

Inflation-linked Bonds in Emerging Markets

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Inflation-linked bonds in emerging markets

Introduction

When investors seek safety, steady income and guaranteed principal, they turn to fixed income securities. But even the safest government bonds, such as US Treasuries, cannot protect them from the risk of inflation. Inflation erodes the value of fixed coupon payments and principal in real terms. If I earn 2% during the year, but prices rise by 3%, my real purchasing power actually diminishes. Rising inflation erodes the value of fixed income assets, which is why investors often care about real returns or returns earned above inflation.

In emerging markets (EM), inflation tends to be a greater concern for a few reasons. For one, historically emerging market economies have suffered from higher inflation, though over the last few years more orthodox and credible central banks have been successful in keeping a lid on inflation barring a few exceptions. Also, the inflation series is much more volatile given the higher weight of volatile components such as food and oil. Finally, one side effect of flexible exchange rate regimes in EM countries is the inflation pass-through from exchange rate fluctuation. On a macroeconomic front, this serves as a shock absorber which translates to a dampening of domestic demand. However, for a fixed income EM investor, this takes away from real returns. These sorts of concerns gave rise to inflation-linked bonds: it was in 1964, that Brazil began to issue linkers (as inflation-linked bonds are often called). As the country struggled with bouts of hyperinflation, inflation-linked bonds became the primary form of government financing.

Inflation-linked bonds in emerging markets

Overview of emerging markets inflation-linked bonds

The Basic Mechanics

Inflation-linked bonds differ from nominal bonds in several major ways:

- ◆ The face value, or the principal amount, of the nominal bond is fixed, while the principal of the inflation-linked bonds is adjusted with regular frequency according to an inflation index, such as a consumer price index (CPI).
- ◆ The coupons of nominal bonds are fixed in percentage and amount, whereas the coupons of inflation-linked bonds are paid as a fixed percent of an adjusted principal amount. So when inflation is rising, the coupon amounts will grow.¹
- ◆ Finally, the return of a nominal bond over a specified horizon is the coupon plus any change in value of the bond from rising or falling yields (price moves inversely with a change in market yields). This is a *nominal* return, i.e., before accounting for the impact of inflation. The *real* return of a nominal bond is then: (nominal) yield + change in market value – inflation.² Meanwhile, the return of an inflation-linked bond is equal to the coupon times the principal adjusted for inflation plus the change in value of the bond from changing yields. Thus, the “*real*” return of an inflation-linked bond is simply: (real) yield + change in market value.

Characteristics	Nominal Bond	Inflation-linked bond
Principal amount	Fixed value	Adjusted according to CPI
Coupon	Fixed percentage and amount	Fixed percent of adjusted principal
“Real” return	(nominal) yield + change in market value – inflation	(real) yield + change in market value

On the face of it, it would seem that inflation-linked bonds should therefore always be more attractive than nominal bonds. But of course, the market adjusts for the advantage of inflation-linked bonds and real yields are often lower than nominal yields. In fact, the difference between the yield on the nominal bond and the yield on the inflation-linked bond is called the *break-even inflation*. It is called *break-even* because investors would be indifferent between the nominal and inflation-linked bond if the actual inflation were to turn out equal to the break-even over the life of the bond. If actual inflation happens to be higher than the break-even, the inflation-linked bond fully protects the investor, while the value of the nominal bond is eroded. If, however, actual inflation is lower than the break-even, the investor would be better off purchasing the nominal bond.

There is a third scenario to consider though. What happens if there is actual deflation in the economy? It follows that the principal amount on your holding would be adjusted downwards, just as it is adjusted upwards to account for inflation. To mitigate this risk, most developed market linkers have a deflation floor which protects the downside for investors arising from deflation. This is a key area where EM linkers are different from DM as most EM linkers do not provide this feature, save a few cases such as South Africa, Turkey and Thailand. That said, the risk of deflation in EM economies is sufficiently low that it should not deter investors.

Break-even =
nominal yield – real yield

High break-even
Nominal bond could be more attractive than inflation-linked bond

Low break-even
Inflation-linked bond could be more attractive than nominal bond

1. In many markets, particularly developed, inflation-linked bonds contain an embedded floor on the par principal amount that protects them against falling inflation. In other words, the principal is not adjusted down in the case of deflation.

