Perspectives

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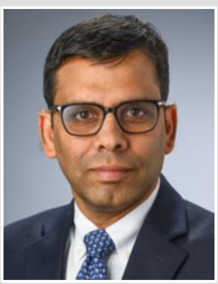

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Challenges and Solutions to the Cost of Investing in Emerging Markets Local Debt

In an environment of expanding negative real and nominal yields across developed market rate complexes, emerging markets local bonds (EMLBs) continue to present attractive investment opportunities. Yet, unless active measures are taken, investing in EMLBs can incur extra transaction costs that reduce alpha generation over the widely-cited local bond market indices.

While transaction costs for EM hard currency bonds start and stop at the bid offer spread, and foreign exchange (FX) price spreads quoted in the secondary market by broker dealers are extremely competitive, EMLB transaction costs go beyond the transparency of the bid offer spread.

PGIM Fixed Income recognizes the challenges that these costs present and takes action to minimize them as part of our focus on maximizing excess returns.

In this paper, we explain the transaction costs associated with EMLBs and discuss possible solutions to help mitigate, and in some cases, eliminate these costs from an instrument, market, and portfolio level perspective. These costs include:

- *I. Withholding taxes;*
- *II. Custodial local account holding and maintenance fees;*
- *III. Custodial foreign exchange transaction costs and the associated portfolio tracking error risk;*
- *IV. Secondary market liquidity costs.*

I. Withholding Taxes

Challenges

Many emerging market countries impose high withholding taxes on foreign investors based on the domicile of the investor or fund. For example, Brazil taxes foreign investors based on their "black list". They added Ireland to this list in September 2016 which means that some of the Ireland-based UCITS funds are charged a 15% to 22.5% withholding tax on interest and capital gains based on their holding period for Brazilian government debt. Historically, withholding taxes also have been high in the local markets of Indonesia, Philippines, and Colombia.

Solutions

Proposed solutions to help minimize withholding taxes (for accounts that allow the use of derivatives, such as interest rate swaps and cross-currency swaps) include:

1) **Assessing the relative value of the derivative yield and target return**, versus the bond after-tax yield and after-tax target return, to determine the optimal instrument.
2) **Assessing the relative value across countries between derivatives and after-tax bond target returns** in an effort to further optimize country asset allocation.

Sample Relative Value Assessment

Figure 1 below lists the estimated withholding tax for interest income and capital gains in a number of EM countries for a typical U.S. based investor. To assess relative value, we first calculated the after-tax FX hedged yield on a 5-year cash bond and then compared it with the carry on a 5-year interest rate swap, where available. For reference, high tax countries such as Indonesia and Philippines do not have swap markets.

The result? At current levels, with the exception of Colombia, Russia, and Turkey, the after-tax FX hedged carry on bonds is higher than on swaps. In Colombia, Russia, and Turkey, swaps are a more attractive instrument to express a rate view. In Colombia, for example, the after-tax FX hedged carry on the bond is just 23 bps versus 44 bps on the swap.

Figure 1: Approximate Yields & Rates for JP Morgan GBI-EM Global Diversified Index and Off-Benchmark Local EM Bonds
(JP Morgan Government Bond Index-Emerging Markets Global Diversified. As of June 30, 2019. Assumes Bonds are Funded at 3M U.S. LIBOR of 2.32%)

