



Why are more sovereigns issuing in Euros?

Choosing between USD and EUR-denominated bonds

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Abstract

This note presents and discusses the arguments offered by several sovereigns that have joined a trend starting in 2013 whereby issuers, both sovereigns and corporates and in particular in Latin America, have gradually replaced a portion of the funding raised in USD for EUR. The trend seems to respond to the divergent monetary policies followed by the Federal Reserve and the European Central Bank and the expectation that this divergence will keep nominal coupons for bonds denominated in EUR well below those of USD bonds. The perception that funding in EUR is cheaper is complemented, in many cases, by the expectation of further strengthening of the USD.

The selected country cases reported in this note state both strategic and tactical arguments for increasing their issuance in EUR. The strategic reasons relate to internal currency benchmarks, which indicate that there was room for replacing some of the borrowings in USD for borrowing in EUR. In some cases, the currency substitution is supported by the argument that further diversification in the investor base was needed as the investor base for EUR-denominated debt does

not significantly overlap with that of obligations in USD. This argument was reinforced by the relatively tight conditions in the USD market that made placement more difficult for many issuers in the last few years. Tactical arguments refer to the need to open a market to a private sector also wanting to raise funding in EUR, or, to the need to access new investors as a preliminary step to attract them to domestic market securities. Several countries also admit that the optical effect of lower coupons was a relevant consideration.

This note highlights the importance that sovereigns avoid making decisions by comparing the nominal coupons in both currencies, which is tantamount to comparing apples with oranges. More important, a formal debt management strategy, including a target for the currency composition for the FX portfolio, should guide the debt managers. Without such a target currency composition, the debt manager cannot tell whether the issuance in a particular currency - USD or EUR in this case - is reducing or increasing the exposure of the debt portfolio to foreign currency risk and helping or not to achieve his debt management objectives.

JEL classification

H63, F34

Keywords

Debt Management, Sovereign Debt, Eurobonds.

The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations or those of the Executive Directors of the World Bank Group or the governments they represent.

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I. Introduction

Foreign currency risk and debt management strategies

1. In most emerging economies, foreign currency (FX) risk remains the primary exposure sovereign debt managers face. This challenge is often addressed in two steps. Initially, debt managers set a target for the share of foreign currency debt; then they choose the preferred currency composition for the FX portfolio.
2. With the “original sin”² still alive, the target on FX debt is, in many cases, a residual of the domestic debt market’s capacity to absorb a given supply of government securities in local currency (LX). Debt managers tend to issue in LX as much as they think the domestic market can absorb without crowding out lending by local banks to the private sector.
3. Except for those emerging markets whose economies are linked to a major hard currency, the choice of the preferred currency composition for the FX debt tends to be more complicated. Since the literature is of limited assistance,³ countries tend to approach this decision in a rather pragmatic manner.
4. Furthermore, the use of cross currency swaps (CCSs) expands the array of possibilities. Debt management offices (DMOs) could issue in one currency, e.g., USD, and then swap the bond cash flows into another currency, e.g., EUR, delinking the currency of issuance from the foreign currency exposure. These derivative products become vehicles that allow for the implementation of the debt management strategy in a cost-effective manner. Debt managers can compare, for example, the cost of issuing directly in EUR with the cost of creating synthetic debt in EUR by issuing in USD and then swapping the cash flows into EUR.
5. While integrating the CCSs into the array of instruments allows debt managers to expand their funding options, authorities should be mindful that the CCSs require a robust operational infrastructure and a comprehensive credit risk management framework to handle the cash flows with the counterparties generated by these derivatives over the time of the contracts.
6. The significant increase in emerging markets (EM) borrowing in EUR at the expense of USD since 2013 offers a unique opportunity to explore the drivers of the foreign currency choice. In this note, we attempt to discuss the motivations behind the increase in EUR-denominated funding, analyze the advantages and challenges of some policy decisions, and further highlight the importance of having a reliable debt management strategy, including currency benchmarks, to provide a clear north to the debt manager’s decisions.

²The term *original sin* refers to the inability of developing countries to issue bonds denominated in local currency in the international capital markets. See Eichengreen, B., and Hausmann, R., (1999) "Exchange Rates and Financial Fragility" in *New Challenges for Monetary Policy* (Proceedings of a symposium sponsored by the Federal Reserve Bank of Kansas City). See also Eichengreen, B., Hausmann, R., and Panizza, U., (2002). "Original Sin: The Pain, the Mystery and the Road to Redemption" paper presented at a conference on *Currency and Maturity Matchmaking: Redeeming Debt from Original Sin*, Inter-American Development Bank.

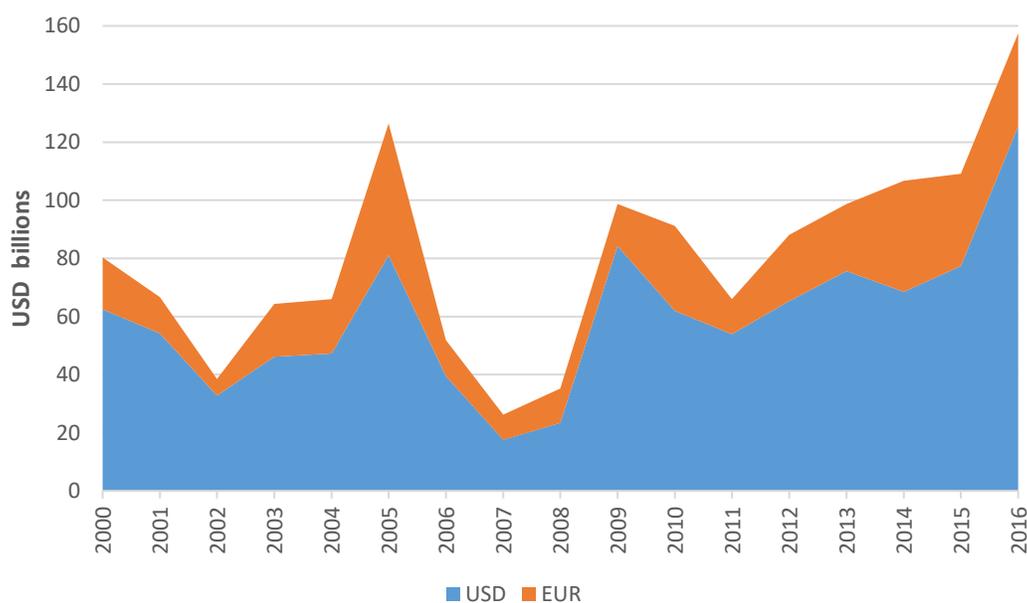
³ Martin Melecky provides a review of the literature in “Choosing the Currency Structure for Sovereign Debt: A Review of Current Approaches”. (World Bank Policy Research Working Paper 4246, June 2007).

7. After this introduction, we present the recent trends in sovereign bond issuances to illustrate the increase in the funding denominated in EUR. In section 3, we describe the market for EUR-denominated debt and its particularities compared to the USD market. In section 4, we summarize the motivations behind EUR-denominated issuances, and in section 5, we present selected cases of countries that have recently stepped up their issuance in EUR. Finally, section 6 concludes. In addition, the annex summarizes the calculations to compare the cost of a bond issued in EUR with the cost that would result from issuing a bond in USD and then swapping the obligation into EUR.

II. Recent trends in sovereign bond issuances

8. **Compared to the EUR market, the USD market for both sovereign and corporate EM issuers is much more established and liquid.** While in 2016 EM sovereigns issued close to USD120 billion in USD, the placements in EUR were close to USD30 billion, about one fourth. As illustrated in figure 1, the USD market has traditionally been much larger, but the market for EUR-denominated obligations has gained relevance in the EM space after 2013.

Figure 1: EM sovereign issuances denominated in EUR and USD (billions)



Source: Bloomberg

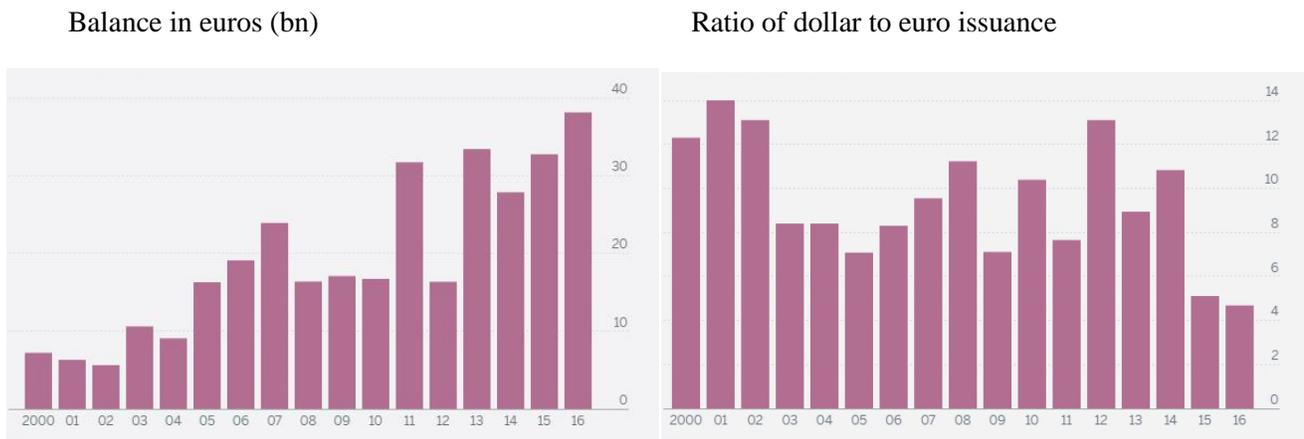
9. **The continued expansionary policy of the ECB has enticed emerging economies, both near and far from the Eurozone, to step up their borrowings in EUR.** This has been the case of Turkey, Russia, Poland, Romania, Croatia, the Czech Republic, and Hungary;⁴ all of

⁴ Examples of countries close to the Eurozone that have significantly switched their funding from USD to EUR sometime after the Global Financial Crisis include Hungary: USD funding from 2005 to 2011 and EUR from 2010

them have also benefited from their investment grade rating that makes them more attractive to large insurance companies and pension funds in Europe. Apart from the increased activity of traditional EUR issuers, the market has also seen a pronounced increase in sovereign issuance from other regions, such as Indonesia in Asia and several countries in Latin America, which traditionally borrowed in USD.