2. Here, coupon and yield are used interchangeably for simplicity. For discount bonds, the coupon is lower than the yield, however as the bond is pulling to par, the appreciation of the principal makes up for the lower coupon. The opposite applies for premium bonds, when the coupon is higher than the market yield.

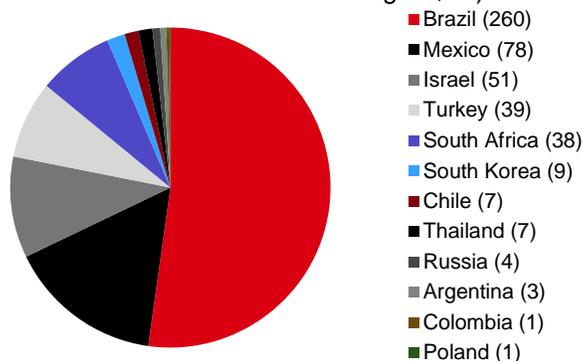
Inflation-linked bonds in emerging markets

Overview of emerging markets inflation-linked bonds

Market size and opportunity set

The inflation-linked market mushroomed over time in the developed and emerging world as the UK began to issue linkers in 1981, Mexico issued Udibonos in 1996 and the US Treasury started issuing TIPS (Treasury Inflation Protected Securities) in 1997. The market stood at \$3.1 trillion as of April 2019 as represented by one of the larger investment benchmarks, Bloomberg Barclays World Government Inflation-Linked Bond index (Source: Barclays). The largest government issuers in EM are now Brazil, Mexico, Israel, Turkey and South Africa. The Bloomberg Barclays Emerging Markets Government Inflation-Linked Bond Index includes the bonds of these and other countries—in total twelve EM sovereign issuers of inflation linked bonds—and represents half a trillion in market value of bonds outstanding (Figure 1).

Figure 1: Inflation-linked bond markets in EM
(market value of bonds outstanding in \$bn)



Source: Barclays, April 30, 2019

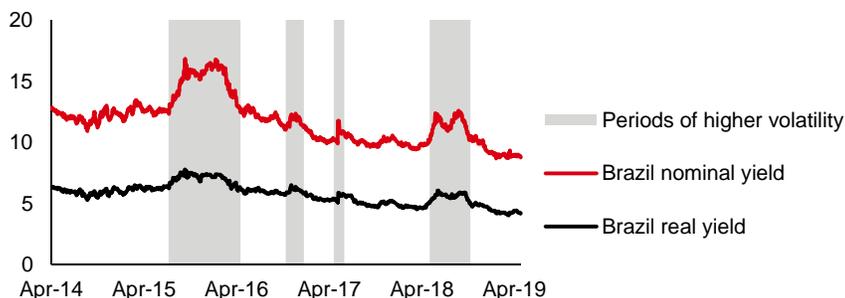
Liquidity premium

Inflation-linked bonds are typically less liquid than nominal bonds with smaller standard trading sizes and wider bid-offer spreads. On average, inflation-linked markets are about half as liquid as nominal bond markets. Their lower liquidity is a reflection of the lower outstanding size in some markets, as in the case of Russia or Thailand. However, in other markets like Brazil, although the outstanding size of inflation-linked bonds is comparable to that of nominal bonds, the linkers are still less liquid. This is because the main participants in the linkers market are local pension funds, seeking inflation-protected income for their retirees. The pension funds have a longer-term holding horizon, which restricts the amount of bonds available to remaining market participants. These dynamics explain why inflation-linked bonds have a liquidity premium versus nominal bonds—a premium that is estimated to be about 70 basis points when comparing US TIPS vs. US Treasuries, for example.³

Less yield volatility

Real yields exhibit less volatility than nominal yields, especially in turbulent times. We can observe that in Brazil, where nominal yields spiked in early 2016, following Brazil's downgrade and at the height of political uncertainty, and in late 2018 around presidential elections, whereas the movement in real yields was more contained (Figure 2). There are several reasons for lower volatility of real yields. First, the nominal yield of a bond can be thought of being made of two components: the real yield and expected inflation. Changing inflation expectations will lead to changes in nominal yields. Real yields, however, will stay the same. So the nature of the instrument itself explains why the yields of inflation-linked bonds do not move as much as nominal yields.

