



# Frontier currency Eurobonds and the TCX Frontier Index

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### Sustainable market creation

- Frontier-currency-denominated debt is gaining traction among investors.
- Frontier-currency-linked Eurobonds offer an accessible road to frontier exposure
- A frontier-currencies bond portfolio outperforms an EM similar portfolio in risk/return and diversification terms
- TCX has launched a frontier currency bond index, the TCX FI<sup>1</sup>, to support markets' growth

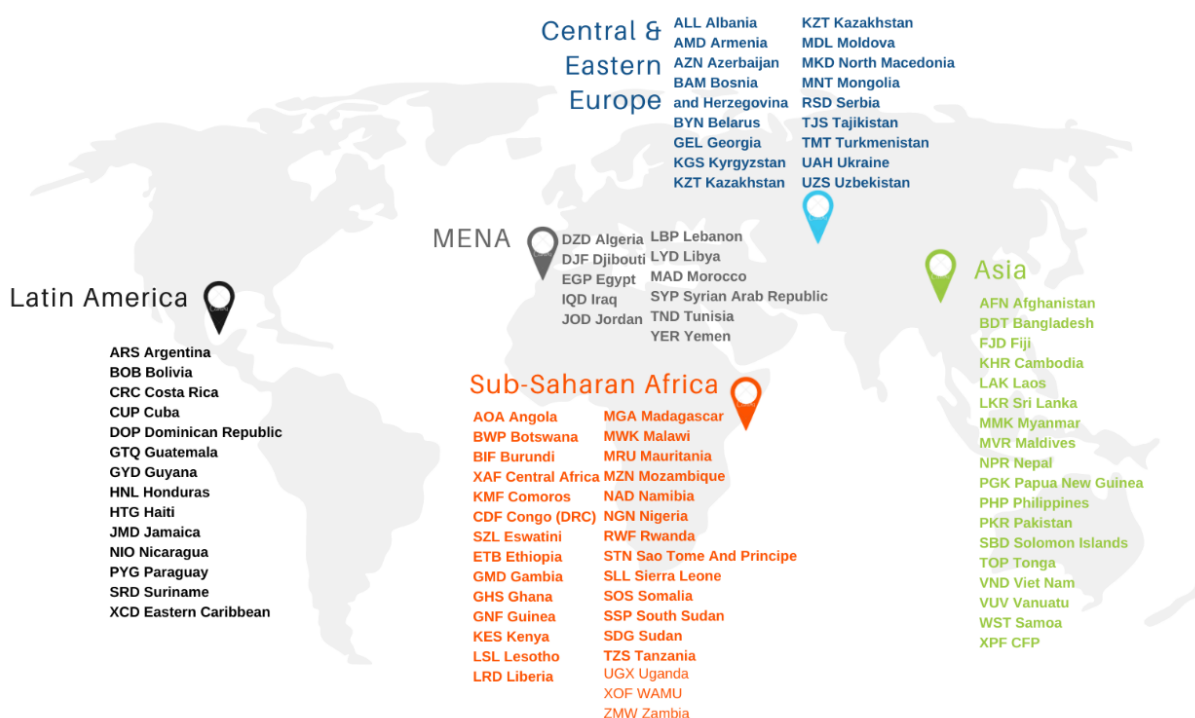
### What's in a name – what is a frontier market?

A precise, universal definition of a 'frontier' market does not exist. In TCX's view, it includes about 114 countries with over 100 currencies, with widely varying degrees of financial development, market accessibility, and liquidity conditions, but some common characteristics:

- High economic growth rates
- Low diversification, undiversified sources of income (e.g., commodities, remittances, tourism)
- Low social development indicators, and young and increasingly educated populations
- Underdeveloped financial markets, greater political and regulatory risk, and weak institutions<sup>2</sup>

These 'frontier' countries account for over 30% of the global population and 10% of global GDP<sup>3</sup>.

Figure 1. Frontier Markets Currencies (TCX, 2021)



<sup>1</sup> Supported by KfW on behalf of the German Federal Ministry for Economic Cooperation and Development, (BMZ).