10. **Unsurprisingly, corporates have followed the same trend observed for sovereigns.** The charts below show that between 2001 and 2014, emerging market companies issued at least seven times as much dollar-denominated debt as that denominated in euros each year, with the ratio topping 13 times as recently as 2012. In 2015 the ratio fell to 5.11 times and hit a new low of 4.68 in the first eight months of 2016⁵. Again, the relative increase in the EUR-denominated issuance came from a broad set of countries, including non-Europeans such as China, Mexico, and Brazil.⁶

Figure 2: EM non-financial corporate issuances



*2016 figure is Jan – Aug only

Source: Institute of International Finance, Financial Times.

11. **The sustained increase in the issuance of EUR-denominated debt responds in part to the impact divergent monetary policies of the FED and the ECB⁷ had on interest rates.** As shown in figure 3, the spread between the 10-year US and German bonds has steadily widened from zero in 2011-2012 to more than 200 basis points at the closing of 2016. According to the forward curves (figure 4), this divergence is expected to stay over the medium term.

to 2014; Croatia: USD funding from 2009 to 2013 and EUR from 2011 to 2017; and Romania: USD funding from 2012 to 2014 and EUR issuances from 2008 to 2017.

⁵ See Financial Times article “EM corporate borrowing in euros at record levels,” Dec. 19, 2016.

⁶ Some non-European countries have seen large increases in euro-denominated debt since 2005, with China going from USD16.5bn to USD59.9bn as of August 2016, Mexico from USD7.4bn to USD31.9bn and Brazil from USD4.9bn to USD18.8bn (FT December 19, 2016).

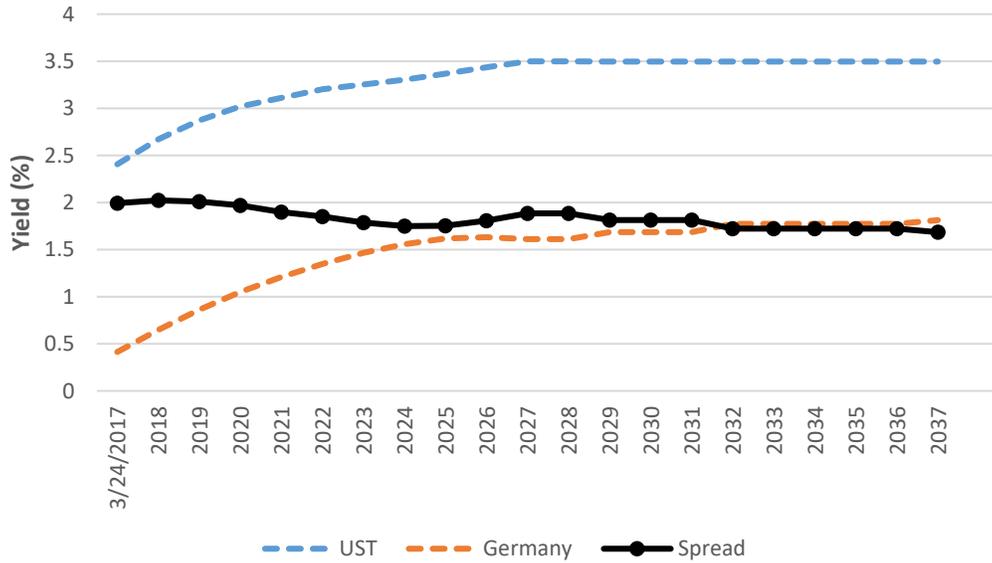
⁷ Of course, this includes the ECB bond purchase program. For the effects of such program on bonds and yields, see <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1956.en.pdf>.

Figure 3: Historical spread between 10Y US Treasury and Bunds (%)



Source: Bloomberg

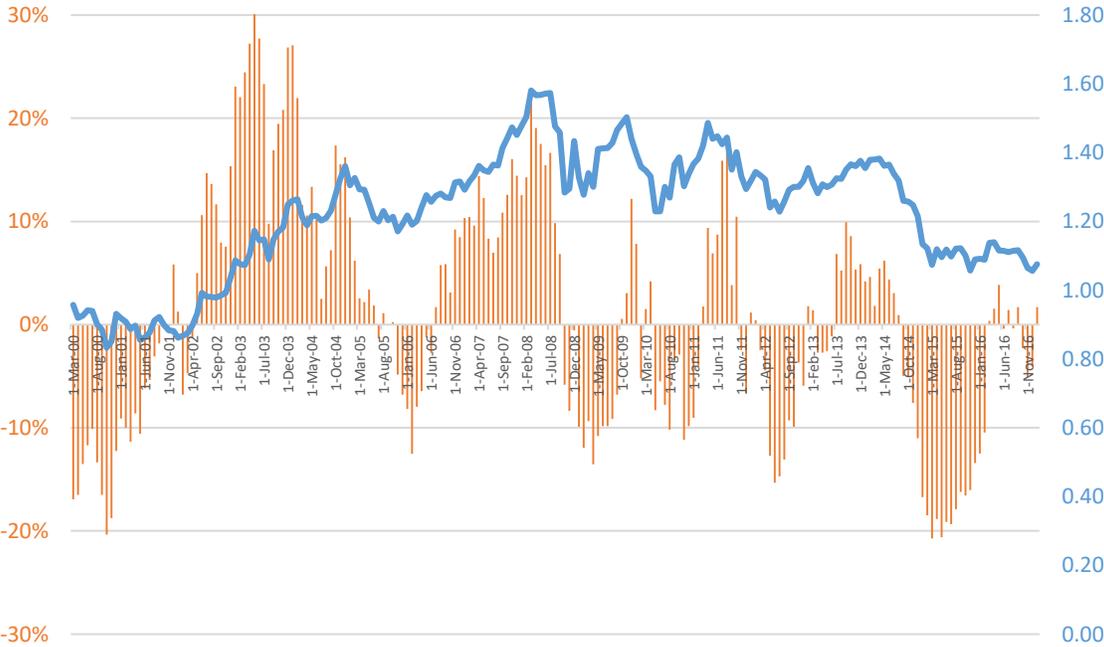
Figure 4: Forward 10Y interest rate and spread



Source: Bloomberg

- 12. **The pace of economic growth that is behind the divergent monetary policies in the US and the Eurozone has also triggered an adjustment of the exchange rate, with the USD hitting historical heights not seen since 2004. Since the end of 2013, when the exchange rate was 1.38, the EUR fell by more than 20% to close 2016 at 1.06⁸.**
- 13. **To the extent that significantly lower interest rates in Europe are associated with the expectation of a weaker EUR, issuers are finding EUR-denominated obligations more attractive.** As discussed later, the impact of a change in the exchange rate on the funding cost for an issuer could far outweigh the interest rate differential. It is therefore vital that the issuer has a clear understanding of the risks involved in the currency choice.

Figure 5: Exchange rate EUR-USD and annual changes 2000-2017

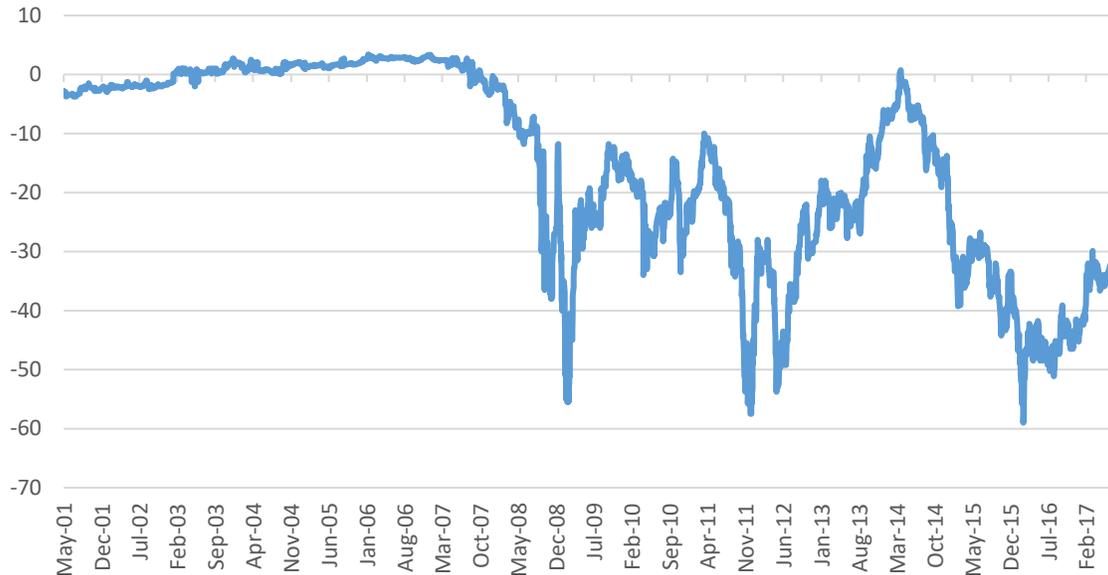


Source: Bloomberg, author’s calculations

- 14. **In addition, the compression in the CCS basis might have contributed to this process, making EUR funding increasingly attractive.** As illustrated in Figure 6, the EUR-USD cross currency basis became negative after the global financial crisis and has experienced notable volatility since then, particularly when compared to the other element of the swap, the 3 vs. 6-months basis. The sharp compression in CCS basis in 2013 (becoming even positive in 2014) coincides with the step up in EUR issuance volumes.

⁸ Although the EUR has strengthened in the first semester of 2017.

Figure 6: 7-year EUR-USD cross currency basis



Source: Bloomberg

III. The markets for USD and EUR-denominated debt

15. **The market for EUR-denominated bonds for emerging market countries differs from the USD-denominated market regarding its size and depth, the investor base, issuers, standard tenors, and conventions.** These differences bring significant implications for EM issuers both for strategy development and execution of transactions.
16. **As discussed above, the market for USD-denominated bonds for emerging market countries is several times larger and more liquid than its equivalent in EUR.** Even though the surge in EM bond issuance in EUR has brought the ratio of new issuance in USD to EUR down to historical lows, the ratio is still above 4:1 and its average since 2000 hovers around 8:1. The larger size of the market in USD tends to be accompanied by a higher turnover which in turn results in lower bid-ask spreads. For example, in the case of Mexico, the average bid-ask spread of the yield to maturity on outstanding USD-denominated international bonds is 7 basis points, compared to 10 basis points for outstanding EUR-denominated bonds; and Mexico is an example with very liquid benchmarks on both currencies.
17. **Investors in EUR-denominated sovereign securities tend to be less sophisticated compared to those operating in the USD market and are likely to demand higher credit spreads to move outside their comfort zone.** While hedge funds participate actively in both markets, real money investors such as pension funds and insurance companies dominate the EUR market. These institutional investors have at their disposal an extensive portfolio of securities from sovereigns that are in the Eurozone, in the path to joining the euro, or, with close economic and financial linkages with the Eurozone.