Figure 2. Brazil yield volatility



Source: Bloomberg, May 09, 2019

3. <http://www.hbs.edu/research/pdf/11-094.pdf>

Inflation-linked bonds in emerging markets

Overview of emerging markets inflation-linked bonds

Less yield volatility *(continued)*

In addition, the main buyers of inflation-linked funds are local investors, in particular local pension funds that tend to have longer holding period. This stable local ownership base also explains the lower volatility of linker yields. In contrast, foreign investors are often the largest holders of nominal bonds with 25-35% average share of ownership, but only marginal holders of linkers with 3-10% share.⁴ For example, in South Africa, foreigners own 40% to 60% of nominal bonds (depending on maturity) but just 3 to 8% of linkers.⁵ Similarly, in Mexico, foreigners own over 30% of Mbonos, Mexico's nominal government bonds,⁶ and 3% of Udibonos, Mexico's inflation-linked bonds.

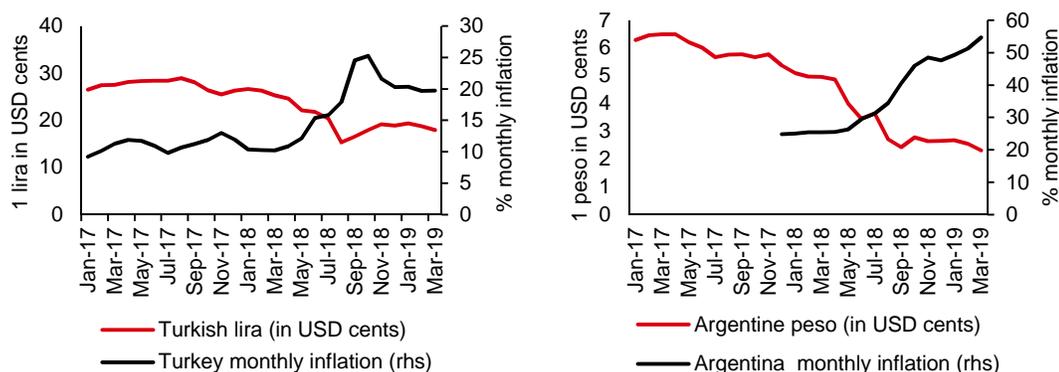
Finally, inflation-linked bonds are not included in the major EM local bond benchmarks (although there are dedicated inflation-linked benchmarks). That means that for most foreign investors, these bonds are an off-index investment, which makes them less susceptible to foreign investor sentiment and sharp positioning-driven sell-offs.

Currency risk and pass-through inflation in EM linkers

The investment return on a foreign currency nominal bond can be divided into two primary components. The first is the rates component, which is comprised of the ongoing income from coupons, as well as the change in the value of the bond due to changes in local interest rates. The rates component is simply the return on the bond in domestic currency. The second is the currency component, which represents the change in the value of the foreign currency versus the US dollar, or the investor's base currency.

In emerging markets, sudden and severe currency depreciation can lead to unexpected increases in inflation. This is because inflation in EM is often susceptible to changes in the prices of imported goods that represent a high percentage of the standard consumer basket. When the EM exchange rate depreciates, it leads to higher prices of imports and higher overall inflation - this is called the pass-through effect. In some cases, the pass-through effect can be as high as 40% (i.e., a 10% currency depreciation could lead to a 4% increase in consumer prices) as was the case in August 2018 during the currency sell-off in Turkey. Similarly, in Argentina we have seen a persistent negative feedback loop in progress as high historical inflation erodes the value of the currency, leading to depreciation, which in turn leads to pass-through inflation (Figure 3). Again, it is important to point out that with the correct policy mix, the depreciation of flexible currencies should eventually lead to a self-correcting contraction in domestic demand over time.

Figure 3: Turkish lira and inflation (left) and Argentine peso and inflation (right)



Source: Bloomberg, April 30, 2019

While the US dollar or base currency return of both nominal and inflation-linked bonds will suffer because of a weaker foreign currency, inflation-linked bonds implicitly offer partial protection to foreign investors by compensating for pass-through inflation.