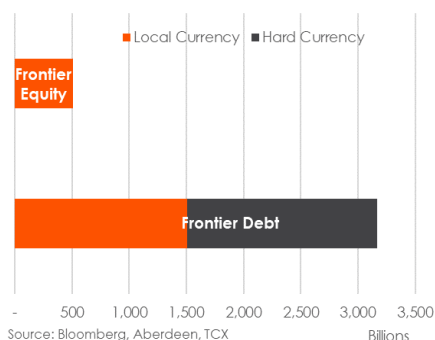
<sup>2</sup> Aberdeen Standard, January 2020, [Frontier markets – mainstream opportunity?](#)

<sup>3</sup> Aberdeen Standard, June 2018, [The evolution of frontier markets](#)

## Frontier fixed income: A taxonomy

Frontier local currency fixed income is less familiar to investors as an investable asset class than frontier equity or hard currency-denominated fixed income. One root cause for this lack of popularity may be high illiquidity and risk; another - and we will address that in this article - can be the absence of specific indices for frontier fixed income.

**Figure 2. Frontier asset classes' size, USD**



In terms of size, frontier equity is smaller than fixed income; estimates of equity market cap are USD510Bn<sup>4</sup>, vs. USD2.5Tn<sup>5</sup> of bonds from frontier markets' issuers or linked to frontier currencies. Total hard currency-denominated debt is estimated to be around USD1.2Tn, vs. USD1.3Tn of bonds denominated or linked to local currencies.

As of February 2021, three of the major index providers<sup>6</sup> were publishing frontier equity markets indices (less than 1% of the world's indices), while only one provider was tracking hard-currency-denominated frontier bonds. **An index tracking global frontier local currency debt did not exist.**

Frontier fixed income securities greatly differ in terms of performance and investor base, depending on their denomination currency and the markets where they trade.

**Hard-currency-denominated debt** from frontier issuers has been around for several decades; it trades similarly to emerging-market Euro-clearable debt and it is mostly subject to the same global risk, liquidity, and volatility dynamics. It has an estimated market capitalization of USD1.2Tn.

The most widely used index for frontier hard-currency-denominated debt is the J.P. Morgan NEXGEM, tracking sovereign and quasi-sovereign from 35 countries. The index's market cap has grown to represent up to 25% of the broader emerging markets' EMBI index from 5% ten years ago. It is important to note, though, that most dedicated frontier investors are active investors, and use the NEXGEM to benchmark their performance against, not to passively replicate the index.

**Local-currency debt** denominated in or linked to frontier currencies has a market capitalization of around USD 1.3Tn<sup>7</sup> and significantly lower foreign investor participation (7 to 20%<sup>8</sup>). This debt is composed mostly of government bonds and held predominantly by local institutional investors, particularly local banks. Here, risks are more idiosyncratic, with local macroeconomic and political variables having a stronger return impact. Interest in local debt has grown, because of its perceived attractive risk/return profile. Local currency debt is characterized by high yields – in response to perceived structural weaknesses –, however, still low historical default rates.

While the local investor base has deepened, foreign investors remain underinvested in most local frontier bond markets, outside of the most developed countries ("quasi-emerging")<sup>9</sup>, perhaps because they face practical challenges and 'friction costs'. Foreign investors in local debt markets face convertibility and transfer risks, but also need to open local custody and bank accounts and understand diverging legal, tax, and capital control frameworks. Moreover, price information is typically opaque and uneven.

<sup>4</sup> Bloomberg, July 2020, [What Are Frontier Markets And Why Invest in Them?](#)

<sup>5</sup> Bloomberg, TCX, May 2021, ex-ARS domiciled issuers and ARS denominated bonds. Incl. ARS total is 3.2Tn.

<sup>6</sup> MSCI, FTSE Russell and S&P Dow Jones

<sup>7</sup> Bloomberg, TCX, May 2021, ex-ARS domiciled issuers and ARS denominated/linked bonds.

<sup>8</sup> International Monetary Fund. 2020. [The Evolution of Public Debt Vulnerabilities in Lower Income Economies](#).

<sup>9</sup> Range of 20-30% for Ghana, Zambia, Egypt, Nigeria, Pakistan, Ukraine, Serbia, as per IMF, 2020. Ibid, p.61. The African Development Bank estimates participation rates of 40% and 60% for Egypt and Ghana, respectively.