18. **Faced with a supply of securities sufficiently large and diverse, traditional investors in EUR may prefer high-grade securities from outside the region as a step to improve the return of their portfolios.** These investors are already acquainted with issuers in the Eurozone neighborhood and would need to spend more resources to follow other issuers. To minimize these marginal expenses, investors would probably consider first those issuers easier to monitor: high rated sovereigns, or, corporates from outside the region and high yield issuers from the region.
19. **The type of sovereigns that access the market, correlates with these differences in the investor base.** Whereas issuances in USD can be found in substantial size across all regions and economic zones, in line with the dominance of the USD, EUR issuances are largely concentrated in the EUR area. It is only after 2013 that sovereigns out of Europe have become visible to the EUR market and, as mentioned before, this is primarily related to the ECB expansionary monetary policy and its quantitative easing. Traditionally, the limitations of the EUR market had driven sovereigns interested in placing obligations denominated in EUR to the market in USD as a second-best solution. This has been the case of several emerging and frontier market economies in North and West Africa and even Serbia in Europe. Senegal for instance has tried the EUR avenue without success since 2009, with the government issuing obligations denominated in USD followed by swaps into EUR in rather complicated and expensive transactions⁹.
20. **For EM issuers, out of the Eurozone, this means they need to invest more in engaging institutional investors to lower execution risk for the EUR-denominated transactions.** Familiarizing the investor base with the “new names” demands a solid investor relations function including deal and non-deal roadshows and, in some cases, accepting a spread for the new issuer. This “investment” pays handsome returns when the debt manager widens the investor base bringing in real money accounts from Germany, France, and Austria, for example, which usually do not buy USD-denominated bonds.
21. **Different from the USD-denominated bond market that is concentrated on 10 and 30-year benchmarks, the EUR-denominated market accepts non-standard tenors.** Issuances of 6, 8 or 11 years in EUR are common and may help issuers smooth the debt redemption profile. This flexibility reflects the fact that real money investors such as pension funds and insurance companies are less concerned with the liquidity of standard benchmarks. On the other hand, issuing long maturities in EUR (beyond 10 years) is typically more challenging¹⁰: Turkey, for example, with access to the 30-year point in the USD curve, has not gone beyond 12 years in the EUR-denominated market.

⁹ Without the degree of complexity in the Senegal transaction, Morocco in 2014 and Tunisia in 2017 accessed the market in EUR with less expediency compared to the USD market.

¹⁰ For example, taking a sample of six non-European countries (Brazil, Chile, Colombia, Indonesia, Peru, and South Africa), the average residual maturity of their USD denominated bonds (20 years) is twice the average maturity of their EUR denominated securities (10 years). This is a clear indication of the USD market being more receptive to longer maturities (the 30 years benchmark, basically).

22. **While crucial differences between the USD and EUR markets remain, the EUR market has expanded regarding market access and duration for the high-grade and “well-located” issuers.** Several central-eastern European countries that used to access the USD market have recently concentrated their issuance in EUR and some of them have placed securities at the long end of the curve. This is the case of Latvia and Lithuania with recent placements of 30-year bonds; Mexico with 30 and 100-year placements¹¹; and Israel, Slovakia, Poland and Latvia with 20-year benchmarks.
23. **Conventions also mark a distinction between the two markets.** It is the market practice to use US Treasuries as the reference for USD-denominated obligations and mid-swaps for EUR-denominated ones. Unlike the US Treasury curve that is ‘polarized’ into the traditional benchmarks, the mid-swap is more populated and some argue¹² that this helps to explain the existence of the non-standard tenors in the EUR market, as European investors would just charge the credit curve, without adding a premium for such tenors.
24. **The relative cost of funding cannot be made comparing the coupons in the two currencies, but credit spreads over reference rates can.** For well-established names in the EUR market, the data shows that spreads are volatile, reflecting the relative liquidity in the two markets. The active expansionary monetary policy of ECB has tightened the spreads in EUR for several issuers. But for lower-rated sovereigns located out of the traditional zone of influence of the EUR, credit spreads in EUR tend to be wider than those in USD, reflecting the inertia of the investor class that dominates the market of EUR denominated obligations.
25. **A fair comparison of issuance costs in two currencies could be made using a cross currency swap.** These derivatives permit comparing the cost of issuing in EUR versus the cost of issuing in *synthetic* EUR which means issuing in USD and swapping the cash flows into EUR. For lower-credit borrowers, out of the EUR neighborhood, issuing in *synthetic* EUR is cheaper because the credit spread in USD is narrower and the basis swap negative¹³. For well-established issuers, since the credit spreads in the two markets are volatile, there is no way to tell in advance which market is cheaper. Borrowing in *synthetic* EUR would not be cheaper if credit spreads in EUR are lower enough - compared to credit spreads in USD - to offset the cross-currency basis.
26. **For most EMs, issuing either in EUR or USD implies incurring exchange-rate risk as neither is their domestic currency.** In both cases, the actual debt service cost will depend on the future evolution of the foreign currency vis-à-vis the domestic one, which is, of course, unknown at the issuance date¹⁴. Using cross-currency swaps to compare the relative cost of

¹¹ The 100-year bond issued by Mexico in 2016 could qualify as an outlier. It was issued at a time of abundant liquidity, with negative yields of German bonds up to the medium term and a strong appetite for higher-returns from institutional investors in Europe. The market has also shown signs of more depth for Mexican corporates like Pemex as witnessed by the EUR 4.25 billion transaction in February 2017 in 3 tranches at 4.5, 7 and 11 years.

¹² However, this argument should be regarded as a speculation only, as there seems to be no consensus on it.

¹³ We assume the sovereign in question is able to post collateral. The Annex brings an illustrative example on how to compare borrowing costs using a cross-currency swap.

¹⁴ In addition, for most emerging markets, there is no market for swapping medium or long-term bonds into the domestic currency.

funding in the two currencies is a sound practice because the pricing is taken from the market rather than on views of future FX rates. If the DMO is pricing the two potential issues with FX scenarios that significantly differ from what is implicit in the cross-currency swaps, it means the government is betting on the FX market.

IV. Why issuing Euro-denominated bonds?

27. **A number of reasons may lead an EM country to issue international bonds denominated in EUR.** These can range from overall policy objectives like achieving the desired composition in the FX debt-portfolio to more micro considerations such as creating benchmarks for the private sector, promoting the country among a group of investors (branding), or simply lowering periodic coupon payments. To weigh the motivation, it is worth establishing the governance environment in which the debt manager operates, in particular, whether or not there is a government debt management strategy in place that includes clear guidelines for the currency composition of the FX debt.
28. **Clear guidelines for the currency composition of the debt portfolio are typically derived from a thorough cost-risk analysis¹⁵.** The analysis should reflect the linkages of the economy to the Eurozone and the extent to which the value of the local currency correlates to the Euro¹⁶. As government revenues are in the local currency, selecting Euro may provide the best proxy. While this tends to be the primary justifying factor for preferring the Euro, other considerations such as the diversification of the investor base, or the diversification of FX risk, can reinforce the choice.
29. **Without a clear target for the currency composition of FX debt, debt managers are forced to navigate in the darkness without instruments and known port of arrival.** In such environment, debt managers may use the same arguments mentioned above for justifying tapping the Euro market. At the same time, when issuing, e.g., EUR 1 billion, they may be unable to determine whether they are moving the portfolio closer to its desired composition, or, increasing the exposure to FX risk and endangering the sustainability of the government finances. In a nutshell, without clear strategic targets, the debt manager lacks a framework to assess both cost and risk and thus is unable to base the funding decisions on a strategy to reach the debt management objectives.
30. **The issuance of EUR-denominated bonds can support diversifying the investor base.** Many countries may endeavor to diversify the investor base as a way to mitigate refinancing risk and avoid the market becoming a one-way street with all investors wanting to buy or sell

¹⁵ See MTDS Guidance Note (<http://www.worldbank.org/en/topic/debt/brief/mtds>). More broadly, the decision on the strategy should come from a comprehensive process encompassing the analysis of the current debt portfolio, the potential sources of financing, the macroeconomic outlook, the cost-risk assessment of alternative strategies, and the degree of domestic market development, among other factors.

¹⁶ For example, in the case of Turkey, its geo-economic links with the Eurozone makes the EUR a less volatile foreign currency to have exposure to, although in the recent past the volatility of the USD/TRY has reduced in comparison to the EUR/TRY.

the government paper at the same time. A heterogeneous investor base offers the benefit of investors acting differently over time given their preferred habitat, investment horizons, and risk-return preferences. According to the authorities, the first EUR-denominated bond launched in 2016 by Peru brought about 75% of investors with no previous exposure to Peruvian securities.

31. **Diversification of the investor base is more relevant for countries with high financing needs or when trying to create scarcity value for the USD bonds.** Even though the USD market is large and deep, EM issuers cannot dismiss the potential for market disruptions, or, investors fatigue triggered by continuous supply. Large and frequent issuers in the international markets can create scarcity value in their USD bonds by accessing the market in EUR (and other currencies). Indeed, issuers like Mexico and Turkey with relatively large funding programs in the external markets, make diversification of the investor base a high priority.
32. **For DMOs with access to CCSs, the objective of diversifying the investor base can be achieved without keeping the exposure to the EUR.** Again, the critical issue here is the strategic benchmark for the composition of the FX debt without which the debt manager is completely blind to the need for hedging the issuance in EUR. For example, if the target currency composition blocks the debt manager from increasing the exposure to the EUR, then it is fairly easy for him to assess the cost of diversifying the investor base through comparing the cost of issuing directly in USD with that of issuing in EUR and then swapping the cash flows into USD¹⁷.
33. **Unfortunately, the stringent requirements for the use of derivatives combined with the capital requirements on swap providers put these instruments out of the reach of most EMs.** Safe use of CCSs requires a solid legal¹⁸, operational and risk management infrastructure. This infrastructure will allow debt managers to transact with international counterparties, price the instruments, manage the cash flows arising from changes in the exchange rates, handle the corresponding credit risk, which may include the posting of collateral, and account for these operations, among others. More importantly, current regulations make it extremely difficult for a bank to offer a swap to a low-rated counterparty since CCSs are probably the most capital consuming product for banks¹⁹.