			5-Year Government Bonds (Unhedged)					5-Year Interest Rate Swaps			
Country	Currency	Index Weight	5-Yr Bond Yield*	Interest Income Tax (WHT)**	Capital Gains Tax (CGT)**	3m FX Implied	Approx. Hedged Yield After Tax	Swap Market***	Swap Rate	Floating Rate	Approx. Current Carry
Latin America											
Argentina	ARS	0.4%	29.34			58.48	-31.46	none			
Brazil	BRL	10.0%	7.02			3.54	1.15	OIS (DI)	6.99	6.40	0.59
Chile	CLP	3.4%	2.74	4%		-0.21	0.52	IRS	2.76	2.49	0.27
Colombia	COP	6.9%	5.17	5%	5%	2.36	0.23	OIS	4.55	4.11	0.44
Dominican Rep.	DOP	0.2%	8.91			NA	0.00	none			
Mexico	MXN	10.0%	7.39			6.15	-1.08	IRS	7.29	8.49	-1.20
Peru	PEN	3.5%	3.79			1.55	-0.08	none			
Uruguay	UYU	0.2%	10.07			6.03	1.73	none			
Asia											
Indonesia	IDR	10.0%	6.83	20%	20%	4.62	-1.48	none			
Malaysia	MYR	5.9%	3.47			0.64	0.51	IRS	3.36	3.46	-0.10
Philippines	PHP	0.3%	4.94	20%	20%	1.18	0.46	none			
Thailand	THB	8.6%	1.83			-0.85	0.36	IRS	1.71	1.96	-0.25
CEEMEA											
Czech Republic	CZK	4.3%	1.25			-0.57	-0.50	IRS	1.67	2.22	-0.55
Hungary	HUF	4.4%	1.59			-2.23	1.50	IRS	1.17	0.30	0.87
Poland	PLN	8.9%	1.97			-0.80	0.45	IRS	1.87	1.79	0.08
Romania	RON	2.5%	4.14			0.67	1.15	IRS			
Russia	RUB	8.0%	7.30			5.19	-0.21	XCCY	6.55		1.36
Turkey	TRY	3.7%	16.70			19.57	-5.19	XCCY	16.32		-3.26
South Africa	ZAR	8.9%	8.08			4.59	1.17	IRS	7.04	7.03	0.01
Off-Benchmark											
China	CNY		3.05			0.04	0.69	OIS	2.91	2.63	0.28
India	INR		6.77	5%	10-30%	4.51	-0.39	IRS	5.53	5.97	-0.44
South Korea	KRW		1.55	15.40%		-1.08	0.07	IRS	1.41	1.78	-0.37
Israel	ILS		0.87			-2.20	0.75	IRS	0.78	0.25	0.52

** Representative liquid bond in each country. Some countries do not have a liquid 2024 maturity bond, in which case the closest substitute was used. **Estimated taxes for a typical U.S. investor assuming tax treaties are in place. ***IRS = interest rate swap; OIS = overnight index swap; XCCY = cross currency swap.*

Sources: JP Morgan (Index Weight and 5-Yr Bond Yield), Bloomberg, and PGIM Fixed Income. For informational purposes only. Past performance is not a guarantee or reliable indicator of future results. This information is not intended to provide and should not be relied upon for tax advice or investment recommendations. Information has been obtained from sources believed to be reliable but J.P. Morgan does not warrant its completeness or accuracy. The Index is used with permission. The Index may not be copied, used, or distributed without J.P. Morgan's prior written approval. Copyright 2019, J.P. Morgan Chase & Co. All rights reserved. An investment cannot be made directly in an index.

II. Custodial Local Account Holding and Maintenance Fees

Challenges

Custodian banks charge clients “holding” fees on bond positions that settle locally in onshore custodial securities accounts. In some cases, they also charge annual “maintenance” fees to keep the onshore account open. Holding fees and maintenance fees are billed directly to investors and, in turn, are less transparent.

Solutions

Proposed solutions to minimize, and in some cases, eliminate the custodial holding and maintenance fees include:

1) **Close coordination between the EM local portfolio management team and the Firm’s custody operations team** to identify the (high) costs of maintaining onshore custodial securities accounts.

2) **Carefully considering which onshore custodial securities accounts to open in each client account, and minimizing the need for local accounts by taking advantage of more efficient and lower-cost settlement facilities, such as Euroclear.**

   A major trend in the EMLB market over the past decade has been the adoption of Euroclear settlement across countries. Euroclear custodial holding charges are lower than the holding charges at onshore securities accounts. In addition, clients benefit from a reduction in trade “fails” due to the consistency of Euroclear’s settlement locations. Given that PGIM Fixed Income manages assets across multiple portfolios, inconsistent settlement locations across portfolios can introduce added risks to the operational process. Another reason for the reduction in trade “fails” is the longer time period for settlement as Euroclear closes later than many EM local markets.