Figure 3. Frontier Markets Debt Taxonomy<sup>10</sup>

	FRONTIER HARD CURRENCY DEBT	FRONTIER LOCAL CURRENCY DEBT	TCX FRONTIER CURRENCY BOND INDEX
SUB-CATEGORY	HARD CURRENCY DENOMINATED EURO BONDS	LOCAL CURRENCY BONDS	LOCAL CURRENCY LINKED EURO BONDS
SETTLEMENTS	HARD CURRENCY EUROCLEAR / CLEARSTREAM	LOCAL CURRENCY	HARD CURRENCY EUROCLEAR / CLEARSTREAM
# OF COUNTRIES REPRESENTED	80	87 (INVESTABLE)	19
PRICE DYNAMICS	EMD-ALIKE, GLOBAL RISK APPETITE, HIGHER RATING DEPENDENCY	MOSTLY IDIOSYNCRATIC - POLITICAL, LOCAL MACRO	MOSTLY IDIOSYNCRATIC - POLITICAL, LOCAL MACRO
ESTIMATED SIZE ISSUED TO DATE	USD 1.2TN	USD 1.3TN	USD 1.0 BN
AVERAGE YIELD / DURATION	6.5% / 6.1 YRS	10.4% / 3.6 YRS	9.1% / 2.8 YRS
ISSUERS	SOVEREIGN, QUASI-SOV, CORPORATES	SOVEREIGN, DFIs CORPORATES	DFIs

As of February 2021, **an index tracking debt denominated in frontier local currencies or linked to them did not exist**. Thus, most dedicated funds used EM local-debt indices<sup>11</sup> as a proxy for risk guidance or return benchmarking purposes. The then-existing global EM local-currency debt indexes only included seven countries currently considered frontier by country classification of the main index providers<sup>12</sup>: Bangladesh, Kenya, Morocco, Nigeria, Pakistan, Sri Lanka, and Vietnam.

## The rationale for TCX to develop a frontier local-currency debt index

TCX, The Currency Exchange Fund, N.V., is a multilateral<sup>13</sup> effort to improve the resilience of cross-border debt flows. It is mandated to support the development of local markets and provide solutions to cross-border flows whenever markets for hedging products are thin or inexistent. TCX follows four key operating principles: reliability, market-reflective pricing, no speculation, and additionality. The latter means that TCX is only present in those currencies where markets do not offer a viable commercial solution by themselves.

TCX has developed an indicative index of frontier local-currency-denominated debt, as part of its market development mandate. The instruments included on this index, launched on March 31, 2021, are offshore bonds issued by development finance institutions and co-structured (hedged) by TCX, denominated, or linked to the performance of frontier local currencies, settled in dollars or euros.

<sup>10</sup> Excludes Argentina domiciled issuers and ARS denominated/linked bonds

<sup>11</sup> At least six major providers publish EM local currency debt indices: J.P. Morgan's GBI-EM fares highest in AUM.

<sup>12</sup> MSCI and FTSE country classification methodologies, as of Nov 2020. Costa Rica, Dominican Republic, and Egypt are included in the major global EM local indices but are not included on the country classifications.

<sup>13</sup> TCX's Investors include multilateral and bilateral development finance institutions (DFIs) and specialized Microfinance Investment Vehicles (MIVs), which address the UN's Sustainable Development Goals (SDGs).

The indicative index aims to offer information on local currency frontier fixed income as an asset class, thus, increasing price transparency. TCX will contribute to raising investor awareness about frontier markets through this visibility of the price dynamics. Awareness should foster supply and demand growth, ultimately supporting local currency market development.

Moreover, developing local markets may contribute to alleviating the impact of a future crisis. Looking at the World Bank's Financial Market's Index, frontier economies' development levels are at almost half of those for emerging countries<sup>14</sup>. IMF's analysis of COVID-19 market turbulence<sup>15</sup> suggests that frontier economies with a larger participation of speculative portfolio flows (e.g., Nigeria, Egypt) suffered higher yield volatility and foreign exchange rate pressure during episodes of market turbulence. Through the index publication, TCX aims to foster local markets' depth and overall financial development, helping them to attract more buy-and-hold foreign investors. This initiative was made possible by the support of KfW on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ).