¹⁷ Let us assume that credit spreads were the same for obligations denominated in USD and EUR and that the current negative basis remains. Under these conditions, issuing synthetic USD would be more expensive than issuing directly in USD. By funding through the EUR market, the debt manager is able to diversify the investor base but does so at the expense of increasing its funding costs in USD.

¹⁸ DMOs would have to sign ISDA agreements with counterparties and transfer collateral according to the mark to market value of the CCS and the thresholds set up in Credit Supplement Annex (CSA). It means that while CCS assist to shift the market risk to the desired currency composition, they expose debt managers to credit (counterparty) risk and managing credit risk could be expensive because of the liquidity and the operational infrastructure needed.

¹⁹ It should be noted that the World Bank offers a range of risk management products to its member countries, including CCS. When a member country uses the World Bank as an intermediate for a CCS transaction, it benefits from the AAA rating of the WB both in terms of cost and operational procedures, as it won't be required to post collateral, for example.

34. **Another reason for sovereigns to issue EUR-denominated bonds is to increase funding optionality.** Given that the market windows are not necessarily correlated across EUR and USD, having a EUR curve provides an alternative source of funding in international markets during episodes of turbulence in USD market (arbitrage of market windows). This proved valuable for several EM sovereigns during and after the taper tantrum in May 2013.

Cross-Currency-Swaps

Cross-currency swaps (CCSs) differ from foreign exchange swaps since the former does not involve cash flow exchange during the life of a contract, whereas the first does, such as a typical bond. For this reason, it suits particularly well to hedge the exposure on currencies created by bonds. It can be seen as a collateralized borrowing of a particular currency, in which two parties exchange the same amount of notional at the beginning and end of the contract and make simultaneous coupon payments during the life of the contract. In a USD-EUR CCS, the USD borrower pays a stream of local currency (USD) coupons, while the USD lender pays a stream of EUR coupons, respectively based on 6-month LIBOR and 3-month EURIBOR.

The basis in a CCS is a spread added to the non-USD leg, which represents a premium or discount to the USD borrower. Given it is added to the coupon paid by the USD lender, it represents a premium when it is negative, such as it has been the case since 2008 for the majority of the time, or a discount when positive.

For more information, please refer to “The basic mechanics of FX swaps and cross-currency basis swaps” at http://www.bis.org/publ/qtrpdf/r_qt0803z.htm .

35. **Sovereigns may also issue EUR-denominated bonds to pave the way for corporate issuers or to promote the country abroad.** By setting a benchmark for sovereign risk, a EUR-denominated issuance can open that market for other national issuers; this seems to be the case in Mexico with the oil company PEMEX following the Republic of Mexico in placements in EUR. More broadly, tapping the international market may have the branding objective of promoting the country to attract interest to the domestic capital markets or even to increase foreign direct investment (FDI)²⁰.
36. **Lastly, countries may choose to issue EUR-denominated bonds because of the optical effect of lower nominal coupons.** Since nominal rates in EUR have recently been substantially lower than those in USD (see section II), some issuers are looking at reducing the burden of interest payments in the budget. However, this myopic – or non-strategic - approach ignores the FX risk as interest rates in EUR and USD cannot be compared without accounting for the potential change in the exchange rate.

²⁰ Peru, for example, issued its EUR-denominated bond with a secondary objective to reach out to that pool of investors and get them used to its credit risk in a way to attract those investors, in the near future, to buy bonds denominated in local currency, especially given their strategy to make those local currency bonds Euroclearable – and so easier for an international investor to negotiate and clear.

37. **Debt managers opting for the EUR on the basis of the current interest rate differential and the potential appreciation of the USD are basing the funding decision on a market view.** The daily volume traded in the foreign currency markets is counted in trillions of dollars by commercial and investment banks, central banks, governments, supranationals, corporates, institutional investors and speculators with many different motives of which interest rates are just one. Currently, a growing consensus²¹ highlight that geopolitical uncertainty could be a key factor increasing market volatility and making forecasting and pricing of future cash flows a more challenging exercise. This means that over the life of the international bond, exchange rates are likely to experience significant swings and those betting on a particular direction assume a risk that is not suitable for a government debt portfolio.

V. Selected country examples

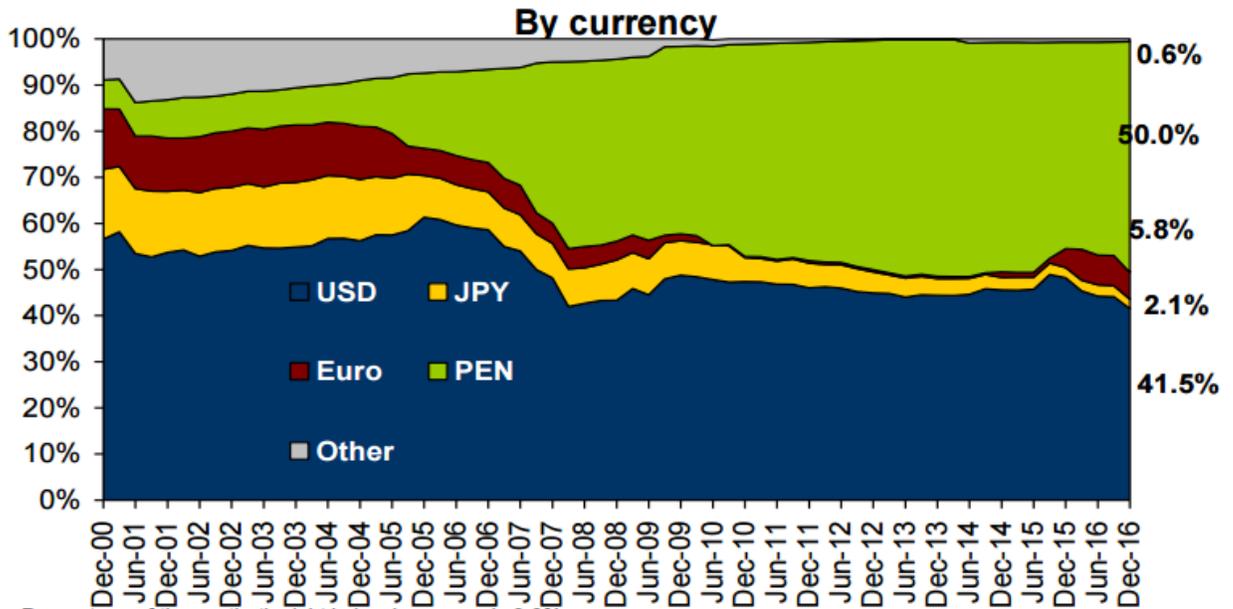
38. **This section summarizes conversations held with some debt managers involved in the recent issuance of EUR-denominated obligations in the international capital markets.** Rather than providing an exhaustive account of the government debt management strategies, the section sums up the rationale provided by the government officials interviewed for these notes.

Responding to a change in the macro and market environment: the case of Peru

39. **Peru's key strategy for managing the government borrowing has been to de-dollarize its debt, partly by attracting non-residents to buy securities denominated in local currency (PEN).** As illustrated in the chart below, since the early 2000s the authorities have gradually increased the share of local currency debt from negligible levels to about 50% at the end of 2016. This has been achieved thanks to the development of a relatively dynamic market for government securities with the active participation of pension funds and foreign investors. To complement the borrowing in Peruvian soles, the authorities have resorted to foreign currency borrowing, mainly denominated in USD, reflecting the degree of dollarization of the economy.

²¹ El-Erian, Mohamed. "Navigating the New Normal in Industrial Countries" in the Per Jacobsson Foundation Lecture, IMF, October 10, 2010. Roubini, Global Economics, "New Abnormal: Growth Malaise Is Here to Stay", May 19, 2016. Others have used similar expressions: the IMF calls it the "new mediocre," Larry Summers refers to "secular stagnation;" and Ray Dalio calls it the "great deleveraging."

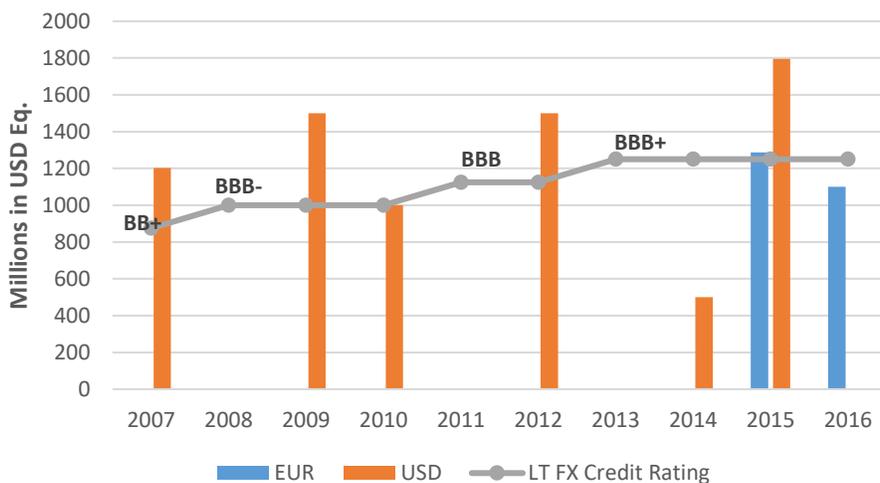
Figure 7: Structure of the gross public debt by currency (December 2016)



Source: Ministry of Economy and Finance of Peru, Quarterly Report as of December 31, 2016.

40. **Peru had not issued in EUR for 10 years until a change in the macro fundamentals triggered the issue of EUR 1.2 billion in 2015.** The justification for the change in the strategy is partly related to the new context for the international economy: the slowdown in China and the severe fall in commodity prices have resulted in a sharp contraction of the current account surplus and in the government external revenues both of which have widened the fiscal deficit and increased the funding requirements, particularly in foreign currency.