   PGIM Fixed Income keeps a close eye on these type of market developments and strives to ensure securities are held and settled in the most cost-effective location. For example, when Polish local bonds became Euroclear eligible several years ago, we worked with all global custodian banks to move Polish local bonds in client accounts from onshore custodial securities accounts to Euroclear.

3) **Transacting in interest rate derivatives**, such as interest rate swaps and cross-currency swaps (in accounts with guideline approval), to bypass the discussed holding and maintenance costs.

4) **Utilizing Global Depository Notes (GDNs) to gain access to certain markets** where opening local accounts is onerous or proves difficult for a custodian. GDNs are facilitated by broker dealers for a fee and settle via Euroclear, Clearstream, or DTC. In frontier markets, GDNs can be a cheaper alternative to setting up a local account. For example, investors can access high-yielding local securities in markets such as Ukraine, Kazakhstan, and Nigeria via GDNs at a cost lower than the cost to set up local custody and transact in illiquid FX markets. The credit risk of a GDN is the same as the underlying security. The cost of GDNs consists of creation and servicing fees. In a typical frontier market, such as Ukraine, the average GDN creation fee is appropriately 15 bps and the servicing fee is 25 bps to 30 bps.

III. Custodial Foreign Exchange Transaction Costs

Challenges

Custodial foreign exchange transaction costs are arguably the least transparent, least publicized, and highest of the costs detailed in this paper. They also carry the highest risk from a portfolio management standpoint. These costs can take two forms:

1) Relatively wide bid offer price spreads, which are, at times, associated with costly fee arrangements that are embedded in clients’ custodial agreements; and

2) Increased and unwanted portfolio tracking error from the movement in currency values following trade execution. This is due to the fact that the custodian banks are not required to immediately notify the portfolio manager that the FX transaction has taken place and at what price.

   With respect to the second cost, the flexibility of custodian banks does vary and, in turn, a client’s choice of a custodian bank can have profound cost implications for EMLB investments.

Solutions

Proposed solutions to minimize custodial foreign exchange transactions costs include:

1) **Significantly reducing the number of FX trades executed by custodian banks.**

   - Some custodian banks permit us to trade certain restricted market (e.g., do not have a freely open capital account) currencies, such as the Brazilian real and Colombian peso, in deliverable form with third-party broker dealers. Not only do we obtain more competitive bid offer prices from broker dealers than from custodian banks, but this arrangement can also eliminate unwanted portfolio tracking error. The tracking error stems from the movement in currencies because the custodian's spot FX trade associated with the bond trade and the offsetting FX hedge trade (which neutralizes FX risk) are not done simultaneously.
   - Moving all eligible local bond trading to Euroclear where bonds can settle at agreed FX rates, eliminating custodial FX transactions. For example, Malaysia, Thailand, Russia, Peru, Chile, Uruguay, Philippines, and Argentina are restricted markets that are eligible for USD settlement in Euroclear.

2) **Creating a system whereby custodian banks send PGIM Fixed Income automatic notifications (MT300 messages) at the time an FX trade is executed.**

   Certain custodian banks do not have the ability to provide third-party FX trading in restricted markets with broker dealers, and most custodians in restricted markets, such as Indonesia and Colombia, have limited or onerous third-party FX solutions. In these cases, we have worked with custodian banks to implement an MT300 messaging system that sends automatic messages via SWIFT to the internal analytical platform used by our traders. Alerts pop-up on the EM local traders' monitors in real-time. This system helps the traders decide how to best hedge the FX exposure in an efficient timeframe that can significantly reduce the portfolio's tracking error risk.

Figure 2: Questions to Consider When Selecting a Custodian Bank for an EMLB Portfolio

1	Does the bank have a deep knowledge base of the countries' laws and regulations? Does the bank have the ability to open and maintain onshore securities accounts quickly and at a competitive price?
2	Does the bank provide the asset manager full discretion on FX trading? The best custodian banks provide asset managers with solutions to have full discretion over trading FX in restricted markets.
3	Does the bank provide low-cost FX processing? FX ticket processing charges are high but have been trending lower given operational enhancements such as netting. The model of charging a large dollar amount for every FX trade is outdated given the benefits of netting and more straight-through ticket processing. As such, fee arrangements should be reviewed.
4	Does the bank have up-to-date operational models that support the straight-through processing of trade tickets and trade confirmations? The ability to accept MT300 messaging and straight-through processing of collateral are good examples.