From the investor perspective, several studies have explored the behavior of a foreign-exchange portfolio of local currencies from the frontier and emerging markets in terms of returns and asset diversification.

ICBC Standard Bank released a paper in July 2018 detailing the conclusions<sup>16</sup> of analyzing a portfolio of short-term FX forwards in 22 currencies from frontier markets for 12 years. That **portfolio** surpassed EM and DM portfolios in alpha-generation terms: it generated a higher carry and presented lower volatility, even at tail risks, had a lower beta and lower own-sample cross-correlations. Nevertheless, an investor looking to replicate this portfolio would find that some of the securities are not accessible or would present high 'friction costs' from entry and maintenance. Convertibility and transfer risks were also not taken into account.

**Why there was not already an index for frontier local currency bonds?** TCX interviewed several major index providers on this. The conclusion is they do not generate it due to a) lack of assets widely available to investors, b) absence of price information, and c) not enough investor demand to justify it from a commercial standpoint. Ironically, when asking investors, some of them stated that they would explore frontier FX and fixed income assets if price information and an index were available. Interest in a regional African effort led by the African Development Bank<sup>17</sup> further confirms the latter.

TCX thus took the next step and performed a feasibility study for an index in 2019, examining the performance of a portfolio of short-term money-market local instruments denominated in 71 frontier currencies during a 5, 10, and 15-year period. The results confirmed earlier findings of consistent positive carry generation and lower volatility relative to EM and DM **on a portfolio basis**, as well as high diversification vs. other asset classes and low intra-portfolio correlation.

However, this again was just a theoretical result because the rates used came from illiquid money-market instruments and local bank deposits. Many of these instruments are not investable, or, at best, require a huge risk-management effort to deal with the individual regulation, tax, custody, liquidity, capital controls, and convertibility issues per currency.

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<sup>14</sup> World Bank, 2019. [Global Financial Development Report: Bank Regulation and Supervision a Decade after the Global Financial Crisis](#). Washington, D.C. See Appendix for details.

<sup>15</sup> International Monetary Fund, 2020. [Global Financial Stability Report: Markets in the Time of COVID-19](#). Washington, DC, April.

<sup>16</sup> ICBC Standard, July 2018, Frontier FX: Portfolio and Return Characteristics.

<sup>17</sup> AFMI Bloomberg African Bond Family of Indices



## The TCX FI index and frontier currency-linked Eurobonds

Here is where a new asset class comes into play. Offshore synthetic local currency bonds in frontier currencies have increasingly found demand from investors. The asset class is rapidly growing, totaling USD24Bn to May 2021 across 43 currencies.

Some of the largest International Financial Institutions have issued offshore synthetic local currency bonds to fund SGD-related initiatives in frontier countries. The bonds, linked to frontier currencies, are settled in hard currency, allowing investors an accessible road to frontier exposure, with minimal credit risk and no convertibility nor transfer risk. DFI's have issued USD6.1Bn of bonds across 40 countries from 2006 to May 2021.