Figure 8: Peru Foreign Currency Bond Issuance by Year



Source: Bloomberg, Standard and Poor's.

41. **The increase in the funding needs coincided with a contraction in the demand for government securities both in foreign and local currencies and an upward movement in the government yield curves.** Since mid-2015 foreign investors experienced a significant reduction in the appetite for risk, possibly as a consequence of the gradual reversion of monetary policy by the FED. As capitals started flowing out, the Central Bank tightened liquidity conditions to help contain the depreciation of the exchange rate, completing the picture to explain the upward movement in the LX and FX yield curves.
42. **Macro and market conditions have increased the dependency of government borrowing from foreign investors, highlighting the need to diversify the investor base.** Peru has traditionally been highly dependent on non-resident investors, who hold 37.6% (as of December 2016) of government securities in local currency plus a large part of the international bonds in USD. With expectations of increasing borrowing requirements, Peru has prioritized the diversification of funding sources, including accessing the EUR market.
43. **The government achieved significant diversification with the placement of an 11-year EUR-denominated bond in 2015.** According to the authorities, only 25% of the investors were traditional buyers of USD bonds, while 75% were new investors. The authorities plan to continue tapping the EUR market to guarantee continued access and to consolidate a more diversified investor base (a second 14-year EUR-denominated bond was issued in 2016). The idea is to have several points in the curve multiplying the opportunities for liability management operations and providing flexibility to the debt manager²².
44. **This will also help Peru gather more demand for its issuances in local currency.** As Peru is building a link with Euroclear²³ to allow foreign investors to buy securities in local currency through their Euroclear accounts, the issuance of bonds in EUR offer a vehicle for new investors to get acquainted with Peru's sovereign risk.
45. **So far, Peru has decided to leave the EUR issuances unhedged.** As of now, in the authorities' view, hedging it into USD would be expensive but they will consider a cross currency swap to shift the exposure to USD if market conditions change in the future. The two placements in EUR alone do not pose risk management concerns, but the maximum share of the EUR in the government debt portfolio remains a question mark.
46. **Finally, according to the authorities, the more opportunistic considerations related to the optical impact of lower coupons and the expectations of the strengthening of the USD also provided tactical arguments to support the transaction in EUR.** In sum, Peru had both strategic and tactical reasons to start accessing the market in EUR.

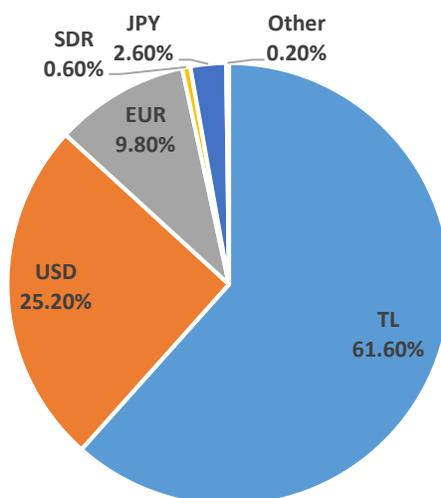
²² Nonetheless, the authorities need to weigh the argument of diversification against the need to consolidate the benchmarks in local currency given the limited borrowing financing needs

²³ A first phase of this link has already been completed and a first Euroclearable bond was launched in July 2017.

A regular issuer in the euro market: the case of Turkey

47. **Turkey has strategic benchmarks both for the share of local currency and for the currency composition of the FX debt.** Such benchmarks are not publicly available, but they are binding for the Turkish Treasury. For many years, Turkey has maintained a frequent and strategic presence in the Euro market, although the share of EUR denominated debt has declined since 2013. As of the end of 2016, Turkey had about EUR9 billion in outstanding Eurobonds denominated in EUR distributed in several benchmarks: 8, 9, and 12-year.

Figure 9: Currency composition of central government debt stock (December 2016)



Source: Public Debt Management Report, Undersecretariat of Treasury, January 2017

48. **Two main reasons drive Turkey's strategic presence in the Euro market: the political-economic links with Europe and the diversification of the investor base.** Regarding the first driver, close to half of Turkey's trade is with Eurozone countries and the potential for EU accession, while uncertain, also plays a role²⁴. The second driver is particularly relevant given the size of Turkey's funding needs. Although the USD-bond market continues to be the most important in terms of volume, Turkey has invested in diversifying its investor base by accessing other markets such as the conventional ones in EUR and JPY, and Sukuk in USD.

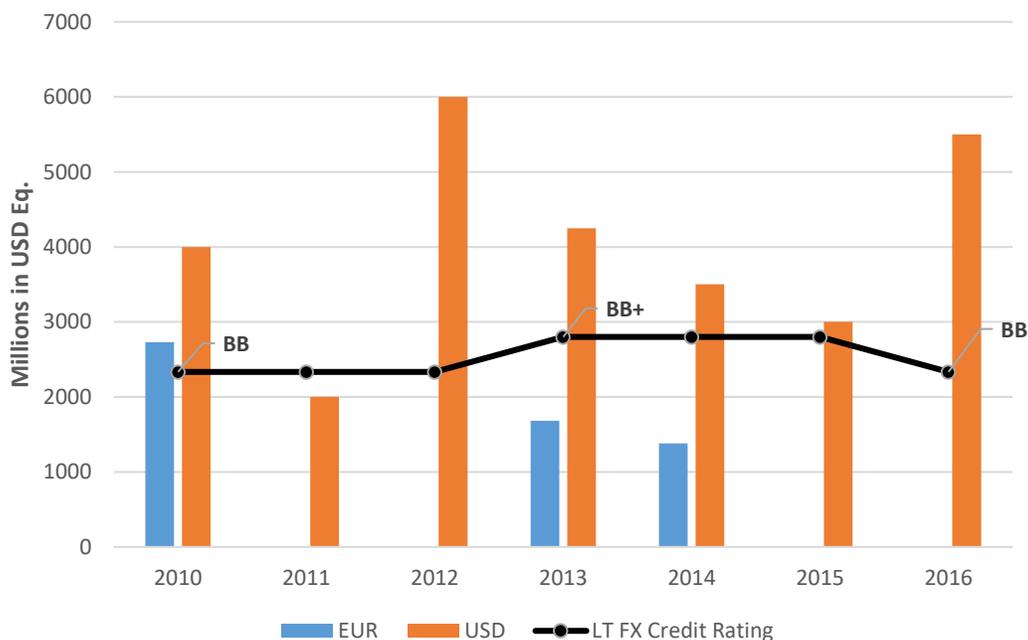
49. **Since a significant part of the country's economic activity is linked to Europe, the Turkish Treasury finds it convenient to have a portion of the government FX debt denominated**

²⁴ Turkey's application to accede to the European Economic Community, the predecessor of the European Union (EU), was made on April 1987 and it has been an associate member since 1963. Turkey signed a Customs Union agreement with the EU in 1995 and was officially recognized as a candidate for full membership on December 1999, at the Helsinki summit of the European Council. However, on November 2016 the European Parliament voted to suspend accession negotiations with Turkey. In December 2016, the European Council (comprising the heads of state or government of the member states) resolved that it would open no new areas in Turkey's membership talks in the "prevailing circumstances", which may mean that progress on EU accession will take longer.

in EUR²⁵. Should the Turkish lira depreciate (appreciate) versus the EUR, Turkish exports are likely to increase (decrease), boosting (knocking) government revenues in a manner that mitigate the foreign currency exposure of the government debt.

50. **Turkey has also found that the EUR offers an avenue to reach real money accounts in Germany, Austria, and other countries.** These institutional investors do not usually participate in the market in USD and are more selective, given the number of high-credit issuers in the region²⁶. Turkey also sees a spillover effect when accessing the Euro market as it attracts part of the investors from the USD market, making the placements in USD easier to execute and more attractive (scarcity value).

Figure 10: Turkey Foreign Currency Bond Issuance by year



Source: Bloomberg, Standard & Poor's

51. **The Turkish Treasury doesn't engage in cross-currency swaps (CCSs), but uses them to calculate what would be the USD cost-equivalent.** Given the current level of the basis-swap and the cost of credit risk, Turkey pays more for an obligation denominated in EUR compared to a USD bond²⁷.

²⁵ It should be noticed that the international bond program is not the only tool Turkey uses for achieving its benchmark; it also strategically employs project financing in EUR having in mind the total portfolio exposure.

²⁶ In this context, having an investment grade is very helpful to be able to regularly access this market.

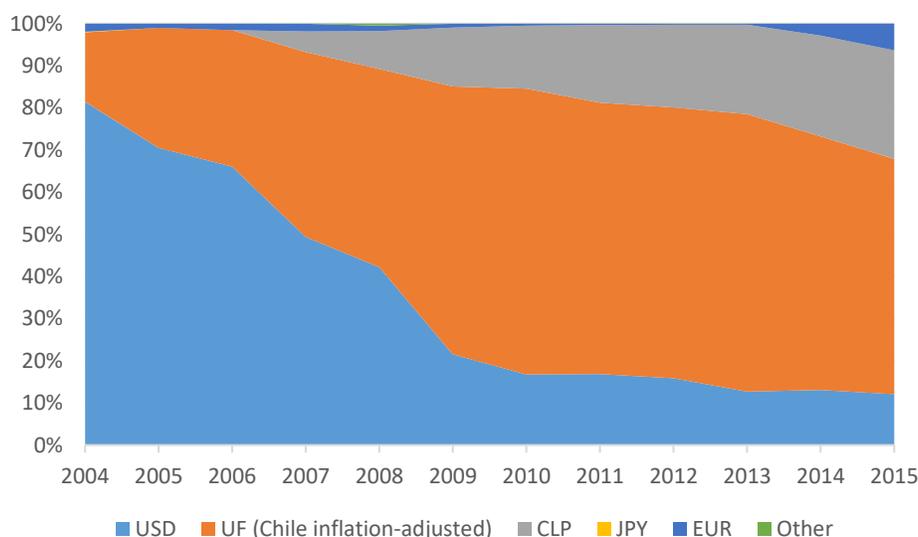
²⁷ The same applies to the Japanese market in JPY, where Turkey has also been issuing at a slightly higher cost but seeking the benefit from having a broader investor base. In this case, Turkey has recently issued three bonds with a guarantee from the Japan Bank for International Cooperation (JBIC) and plans to access the market by itself in the near future.