IV. Secondary Market Liquidity Costs

Challenges

A number of broker dealers provide market-making across EMLBs. However, liquidity across broker dealers varies, and it is essential to know which counterparties offer the deepest liquidity across markets. Liquidity costs can take the form of the bid offer price spread and vary greatly in terms of the transactional size being offered.

Liquidity varies across broker dealers due to the differences in size, depth, and commitment of fixed income business operations in EM countries and the differences in local investor knowledge. Given that local market flows tend to be bifurcated between onshore investors within each country and offshore investors looking for access, broker dealers who are positioned to see both types of investor flows tend to be the most competitive.

Solutions

Proposed solutions to minimize the costs related to bid offer spreads include:

1) **The ability to trade EM local debt efficiently on a global basis.** PGIM Fixed Income has a dedicated team of EM local debt and FX traders based in the U.S. and UK who transact in each EM local market during optimal liquidity windows across different time zones. In Asia, for example, FX volumes are split by time zone. Market estimates show about half of all NDF[1] volume is traded during local Asia market hours while the other half is executed during London and New York trading hours. Additionally, much of the CEEMEA[2] EMLB markets tend to be more liquid during the early hours of London trading.

   We also actively participate in the primary market and in bond auctions, avenues that do not incur the bid offer spread cost and can enable transactions in higher volumes relative to the secondary markets. In certain local markets—Poland, South Africa, Mexico, Colombia, Peru—bonds are available via Dutch auctions. In these markets, it is easier to obtain a larger block of bonds at a desired yield than it is in the secondary market. By participating in auctions, we also benefit from insight into supply and demand technicals.

   In the FX markets, we primarily trade collateralized under ISDA CSA.[3] Our local EM debt traders work closely with the Firm's dedicated documentation team to ensure each account can trade with the top liquidity providers across the FX markets.

2) A**dopting electronic trading platforms,** such as MarketAxess and TradeWeb (for EMLBs) and FXConnect (for FX), which allow for competitive trading with multiple broker dealers to enhance best execution.

3) **Using alternative execution strategies, such as algorithms,** in an effort to reduce the bid offer spread. We analyze the algorithmic offerings of broker dealers to determine the potential execution benefits. In many cases, these strategies benefit from high internalization ratios which can lower our trading footprint while also achieving more competitive execution after considering the fees associated with these alternative trading methods.

4) **Transacting in derivatives in lieu of local cash bonds** as derivatives generally have lower liquidity costs than local bonds. For accounts that allow the use of interest rate derivatives, such as interest rate swaps and cross-currency swaps, we pay special attention to bid offer spreads on swaps versus bonds.

   At the shorter end of the yield curve (1-5 years), swaps tend to have much better liquidity and lower bid offer spreads. We believe shorter-dated swaps are generally better instruments than bonds to position for central bank rate actions because swaps do not utilize cash and enable us to efficiently allocate across the term structure. In addition, swaps do not incur FX transaction costs. Sourcing 1-3 year local bonds can be difficult, however, as these bonds tend to be held by local banks and swaps are the only viable alternative in many markets. In the middle of the curve (5-10 years), the liquidity of bonds and swaps is quite comparable. Beyond 10 years, bonds tend to be the only alternative as the swap markets are very illiquid in longer-term maturities.

Additional Recommendations to Reduce EMLB Transaction Costs at the Portfolio Level

1) **Reduce benchmark rebalancing frequency.**

   The JP Morgan GBI-EM Global Diversified Index rebalances every month, which can reduce a typical portfolio's annual return by 30 bps to 40 bps, on average. To reduce transaction costs, a strong case can be made for medium- to long-term investors, such as pension funds, to rebalance on a quarterly basis.