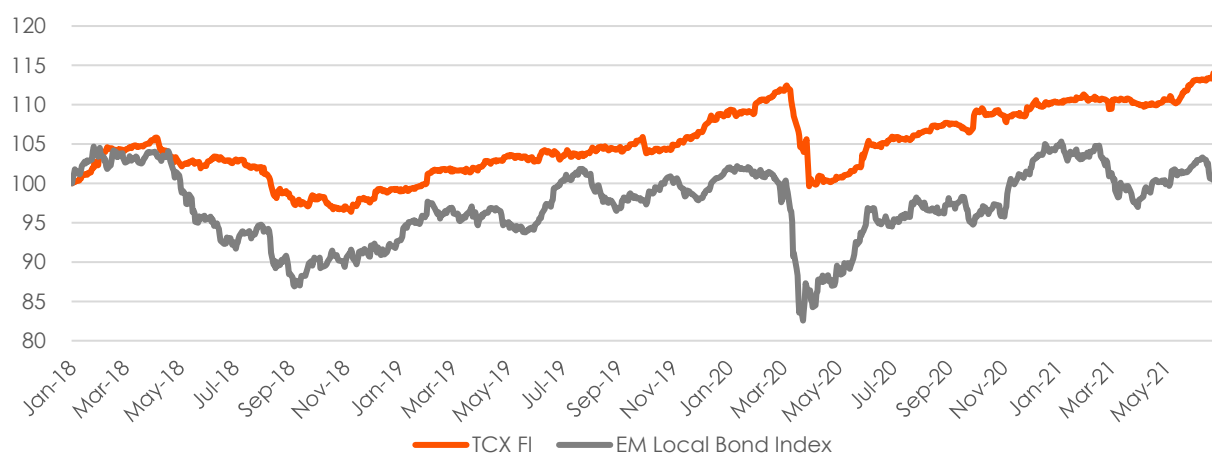
TCX has visibility of the price information for a portion of the bonds, as it has participated as a hedging provider for some of its shareholders issuing them. With this, TCX structured an informational index composed of a portfolio of the bonds, the TCX FI. **The pricing source is the internal valuation data for these offshore bonds where TCX acted as a hedge provider (thus, not independent).**

Concerning country selection, TCX, following the additionality principle, from 106 currencies included in the DAC list of ODA recipients, those not included in two out of three major local currency debt indices are eligible for the index. The current final universe is based on the bonds where TCX has acted as a hedging counterparty for the bond's issuer.

As of June 2021, this index covered 78 bonds in 19 currencies. Bonds' cash flows are immediately reinvested across outstanding securities. The index is rebalanced, based on market value weights, daily. The average coupon for the bonds was 9.05%, for a 2.8-year average tenor. The index covers a broad portfolio, without regional nor country caps.

Looking at the portfolio since January 2018 shows the outperformance of the frontier bonds index in return/volatility terms vs. a comparable EM local bond index<sup>18</sup>. Interestingly, during the risk sell-off of early 2020 originated by COVID-19, the frontier index also outperformed the comparable EM index in both return and volatility terms. Between February and September, it exhibited better performance, with rolling 10- and 60-day max drawdowns of less than a half of those shown by the EM comparable. The frontier index also recovered faster than the EM index, reaching 2019 average levels seven weeks after April 1<sup>st</sup>, 2020 lows. One potential explanation for this is the relative isolation of frontier currency bonds from global flows and risk appetite/aversion dynamics present in EM.

**Graph 2. Comparative performance of Frontier Local Currency Bond Index, 2018 – Jun 2021**



<sup>18</sup> Comparable EM local bond index: J.P. Morgan Government Bond Index Emerging Markets Global Core (GBIEMCOR), rebased to Jan 2018 = 100

Table 1. Index Relative Performance<sup>19</sup>

	Since Inception (Jan 18 – Jun 21)		Last 12 Months (Jun 20 – Jun 21)		COVID-19 Disruption Feb 1 – Sep 1, 2020	
	Frontier LCY	EM LCY <sup>20</sup>	Frontier LCY	EM LCY	Frontier LCY	EM LCY
Return for the period (%)	13.70%	1.93%	7.54%	6.63%	-2.14%	-3.18%
Annualized daily volatility	5.22%	8.84%	3.53%	7.29%	9.12%	14.43%
Ann. avg daily excess Return	2.32%	-0.55%	7.50%	6.97%	-2.20%	-5.04%
Sharpe ratio	0.44	-0.06	2.13	0.96	-0.24	-0.35
10-day Max drawdown	-7.47%	-17.09%	-1.31%	-4.60%	-7.47%	-17.09%
60-day Max drawdown	-9.61%	-20.58%	-1.04%	-7.94%	-9.61%	-20.58%

When looking at the correlations vs. other assets, the index showcases the potential value that frontier local currency debt offers for diversification, especially versus US Equities, US Treasuries, and Commodities, as can be seen in Table 2 below.