4. As compiled by JP Morgan, May 2018

5. National Treasury South Africa, December 2018, <http://investor.treasury.gov.za/>

6. Banxico, January 2019 http://www.banxico.org.mx/valores/LeePeriodoSectorizacionValores.faces?BMXC_claseIns=GUB&BMXC_lang=es_MX

Inflation-linked bonds in emerging markets

Investing in emerging markets linkers

Inflation-linked bonds offer a liquidity premium, less yield volatility and protection against inflation, including pass-through inflation. What should investors consider when investing in linkers? In addition to the rigorous analysis that should be applied to EM local bonds generally, there are a few issues specific to linkers.

Longer-term focus

Inflation-linked bonds tend to have longer maturities. Often the real yield curve (the yield curve represented by inflation-linked bonds) only starts at 2 years and can extend beyond the maximum maturity of the nominal yield curve. For example, the maximum maturity of nominal local bonds in Brazil is 10 years, while the maximum maturity of their inflation-linked bonds is over 30 years.

Therefore, analyzing real yield levels is more analogous to examining the longer end of nominal yields, which is focused more on credit risk and term premium than on nearer-term monetary policy. In fact, views on the level of real yields in the case of inflation-linked bonds are tied to the views on the sustainable, long-term real rate in the EM economy.

Expected near-term income

The near-term income component of an inflation-linked bond is based on the bond's real yield plus expected inflation or inflation accruals over a given horizon. Therefore, the expected cash flow on the linker is uncertain in nominal terms and must be estimated. Factors that influence these estimates include the impacts of currency changes, economic growth and seasonal patterns.⁷

Yield volatility and duration

The lower volatility of linkers' yields can impact the amount of exposure to any given bond or country in a portfolio, as measured by market value or duration. Duration measures the sensitivity of a bond price to changes in interest rates.

The duration of a nominal bond can be broken down into sensitivity to changes in real interest rates and sensitivity to changes in expected inflation. If investors begin to expect higher inflation, they will sell nominal fixed income securities and nominal bond yields will rise. As discussed in earlier section (in Less Yield Volatility), given that inflation-linked bonds compensate investors for inflation changes, their yields do not shift as much as nominal yields. In fact, Brazil real rates are about half as volatile as nominal Brazil rates, Mexico's real rates have close to 80% of the volatility of its nominal rates and South Africa's real rates have about 33% of the volatility of its nominal rates. Therefore, the nominal duration of an inflation-linked bond is lower than its real duration and is often assumed to be about half of the real duration. For example, an inflation-linked bond with real duration of five years would have an equivalent nominal duration of two and a half years.

Nominal bond duration

Sensitive to changes in:

Real
interest
rates

Expected
inflation

Inflation-linked bond duration

Sensitive to changes in:

Real interest rates

7. Inflation in many countries follows a seasonal pattern, for example prices may rise more quickly in the early part of the year.

Inflation-linked bonds in emerging markets

Investing in emerging markets linkers

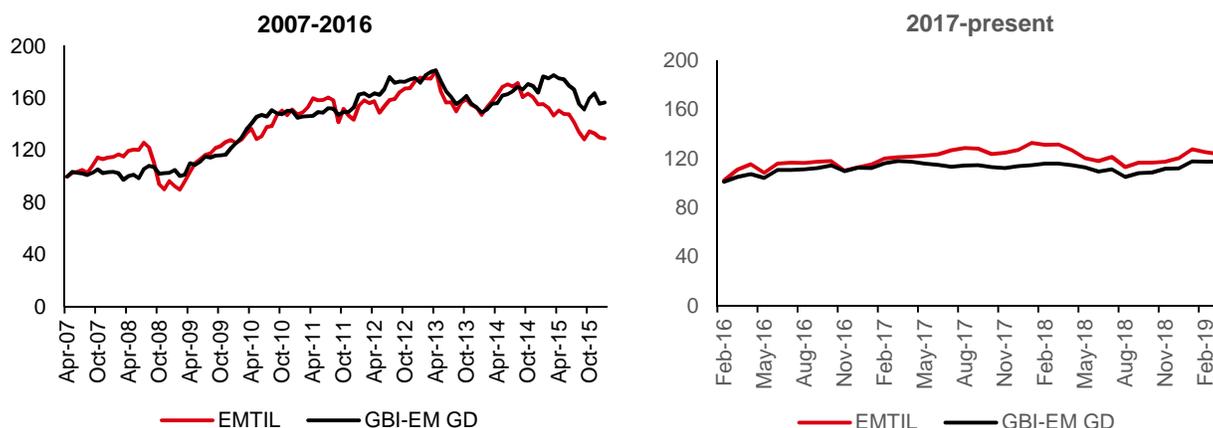
Comparing linkers vs. nominal bonds

Finally, when investing in inflation-linked bonds, it is important to consider the relative advantage of linkers vs. nominals. The decision to invest in nominal bonds versus inflation-linked ones largely depends on the break-even inflation (the difference between the nominal yield and real yield of the same maturity) versus the expected inflation as described earlier.