   We believe the savings generated by switching from monthly to quarterly rebalancing, which helps reduce turnover, will add up over time. According to JP Morgan, the average turnover for its GBI-EM Global Diversified Index ranges from 5% to 7% per month, and we estimate there is 2.5% to 5% less turnover per quarter if the Index is rebalanced quarterly versus monthly. A 10% to 20% lower annual turnover, assuming 50 cents of transaction cost per bond (including FX transaction costs associated with the bond), could preserve 5 bps to 10 bps of annualized return in an EMLB portfolio.

2) **Replace benchmark countries with high tax structures** with countries that have low to no tax structures, while keeping the benchmark yield and volatility at similar levels. (See Appendix.)

3) **Replace a "beta" benchmark with a cash benchmark** to provide the asset manager with full flexibility in constructing the portfolio.

[1] Non-Deliverable Forward (NDF)
[2] Central and Eastern Europe, Middle East and Africa (CEEMEA)
[3] The International Swaps and Derivatives Association and Credit Support Annex (ISDA CSA)

Conclusion

The increasing volume of negative rate securities in developed markets continues to steer many investors to higher-yielding instruments, including emerging markets hard currency and local currency bonds. Emerging markets local bonds not only have higher nominal yields than their developed market counterparts, but have attractive real yields, as well.[4] But, unlike emerging markets hard currency debt, the transaction costs associated with local currency debt go beyond the traditional bid offer spread. These additional costs include withholding tax, custodial local account holding and maintenance fees, custodial foreign transaction costs, and secondary market liquidity costs.

At PGIM Fixed Income, we consider the challenges of these transaction costs in daily portfolio management and implement a range of active solutions to help mitigate, or even eliminate, these charges in order to maximize the returns of client portfolios. The client's choice of custodian can also reduce costs, especially if the custodian provides the asset manager with more discretion in FX hedging and trading.

[4] *Source: PGIM Fixed Income as of August 7, 2019.*

Appendix: Bypassing Withholding and Capital Gains Taxes

Potential solutions to bypass withholding and capital gains taxes in an EMLB portfolio may begin by: 1) Establishing a large enough risk budget or tracking error target to provide the portfolio manager with the flexibility to avoid countries with high withholding and capital gains taxes, or 2) Creating a custom EMLB index that avoids countries with high taxes. In both scenarios, all portfolio exposures would be actively managed from a relative value perspective to generate alpha.

To understand how transaction costs may affect an EMLB portfolio, we created a hypothetical, custom EMLB index and compared the yield, duration, and volatility of this index to the JP Morgan GBI-EM Global Diversified Index (Unhedged).

The custom EMLB index was created by removing two countries—Indonesia and Philippines—from the JP Morgan GBI-EM Global Diversified Index as they have high withholding and capital gain taxes (20%) and also do not have liquid derivative markets (swaps) as an alternative. We then replaced the market value of the Indonesia and Philippines bonds with non-benchmark Chinese government bonds. China does not have tax issues, it does have a liquid swap market, and it is already included in the Bloomberg Barclays Global Aggregate Bond Index. JP Morgan monitors the constituents of Chinese bonds in its GBI-EM Broad Index, and we believe adding China to the flagship JP Morgan GBI-EM Global Diversified Index is just a matter of time.

Other countries noted for tax consideration that we chose to keep in the custom EMLB index include Colombia and Chile. These countries have withholding taxes (~5%), but they are significantly lower than Indonesia and Philippines, and swaps can be traded in these markets to bypass the tax.

Note: The countries mentioned above do not represent all taxable countries with EM local debt, as taxes are heavily based on tax jurisdiction and cross/double-taxation treaties set up with the issuing government. We advise investors to discuss tax issues with their legal and tax advisors. Other costs to consider, as discussed in this paper, relate to rebalancing, bid offer, deliverable and non-deliverable forward FX trading, and any custodian-related settlement issues.

Impact of Taxes on Select Countries in EMLB Market Index

As mentioned, Indonesia and Philippines are two of the costliest countries for offshore EMLB investors. Figure 3 breaks down the impact taxes may have on these countries' bonds as well as the bonds of Colombia and Chile. Under current market conditions, we estimate the taxes on the JP Morgan GBI-EM Global Diversified Index may cost the average investor about 20 bps per year. This impact will likely be higher in rising markets because capital gains may accrue.