Table 2. Cross Asset Correlations, 2yrs<sup>21</sup>

	Frontier LCY Debt	EM HCY Debt	EM LCY Debt	US HY Debt	3y UST	S&P 500	Commodities
EM HCY Debt	0.49	1.00					
EM LCY Debt	0.41	0.82	1.00				
US HY Debt	0.35	0.91	0.72	1.00			
3y UST	0.35	0.34	0.29	0.49	1.00		
S&P 500	0.10	0.62	0.56	0.78	0.38	1.00	
Commodities	0.34	0.58	0.59	0.69	0.53	0.65	1.00

Metrics: EM HCY Debt (JPM EMBI Global), EM LCY Debt (J.P. Morgan GBI-EM Global Core), US HY Debt (S&P U.S. High Yield Corporate Bond Index), US Treasuries (US Generic Govt 3yr), S&P 500 Index (SPX) and Commodities (Bloomberg Commodity Index Total Return)

<sup>19</sup> As of June 30, 2021

<sup>20</sup> J.P. Morgan Government Bond Index Emerging Markets Global Core (GBIEMCOR), rebased to Jan 2018 = 100

<sup>21</sup> As of May 31, 2021

## Art of the Possible: the first frontier currency debt index

TCX has launched this informative index, [the TCX FI](#). The rationale for doing so is to increase investor awareness around frontier assets available, contribute to price transparency, foster through financial innovation the development of local markets, and increase local currency usage for financing and hedging.

In this process, there is a wide number of options for TCX to explore. A flagship index and a family of informative regional, thematic, and tailor-made indices is a logical and probable route. Including bonds where TCX has not been involved as a hedging provider could be another extension. **TCX is interested to analyze potential collaborations with commercial partners. The index could trigger the surge of exciting new investment, financing, and hedging solutions that support the development of frontier local markets.**

As with any other initiative, there are several practical challenges to surmount. Liquidity, currency and regional concentration, instrument size, and pricing issues will need to be managed. However, the advantages that the asset class presents outnumber these limitations; frontier markets **offer a unique combination of attractive risk/return profile, high growth potential, and superior diversification properties, along with a positive contribution to stable development and poverty alleviation.**

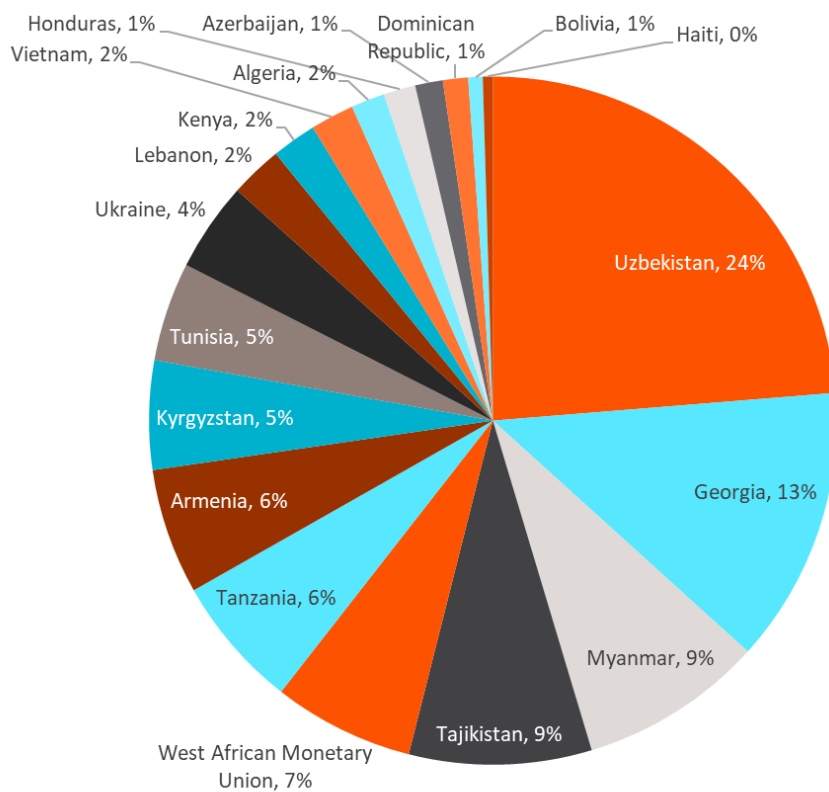
On the demand side, the combination of low-interest rates and unprecedented liquidity conditions due to central banks' stimuli responses have exacerbated the hunt of investors for yield and alpha generation outside traditional markets. In addition, more and more financial institutions look for ways to generate positive impact; ESG-related initiatives and instruments reflect this appetite. Finance institutions are increasingly aware of their responsibility to act as agents of change. Investing in a bond issued by a Development Finance Institutions ensures the proceeds are used in an ESG compliant way.

