancial corporations due to currency mismatches, higher vulnerability to capital flows shocks, and dampening effects on growth benefits from currency depreciations.³ The high exchange rate passthrough for Suriname found in Shibata (2019) also suggests these vulnerabilities could be even larger.

C. Policies to Reduce Dollarization

9. Dollarization in Suriname should be lowered to reduce risks and costs. History does not have many examples of successful large-scale de-dollarization. Adhin (2012) describes some of the policies enacted in Suriname to reduce dollarization within the framework of Ize and Levy-Yeyati (2005). However, the experience of lowering the level of dollarization in Peru could provide useful lessons for Suriname. Garcia-Escribano (2010) summarizes that Peru used a three-pronged approach to lower its dollarization: macroeconomic stability, prudential measures, and development of the local capital markets.

- **Macroeconomic stability.** This was achieved in Peru through a process of implementing stabilization policies including fiscal discipline and lowering debt, introducing an inflation-targeting regime, and building reserves. Stabilization is important to offset and minimize the volatility that can occur when countries de-dollarize. Many countries experience loss of growth and credit once de-dollarization policies are implemented.
- **Prudential measures.** These (in Peru) included introducing reserve and liquidity requirements preferentially on domestic currency, remunerating domestic reserves at a

³ Gallindo, A. and Leiderman, L. (2005).

higher rate, imposing additional provisioning requirements for foreign currency risk, and limiting banks' foreign currency exposure. These policies help disincentivize the use and holding of foreign exchange relative to local currency.

- **Capital market development.** This was achieved in Peru through a market-making program for domestic public debt denominated in domestic currency with the objective of developing a yield curve. Also, facilitating the issuance of private bonds in domestic currency helped boost private bond issuance. Capital markets are important to provide investment opportunities denominated in local currencies to de-dollarize balance sheets and to increase liquidity and funding availability.

D. Conclusion

10. Suriname may have had some benefits from dollarization but reducing some of the policies that incentivize dollarization could benefit the financial health of the economy and lower risks, going forward. Suriname faces higher risks than its peers due to the very high levels of dollarization. Policies to reduce dollarization could be beneficial if enacted in a careful and measured way.

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