52. **In addition, Turkey finds value in choosing the ‘non-standard’ tenors for its placements in Euros.** Instead of being forced into the typical 10 or 30-year maturities of the USD market, Turkey taps other tenors (for example, 6, 8 or 11-year sectors) which at times offer more flexibility to manage its redemption profile. On the other hand, the EUR market makes it more difficult to access the long-end of the curve.
53. **Based on political and economic fundamentals, Turkey sees its financing in EUR strategic in the long term.** This rationale is complemented by the need to diversify its base of foreign investors. Since the Turkish Treasury prefers to keep the currency benchmark internal, it is not possible to state whether the current share of the EUR in the government debt portfolio is bound to change in the future.

A change in the benchmark for the foreign currency debt: the case of Chile

54. **Chile has a benchmark of 80% local currency and 20% foreign currency in the government debt portfolio, but there is no quantitative target for the currency composition of the FX debt.** In addition to the mix between local and foreign currency debt, the strategy focuses on increasing the share of nominal instruments versus inflation linkers. Linkers currently represent 65% of the local currency debt and the target is to bring their share down to 50%.

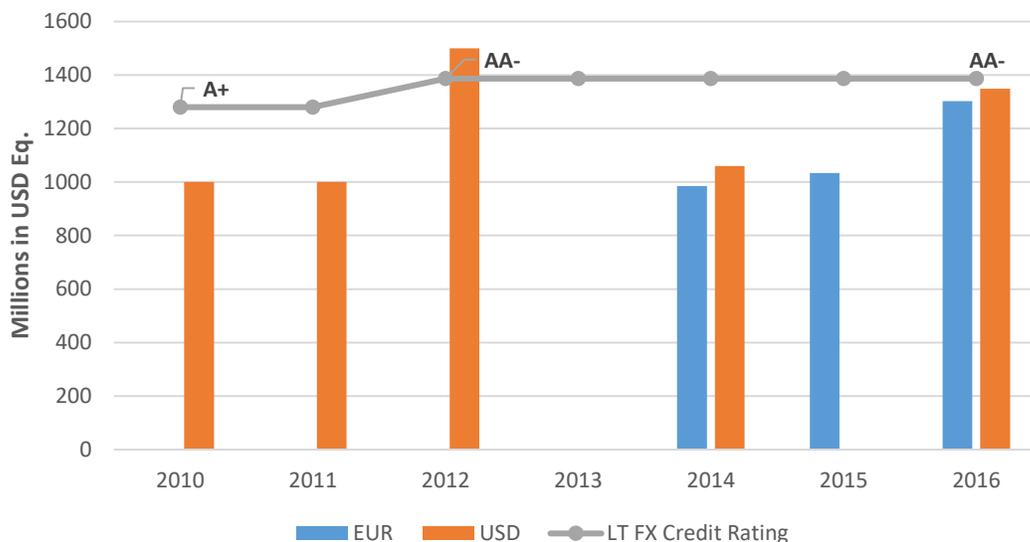
Figure 11: Debt composition by currency (millions USD)



Source: Ministry of Finance, Public Debt Office, Historical Debt Composition Statistics

55. **FX debt had been traditionally denominated in USD until December 2014, when a decision was made to diversify the FX debt by currency.** This decision was based on four factors: (i) The correlation of different currencies with copper prices; (ii) market depth and externalities for the private sector; (iii) optical effect of low coupons; and (iv) financing costs compared to USD.

Figure 12: Chile Foreign Currency Bond Issuance by Year



Source: Bloomberg, Standard & Poor's

56. **Based on the econometric analysis, the authorities determined a basket of currencies closely correlated with the copper price.** The rationale for finding such a basket is the high correlation between the Chilean peso and the copper price and the importance of copper exports as a source of budget revenues, which was initially estimated at 7%. The analysis showed good correlation with NZD, AUD, CHF, and EUR with results somewhat dependent upon the period of analysis²⁸.

57. **Out of these four currencies, only the EUR offers a market with the depth needed to produce externalities to the private sector.** When deciding on the currency (ies) to issue, the DMO also looked at the ability of corporates to issue in markets other than the USD. Given rising rates in USD and the relative excess of liquidity in the EUR market, corporates were also interested in exploring funding in EUR. This contrasted with markets such as NZD, AUD or CHF, where there would be little interest and no advantages for the private sector. While EUR did not offer the best correlation with copper, it was always ranked the 5th or 6th.

58. **The lower coupons in EUR were also a factor of consideration, especially in the current context of rising deficits.** While it is true that this is a short-term consideration that leaves out

²⁸ The rationale for the currency choice of the liabilities is the mirror image of what was done for the asset allocation, which sought currencies uncorrelated, or, negatively correlated with the copper price and therefore with the CHP. The logic being it is that in an economic downturn when deficits increase and the peso depreciates, the buffer of the wealth fund rises in value. This is why the JPY is an appropriate choice for the assets and a poor one for the liabilities.

the impact of the exchange rate, a low-interest bill is particularly welcomed in times of tight fiscal constraints.

59. **Finally, authorities also consider the financing costs compared to USD.** When considering tapping a non-USD market, the DMO always computes the equivalent cost of funding in USD using a CCS. Last year, this factor went against the funding in EUR, but cost considerations were overridden by the benefits brought by the other three factors²⁹. While currently, the funding in EUR may be relatively expensive, the spread to the USD funding should gradually narrow as investors get familiar with the issuer. In this context, the Chileans see the move towards the EUR as a strategic one.

An important funding alternative for a large issuer: the case of Mexico

60. **The key driver of Mexico's debt management strategy since the Tequila crisis in 1994 has been the development of the domestic debt market.** Mexico has modified the composition of the government debt portfolio to the point where four-fifths are denominated in local currency. The Congress even discussed the possibility of ruling out the use of FX debt, but the Ministry of Finance defended the need to have alternative funding sources to provide flexibility to the government and avenues to reduce funding costs.
61. **There is no explicit benchmark for the currency composition of the FX debt, but there are internal targets derived from the cost-risk analysis.** At the time of writing this note, 73% of marketable FX debt was denominated in USD and this share increases to 80% when non-marketable debt is included. This currency composition is based on a Cost-at-Risk (CaR) model where risk is driven by the volatility of exchange and interest rates. Exchange rates are the main drivers of risk and the recent depreciation of the MXP close to 20% versus the USD has increased the debt stock by 2% of GDP³⁰. Over time, the government debt management strategy has allowed the reduction of both exposures by increasing the share of the local currency, reducing the share of floating rate loans and reducing short-term debt.
62. **The CaR model quantifies the cost-risk tradeoff with cost modeled as expected cost and risk as the volatility of that cost.** The model finds value in the diversification brought by EUR and JPY whose exchange rates versus the MXP have a negative correlation with the USD/MXP rate. These negative correlations have helped contain the increase in debt service since 2015 when the MXP started falling versus the USD. According to the model, the share of the EUR in the FX debt portfolio could be as high as 20%³¹.

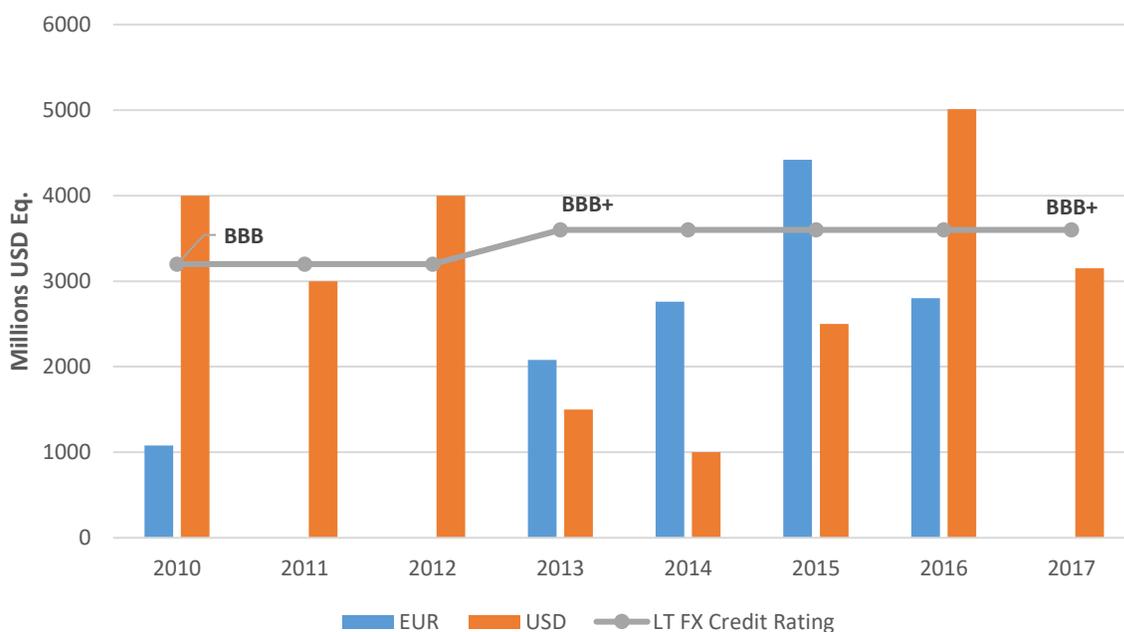
²⁹ For Chile, the EUR market was relatively expensive as illustrated by the recent issue priced at +110 over mid-swaps compared to +65 of Poland that had a lower credit rating. According to the authorities, this was due to investors being less familiar with Chile and possibly too concerned with the sovereign dependence on copper and the gloomy perspectives for commodities in general. However, in the same placement Chile tapped simultaneously EUR and USD markets and the book building went better for the EUR tranche (lower premium of 5-8 bps for EUR vs 15-20 bps for USD).

³⁰ Exposure to interest rates is lower because of the smooth redemption profile and the small share of variable rate debt (limited to the loans contracted with multi/bilaterals).

³¹ According to the authorities, the FX portfolio included 16% EUR, 7% JPY and 4% GBP and the model indicated there was room to increase the share of the EUR at the expense of the USD.