Frontier currency debt is evolving to become an active, vibrant asset class. Frontier capital markets becoming mainstream will be key for local markets development, and ultimately, for currency financing in developing countries to become as standard as it is in developed markets today.

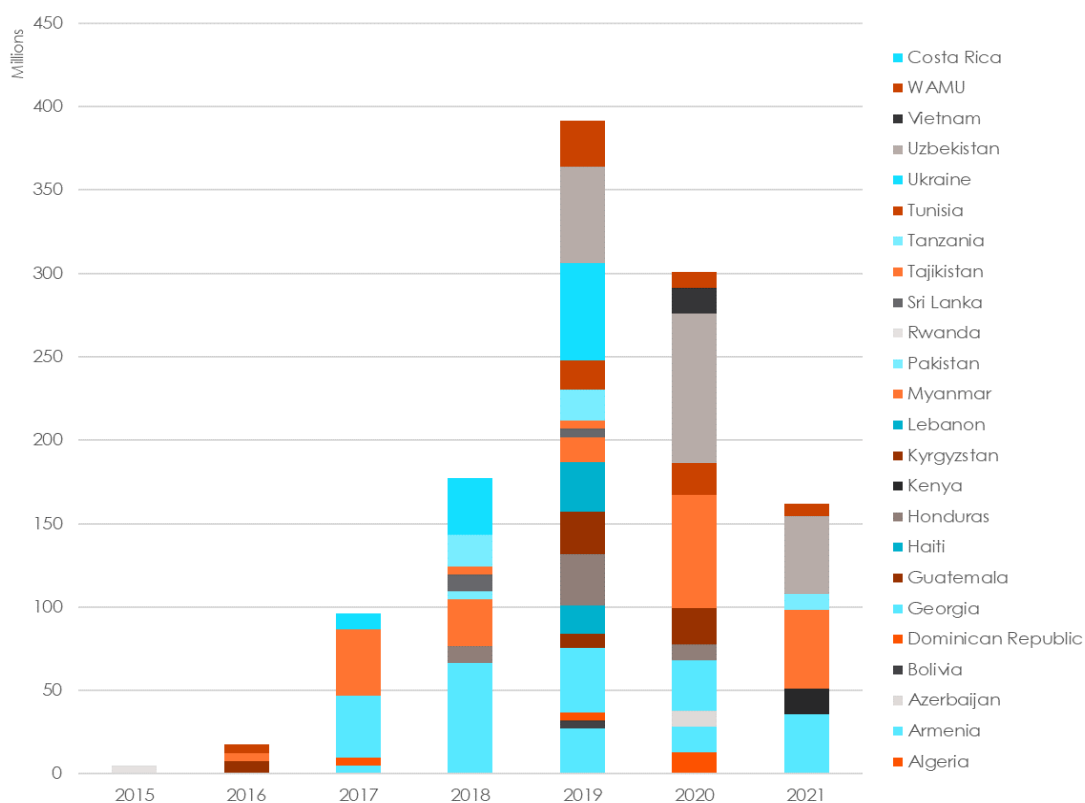


## Appendix

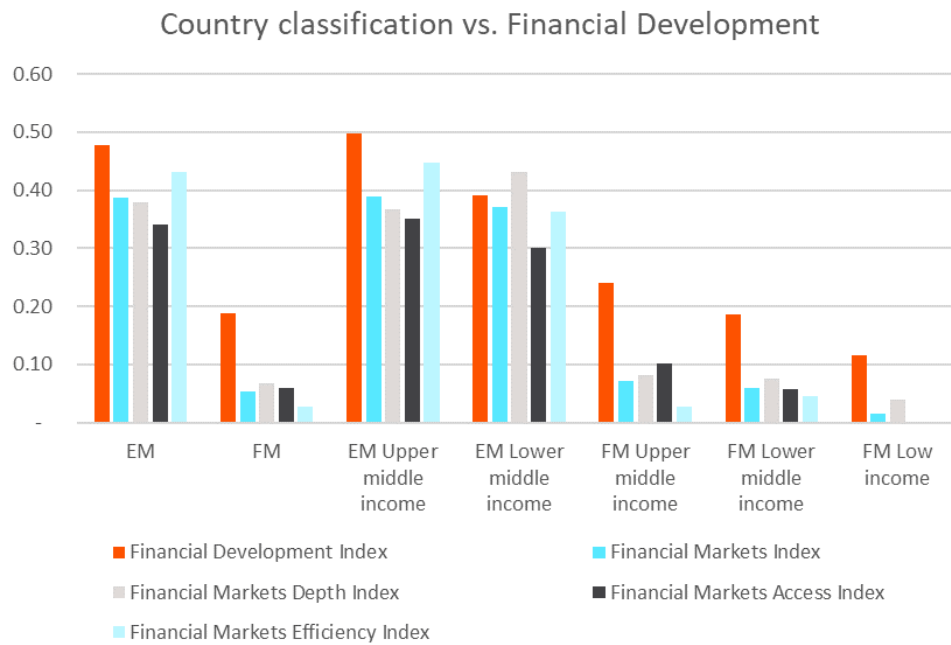
**Graph 3. TCX FI Currency Distribution, as of June 2021**



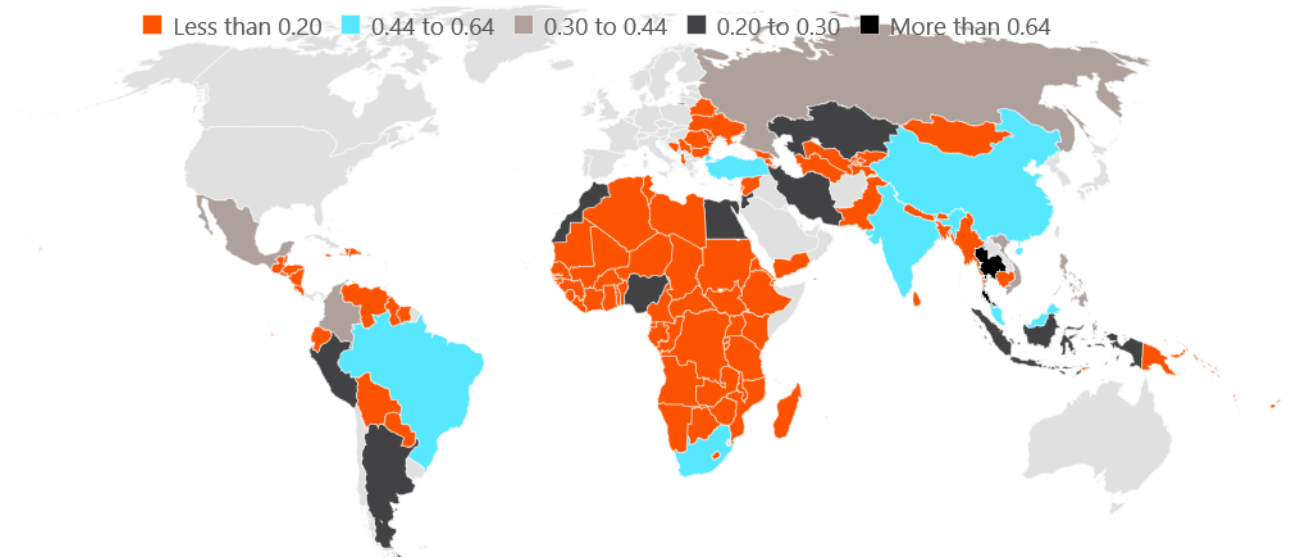
**Graph 4. TCX LCY Bond Program, as of June 2021**



**Graph 5 and 6. Financial Development and Financial Markets Index, IMF (2019)<sup>22</sup>**



## Financial Markets Index (Depth + Access + Efficiency)



<sup>22</sup> World Bank, 2019. [Global Financial Development Report: Bank Regulation and Supervision a Decade after the Global Financial Crisis](#). Washington, D.C.

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