Performance in different inflation environments

The performance of EM inflation-linked bonds relative to nominals largely depends on the deviation of actual inflation from expected. In periods of stable inflation, linkers tend to perform closely in line with nominals, as during the period from about mid-2013 until about end of 2014 (Figure 4-left chart). However, periodically there may be persistent deviations in performance. For example, linkers materially underperformed nominals in 2015 and 2016, partially explained by the sharp drop in oil prices which led to a temporary slump in headline inflation across EM. However, since early 2016, due in part to the recovery in oil prices, linkers began to outperform nominals significantly (Figure 4-right chart).

Figure 4: Performance of EM inflation bond index (Barclays Bloomberg EMTIL) vs. EM nominal bond index (JP Morgan GBI-EM GD)



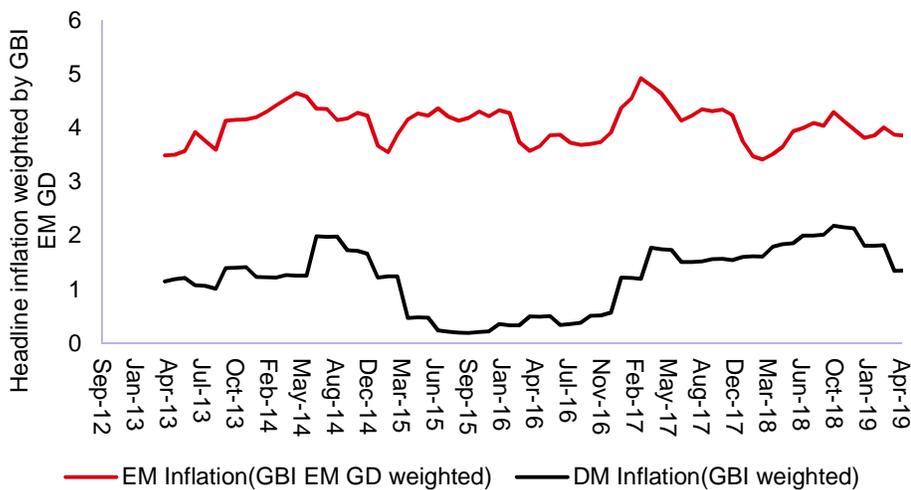
Source: Barclays, JP Morgan, April 30, 2019

Inflation-linked bonds in emerging markets

Outlook for inflation and emerging markets linkers

Looking at current trends, inflation has picked up in both emerging and developed markets in early 2018, but since then declined in DM and stabilized at more elevated levels in EM (Figure 5).

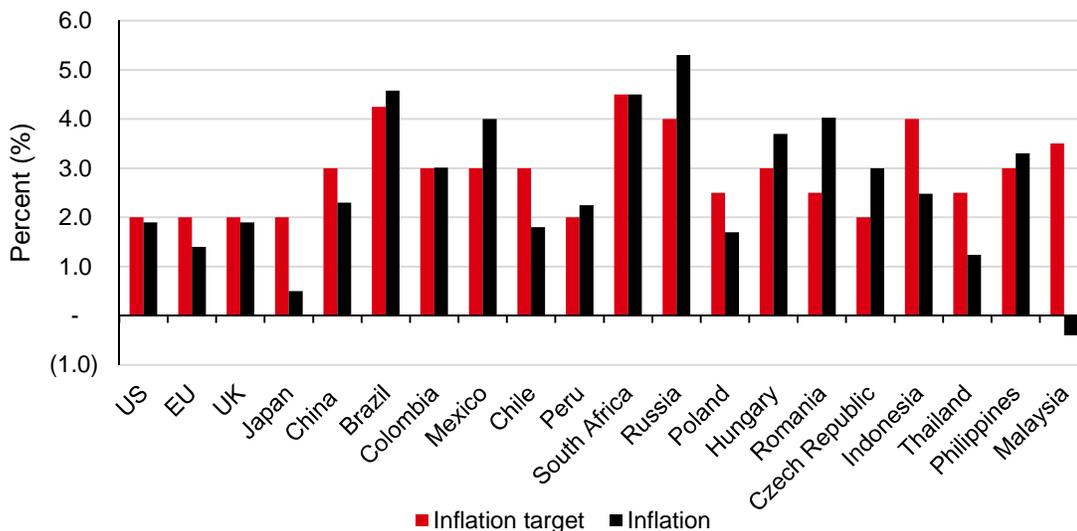
Figure 5: Inflation in emerging and developed markets