63. **While funding in EUR has been at times relatively expensive, the authorities are willing to incur in the extra cost to access the benefits of entering the market in EUR.** Based on the CCS, issuing in EUR have been at times 20-60 bps more expensive compared to the USD, but the authorities are willing to pay the extra cost because of the benefits of currency diversification, the access to alternate sources of financing, and the externalities for the corporates willing to fund themselves in EUR.
64. **The benefits of investor diversification proved valuable for the government to meet its funding requirements during the taper tantrum.** When tapping the USD market was difficult, Mexico opted for issuing in EUR, finding an appetite for a 30-year bond in 2014 and then a 100-year one in 2015. The 100-year issue was opportunistic: at a time when yields for Germany were negative all the way to the middle sector of the curve, Mexico offered paper that attracted the interest of pension funds and insurance companies hungry for yield³².

Figure 13: Mexico USD and EUR Bond Issuance by Year



Source: Bloomberg, Standard & Poor's

65. **Diversification is also important because the Mexican government debt is relatively high and rising, and so are the funding needs.** Funding USD14 billion in a year in the USD market is not a trivial task and at some point, the large supply may move prices against the issuer. By tapping the EUR market, Mexico makes the funding program in USD more manageable while achieving other objectives. For instance, lowering the issuance in the USD market may help tighten the spreads, helping the sovereign reduce its funding costs.

³² Similarly, the funding in JPY is more expensive compared to USD but investors are typically buy and hold, giving lower coupons and less volatility to the Mexican securities.

66. **Accessing the market in EUR has required a sustained effort to “sell” the name to investors and a continued presence in the market.** Taking advantage of its BBB+ credit rating, Mexico has conducted regular roadshows and made sure that its securities are integrated in the market indices. The authorities have found two distinctive pockets of investors: insurance companies and pension funds, especially from Germany, that buy in the 9 to 30-year sector; and French investment funds that look for paper in the 7 to 15-year sector.
67. **Another significant justification for issuing in EUR arises from the externalities to PEMEX and the corporate sector seeking a reference to access the market in EUR.** As in Chile, the tightening of the credit conditions for EMs in USD is reviving the interest of this sector for borrowing in other currencies. By maintaining a presence in the EUR market, the Mexican government offers a pricing reference (benchmark) for these companies to access financing in EUR, which is an important externality to state-owned enterprises (SOEs) and the private sector.
68. **Up until now, the Mexican DMO has used derivatives essentially for managing interest rate risk but not to manage the currency exposure.** In principle, the DMO does not use MXN/USD swaps because of the potential effects on the exchange rate. CCSs involving FX currencies might be considered in the future on an opportunistic basis. As discussed, Mexico takes the CCSs into account to make sure that alternative sources of financing offer reasonable cost. However, Mexico looks at the absolute cost, not just the spread over mid-swaps, and if the absolute level is attractive, then funding transactions are executed.

VI. Conclusion: strategy should come first

69. **The divergent monetary policies of the FED and the ECB have increasingly driven more sovereigns towards international bonds denominated in EUR.** This trend is also true for corporates and reflects the widening of the interest rate spread between the two currencies, the strengthening of the USD versus the EUR, and contraction of the liquidity in the USD fixed income market. The issuers have found easier conditions for book building of EUR obligations and have stepped up their activity in this market to fulfill their funding plans.
70. **The renewed interest in the EUR market by sovereigns in Latin America exemplify this trend.** Mexico started issuing in EUR in 2012, gradually extending the maturities until placing a 100-years bond in 2015. Peru and Chile launched two transactions in 2016 after not having issued in EUR for 10 years in the case of Peru and never in the case of Chile. Colombia launched an obligation in 2016 after 15 years absent from the market in EUR.
71. **Assessing the relative cost of funding by comparing the coupon rates of a EUR-denominated bond with the rate of a USD-denominated one is tantamount to comparing apples with oranges.** While interest rates in different currencies cannot be compared, credit spreads over reference rates can. For low rated EMs from out of the EUR region, credit spreads and new issue premiums in EUR tend to be larger than in USD, reflecting the larger and more liquid USD market. But for more established issuers in the EUR market, relative credit spreads are similar and could favor either market depending on the timing.

72. **Nothing can be said a priori and for all sovereigns about the relative cost-risk tradeoff of issuing in EUR versus USD.** Risk depends on the country's desired composition of the FX debt and debt managers should have a formal strategy that includes a benchmark composition for the FX portfolio. Without such a target, the debt manager is kept in the darkness and cannot tell whether the issuance in a particular currency is reducing or increasing the exposure of the portfolio to foreign currency risk, or helping to achieve his debt management objectives.
73. **Selecting the FX currencies based on the debt manager's views of interest or exchange rates is equivalent to speculation and should be avoided when managing the government debt.** The government debt portfolio is often the largest portfolio in the country and should be managed prudently by minimizing the vulnerability of the government finances to external shocks. Crisis such as the Tequila (1994), Asia (1997), and Russia (1998), among others, show that poor debt management can contribute to financial crisis, inflicting large losses to the economy.
74. **The diversification of the investor base seems to be a recurring argument for considering the issuance of EUR-denominated bonds.** In all the country cases, the dependence on the USD market has made debt managers' life more difficult during the last few years and the market in EUR a welcomed alternative, especially in episodes such as the 2013 taper tantrum. The Mexican case probably offers the best illustration of the advantages of the abovementioned diversification.
75. **However, Mexico's arguments to justify a continued presence in the EUR market cannot be automatically applied to other EMs.** Mexico's investment grade has facilitated its access to the EUR market since 2012. The country benefited from a large investor base and a solid yield curve in USD. On this basis, Mexico developed its market for EUR with an intensive campaign that allowed the compression of spreads to levels that became acceptable to the issuer. In addition, the size of Mexico's external borrowing program justifies the need to access different markets and diversify the investor base, but this argument may not apply to countries with few international placements per year.
76. **EMs that have successfully built credibility in the USD market can appreciate the effort and persistence required to be successful in the market in EUR.** Roadshows and meetings with key investors are a must to familiarize new investors with the new name. Due diligence should be made to ensure that the new issues will be part of the market indices, maximizing the attractiveness of the securities. Even though liquidity of the securities is less important than in USD, still investors expect this issuer to maintain its presence over time.
77. **The use of CCSs help debt managers separate the funding from the risk management policy, but bring new risks.** While the CCS allow for aligning the risk exposure with the one set in the debt management strategy, it creates additional risks (credit and liquidity risks) that must be properly managed. The capacity to hedge at an acceptable cost requires financial knowledge, experience, and some internal structures that most EM DMOs do not have.
78. **In summary, the debt management strategy should be the tool guiding funding decisions, including the one related to the currency exposure.** The decision whether to

issue USD or EUR denominated bonds should not be taken separately or based on market views, but instead must be rooted in a medium-term debt management strategy that should set the benchmarks for risk exposure, including market risk. Strategic decisions to issue in EUR - such as the diversification of the investor base - should be made within the framework of strategy development, along with cost-risk analysis, macro and market considerations. While short-term gains may be appealing, history has taught us that debt funding decisions should be anchored in a sound strategy not to expose governments' finances to undesirable risks.

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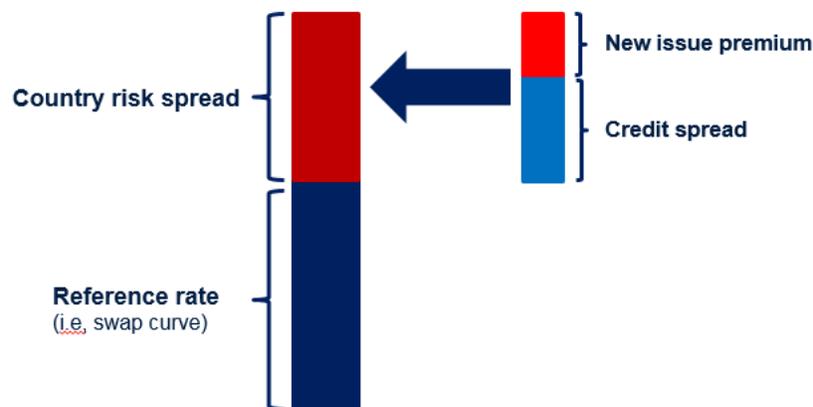
Annex

Comparing the cost of issuing in different currencies using CCS

A country issuing an international bond in EUR could – and should – compare the expected cost of the issuance with the cost of issuing the bond in USD instead and then swapping it into EUR – thus creating a *synthetic* EUR instrument. This annex illustrates the methodology used for this comparison and highlights the challenges that arise.

Let us assume that on March 29th, 2017, country X issues a 10-year international bond in EUR at par with a coupon of 2%. This coupon can be expressed as the sum of the reference rate in EUR plus a spread. The reference rate for EUR-denominated bonds is typically the mid-swap rate, which on issue date was, let us assume, 0.77%; the spread, 1.23% in this case, typically reflects the country's credit risk plus other premiums, such as the new issuance premium.

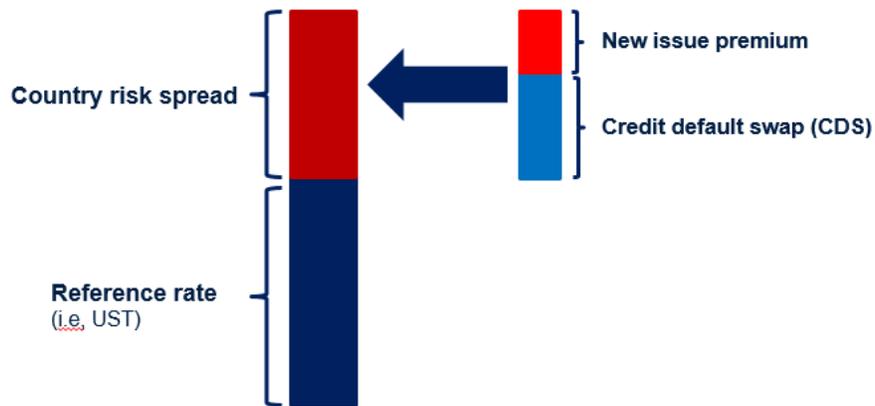
Figure 1: Components of EUR-denominated bond coupon



To compare the 10-year bond issued in EUR with a *synthetic* instrument, the first step is to estimate the coupon country X would have to offer when issuing a 10-year bond in USD at par. Again, the coupon is composed of the reference rate in USD plus a spread. For obligations denominated in USD, the reference rate is given by the US Treasury yield curve, which on March 29th, 2017 showed 2.39% for a 10-year tenor. The spread, estimated at 1.20%, includes the country's credit risk amounting to 1.10% based on the spread to US Treasuries of similar securities in the secondary market and a new issuance premium of 0.10%³³ based on country X recent placements in the USD market. The coupon of a 10-year bond in USD is therefore 3.59%.