Figure 3

	GBI-EM Global Div. (Unhedged) **Yield (%)**	**Approx. Tax* (%)**	**Effective After-Tax Yield* (%)**	**Index Weight (%)**	**Est. Annual Taxes**
Indonesia	7.14	20%	5.71	10.25%	15 bps
Philippines	4.74	20%	3.79	0.30%	<1 bp
Colombia	5.69	5%	5.41	6.90%	2 bps
Chile	3.32	4%	3.19	3.40%	<1 bp

*Represents data for the JP Morgan Government Bond Index-Emerging Markets Global Diversified index. *Source: PGIM Fixed Income. Represents approximate tax and estimated effective yield after withholding and capital gains taxes are considered based on information considered reliable. Taxes vary by country and client's or fund's domicile. Investors should seek advice from legal and tax advisors. Other Sources: JP Morgan and PGIM Fixed Income as of July 15, 2019. For informational purposes only. Past performance is not a guarantee or reliable indicator of future results. This information is not intended to provide and should not be relied upon for tax advice or investment recommendations. Information has been obtained from sources believed to be reliable but J.P. Morgan does not warrant its completeness or accuracy. The Index is used with permission. The Index may not be copied, used, or distributed without J.P. Morgan's prior written approval. Copyright 2019, J.P. Morgan Chase & Co. All rights reserved. An investment cannot be made directly in an index.*

Index Statistics

Figure 4, on the following page, compares the yield, duration, and volatility of the custom EMLB Index against the JP Morgan GBI-EM Global Diversified Index. As you can see, the custom EMLB index has a slightly lower nominal yield (5.62% vs. 5.69%) and shorter duration (5.27 years vs. 5.67 years) than the GBI-EM Global Diversified Index. This is mostly due to the shorter duration and lower yields of Chinese government bonds, on average, relative to the Indonesia and Philippines bonds. However, the effective yield of the custom index *after taxes* is higher than the market index (5.60% vs. 5.50%).

The custom EMLB index also has lower expected volatility than Indonesia FX, which is intuitive given that Chinese rates have less volatility than Indonesia rates, and China's FX has less volatility than Indonesia FX. (Volatility figures quoted are ex-ante tracking error, which is expected annualized volatility over a market cycle, as calculated by PGIM Fixed Income's internal risk system.)

Figure 4: Snapshot of JPM GBI-EM Global Diversified Index vs. Custom EMLB Index

Index	Duration (Yrs)	Nominal Yield (%)	Effective After-Tax Yield* (%)	Rate Volatility (%)	FX Volatility (%)	Total Volatility (%)
JPM GBI-EM Global Diversified	5.37	5.69	5.50	4.1	8.8	11.2
Custom EMLB Index	5.27	5.62	5.60	3.7	8.5	10.5

*Represents data for the JP Morgan Government Bond Index-Emerging Markets Global Diversified (Unhedged) index. *Source: PGIM Fixed Income. Represents estimated effective yield after withholding and capital gains taxes are considered based on information considered reliable. Taxes vary by country and by client's or fund's domicile. Investors should seek advice from legal and tax advisors. Other Sources: JP Morgan and PGIM Fixed Income. For informational purposes only. Past performance is not a guarantee or reliable indicator of future results. This information is not intended to provide and should not be relied upon for tax advice or investment recommendations. Information has been obtained from sources believed to be reliable but J.P. Morgan does not warrant its completeness or accuracy. The Index is used with permission. The Index may not be copied, used, or distributed without J.P. Morgan's prior written approval.*

Note: The custom EMLB Index referenced above is for illustrative purposes only. It is important to consider that in practice, rather than simply replace the market value of one country with another country, JP Morgan uses a multi-step process to create the country weights through their index diversification process, which would lead to slightly different country weights.

Notice: Important Information

Source(s) of data (unless otherwise noted): PGIM Fixed Income as of August 31, 2019.

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