Source: Bloomberg, 30 April 2019

In the developed world, inflation is now running below target, however in most EM countries inflation is still above the stated goals of the central banks (Figure 6). And in some countries, like Argentina and Turkey, inflation has spiraled following the currency crisis in late summer/early fall of 2018.

Figure 6: Inflation vs. target in developed and emerging markets



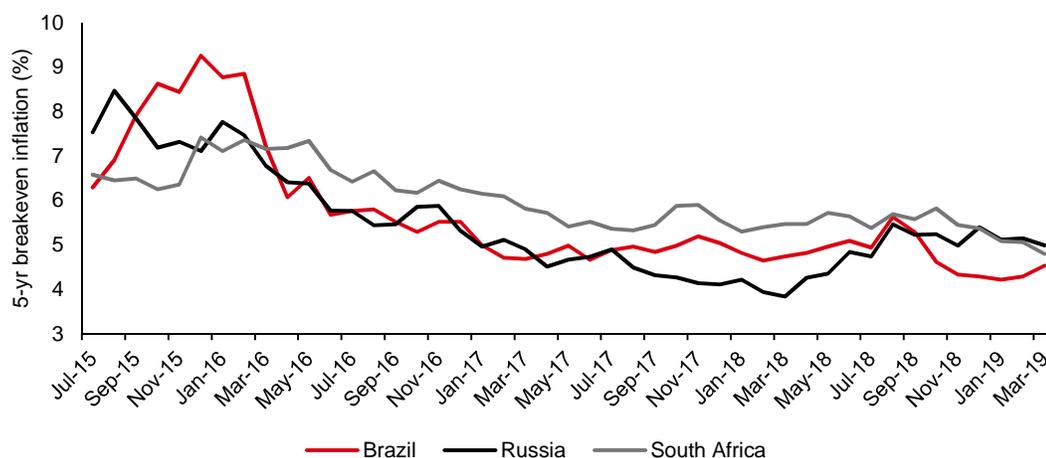
Source: Bloomberg, April 30, 2019

Inflation-linked bonds in emerging markets

Outlook for inflation and emerging markets linkers

For now, investors do not seem too worried, as in many EM markets the breakeven inflation that is priced in, is close to historical lows (Figure 7). But this means that any inflation surprises above what is currently reflected in nominal bonds will benefit inflation linked bonds and hurt nominals. Of course investors must evaluate whether the lower inflation in a given EM market reflects a structural shift down or temporary cyclical factors. For example, there are signs that in Russia the decline in inflation could be permanent due to significant fiscal consolidation and high monetary policy credibility. On the other hand, in Brazil, it doesn't seem that there has been a structural decline in inflation, given that much of the inflation moderation has been a result of a severe contraction in economic activity and a sluggish recovery.

Figure 7: Breakeven inflation (difference between nominal and inflation-linked yields) in select countries



Source: Bloomberg, April 30, 2019

Inflation-linked bonds can perform particularly well in an environment where currency depreciation, higher oil prices or food supply shocks lead to near-term inflation surprises—not uncommon in the EM world. It may be worth considering EM linkers in select countries, where the break-even inflation is low, like Brazil or South Africa, or where inflation is at the risk of accelerating versus expectations. At the same time, expectations of a slowdown in medium-term growth in global and emerging markets growth,⁸ in particular due to rising global trade tensions, could lead to lower real rates in the long term and thus would benefit linkers as well.

8. <https://www.imf.org/en/Publications/WEO/Issues/2019/03/28/world-economic-outlook-april-2019>

Inflation-linked bonds in emerging markets

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