³³ An alternative source for the credit risk spread are the 10-year credit default swaps (CDS). This alternative however is suboptimal, because the liquidity of CDS is different from the bond markets and the estimated credit risk will likely differ.

Figure 2: Components of USD-denominated bond coupon



The second step is creating a *synthetic* instrument in EUR by swapping the USD bond into EUR. This step is relatively simple as there is a deep market for CCS and rates are easily available³⁴. In fact, the operation consists of three swaps: (i) an interest rate swap (IRS) from USD fixed rate to USD floating rate; (ii) a cross-currency basis swap (CCS) from USD floating rate to EUR floating rate; and finally, (iii) a IRS from EUR floating rate to EUR fixed rate.

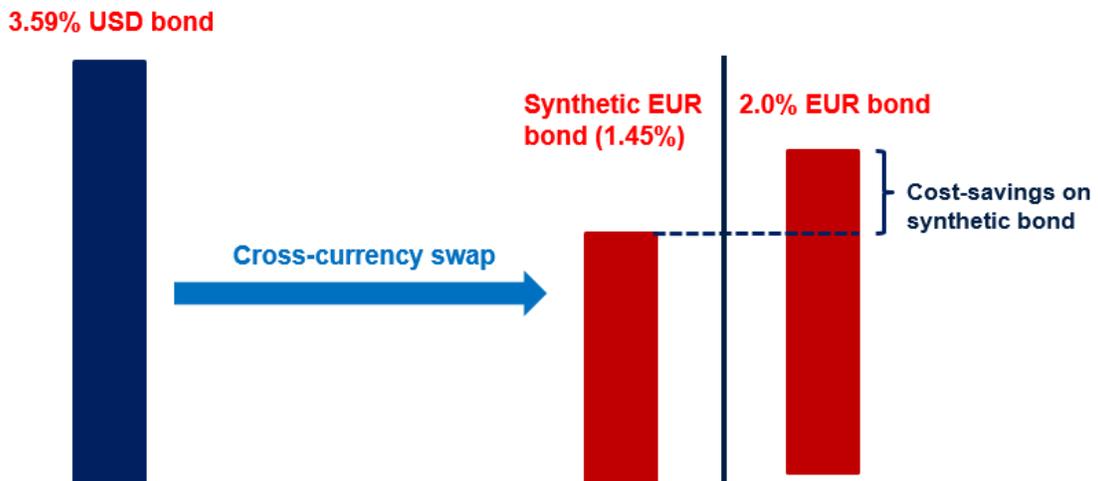
Using closing prices available on March 29th, 2017, our 3.59% 10-year USD bond can be swapped for a 1.45% 10-year EUR bond. This means that by using a *synthetic* structure of issuing in USD and subsequently swapping it into EUR the issuer will save 0.55% compared to issuing directly in EUR and paying a 2% coupon. For a EUR 1 billion placement cost-savings in the form of a lower coupon amount to EUR 5.5 million per year. These savings ignore additional charges (credit and others) that the issuer would have to pay to enter in a swap transaction; this topic is addressed below.

³⁴ SWPM screen on Bloomberg

Figure 3: Swap for a 3,59% USD10 million nominal bond priced on March 29th, 2017

91) Actions		92) Products		93) Views		94) Info		95) Set				
30) Solver (Leg 2: Coupon)			31) Load		32) Save		35) Trade					
3) Main		4) Details		5) Curves		6) Cashflow		9) Scenario		10) Risk	11) CVA	12)
Deal		XCCY Fix Fix Swap			Counterparty			SWAP CNTRPARTY				
CCP		OTC										
Swap		Leg 1: Fixed		Receive		Leg 2: Fixed		Pay				
Notional				10MM		Notional		9,299,470.86				
Currency				USD		Currency		EUR				
Effective		0D		03/31/2017		Effective		0D		03/31/2017		
Maturity		10Y		03/31/2027		Maturity		10Y		03/31/2027		
Coupon				3.590000		Coupon		1.451618				
Pay Freq				SemiAnnual		Pay Freq		SemiAnnual				
Day Count				30I/360		Day Count		30U/360				
Calc Basis				Money Mkt		Calc Basis		Money Mkt				
Market						Dscnt		92				
Dscnt		23		M		USD (30/360, S/A)		M		M		
										EUR vs. USD Ba		
Leg 1: NPV				11,090,945.30		Leg 2: NPV				-11,090,945.30		
Accrued				0.00		Accrued				0.00		
Premium				110.91		Premium				-110.91		
Valuation Results												
Principal				0.00		Premium				0.00000		
Accrued				0.00		BP Value				0.00000		
NPV				0.00								

Figure 4: Coupons of country X issuance in USD and EUR



Sources of the difference between direct issuance in EUR and issuing in *synthetic* EUR

This difference results from two components: the cross-currency basis and the spreads over the reference rates. If the cross-currency basis were zero and the credit and other spreads were the same in USD and EUR, the coupons in EUR and synthetic EUR would be identical and countries would be indifferent between borrowing directly in EUR or borrowing in USD and then swapping the obligation into EUR.

In the example presented above, the spreads over the reference rates are very similar: 1.23% over mid-swap rates in EUR and 1.20% over Treasuries. Therefore, the driver of the advantage for borrowing in synthetic EUR should be the cross-currency basis. Indeed, as illustrated in figure 6 the basis has been in negative territory since the global financial crisis.

Estimating reference rates and risk spreads

Because of liquidity reasons, US Treasury rates are typically the reference rates used for the USD leg in a CCS, while mid-swaps rates are typically the references for the EUR leg. Information on both is readily available.

Estimating the spreads, on the other hand, is not a trivial task. Although in theory, the country risk premium should be the same irrespective of the currency market, differences arise because supply and demand conditions in the USD and EUR markets differ. For instance, initially, countries outside the Eurozone tend to face higher credit-risk spreads in EUR as compared to USD bonds. However, this situation may reverse after investors familiarize with the credit and are attracted by a potential yield pickup and the diversification value of the security.

Similarly, while CDS may provide reasonable estimates of credit-risk spreads in USD, they fail to provide usable estimates for the credit spreads in EUR, given the significantly low liquidity of CDS in this currency. In practice, countries rely on their market intelligence and the feedback and proposals sent by investment banks.

New issue premiums also tend to be different. They will reflect the country's presence in a given market and the availability and liquidity of outstanding bonds. Countries that are more frequent issuers in USD will typically pay higher new issue premiums to issue in EUR. Countries that are debuting in the EUR market, for example, may pay an additional new issuer premium. Estimation of such premiums can be based on market intelligence (country's expertise plus estimates from potential underwriters) and observed premiums paid by peer countries.

The cross-currency basis and the break in interest rate parity

Although the covered interest parity held relatively well until the global financial crisis, the basis swap for the hard currencies show severe deviations from zero since 2008. The basis has been consistently negative over relatively long periods and the pattern of deviations is related to

regulations on capital adequacy and window dressing operations. Such deviations from the classic textbook covered interest parity are well documented³⁵ and make issuance in synthetic USD more expensive and borrowing in synthetic EUR and JPY cheaper. For EMs that want to raise funds in EUR and JPY the advantage of doing it in the USD is that credit spreads could also be lower adding to the advantage of the basis.

Credit and other charges

The actual pricing of a swap transaction depends not only on the cross-currency basis and spreads over reference rates mentioned above, but also on the issuer and dealer-specific charges³⁶. In general, there will be charges associated with the credit quality (CVA) of the issuer, funding, regulation and use of capital of the swap counterparty. Most of these charges can be minimized if the issuer has an ISDA/CSA agreement regulating the posting of collateral. Issuers that cannot put a collateral arrangement (CSA) in place are subject to significant charges that could very well offset any benefit they might gain from the basis swap.

Examples of real issuances

To illustrate this approach with actual figures, let us take examples of sovereigns that have issued in EUR in recent years. In the two examples, charges related to credit quality and others (dealer-specific) have been estimated and included in the analysis.

Example 1 (2014)

In 2014, an emerging market sovereign issued a 12-year bond in EUR with mid yield to maturity of 3.78%. This cost is the combination of the risk-free reference rate in EUR plus a spread. On the date of issuance, the 10-year US Treasury rate was 2.50% and the country's 10-year CDS rate (in USD) was 239 basis points, the sum of which is an estimate-coupon in USD of 4.89%.

Swapping the 4.89% USD bond into EUR result in the EUR coupon of 3.39%, which is 0.39% less than the coupon of the obligation in EUR. In sum:

Mid yield to maturity (YTM) in EUR on issue date: 3.78%

UST 10-year on issue date: 2.50%

Country CDS: 2.39%

Total expected coupon in USD: 4.89%

USD 4.89% bond swapped into EUR at: 3.39%

³⁵ See BIS Hyun Song Shin, Global liquidity and procyclicality in World Bank conference, "The state of economics, the state of the world" Washington DC, 8 June 2016; <http://johnhcochrane.blogspot.com/2017/03/covered-interest-parity.html>; and Gordon Liao, Credit Migration and Covered Interest Rate Parity, Working Paper, Harvard Business School.

³⁶ Generally, the issue of derivative pricing is very complex and constant regulatory changes have increased the transaction costs over the years since the financial crisis (2008). Cross currency swaps are probably the most capital consuming product for banks, and that says a lot about their underlying risk, which is directly comparable to the risk a sovereign bears when issuing in FX unhedged.

Estimated savings for using synthetic EUR: 0.39%

Example 2 (2016)

In 2016, an emerging market sovereign issued a 12-year bond in EUR with mid yield to maturity of 3.83%. On the date of issuance, the 10-year US Treasury rate was 1.61% and the country's 10-year CDS rate (in USD) was 2.77%, the sum of which gives an estimate of a coupon in USD of 4.38%.

Swapping the 4.38% USD bond into EUR through a cross-currency swap would have resulted in a coupon of 2.54% in EUR, 1.29% below the coupon paid for an issuance in EUR. In sum:

Mid yield to maturity (YTM) in EUR on issue date: 3.83%

UST 10-year on issue date: 1.61%

Country CDS: 2.77%

Total expected coupon in USD: 4.38%

USD 4.38% swapped into EUR at: 2.54%

Estimated savings: 1.29%