Mercer

Inflation-linked bonds

A real dilemma

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A real dilemma

Rising inflation has caught investors' attention. Interest rates and breakeven inflation[1] have spiked substantially as vaccines and residual stimulus have created a re-opening boom in many developed countries since mid-2021. Add to this growing optimism, the belief that central banks will tolerate some period of above target inflation, and we now find many investors asking how to potentially protect their portfolios from a higher inflation regime. To help answer these questions, we start by examining the pros and cons of what many investors see as the go-to bond solution for inflation protection, sovereign inflation-linked bonds or "linkers."

Linkers
(1) can be poor short-term inflation hedges, but have historically provided protection over the long term.
(2) currently lock in low, or even negative, real returns.

What are linkers?

Linkers are debt obligations where the principal adjusts in line with an inflation index, unlike a traditional fixed-rate nominal bond where the principal is constant. Both linkers and nominal bonds use fixed coupon rates, but by virtue of the inflation adjustment of the principal for linkers, the **coupon payments adjust with inflation**. Likewise, in periods of deflation, the corresponding reduction in principal will result in reduced interest payments. In many jurisdictions, however, the principal of the bond is protected from deflation at maturity.[2] **The principal payment includes the vast majority of the inflation compensation.** A graphical representation is in the appendix.

Figure 1: Benefits and risks of linkers

Pros	Cons
Inflation protection Principal explicitly linked to changes in inflation index	**Interest rate risk** Sensitive to changes in real yields
Low credit risk Principally issued by sovereigns	**Low correlation to inflation expectations** Mark-to-market tends to be more sensitive to changes in real yields than inflation expectations
Diversifying Expected to exhibit low correlations to equities	**Inflation expectations baked in** Only offer protection against inflation higher than what the market has already priced in
Liquid Lack of credit risk and large market simplifies transacting	**Locking in a poor real return** At present, most sovereign real yields are near or below zero

[1] Breakeven inflation is approximately the difference between the nominal yield of a traditional bond and real yield of a linker of comparable maturity. It represents the level of inflation needed to make returns to maturity equivalent between the two.

[2] Exceptions include the UK, Canada, Japan, Mexico and Brazil.

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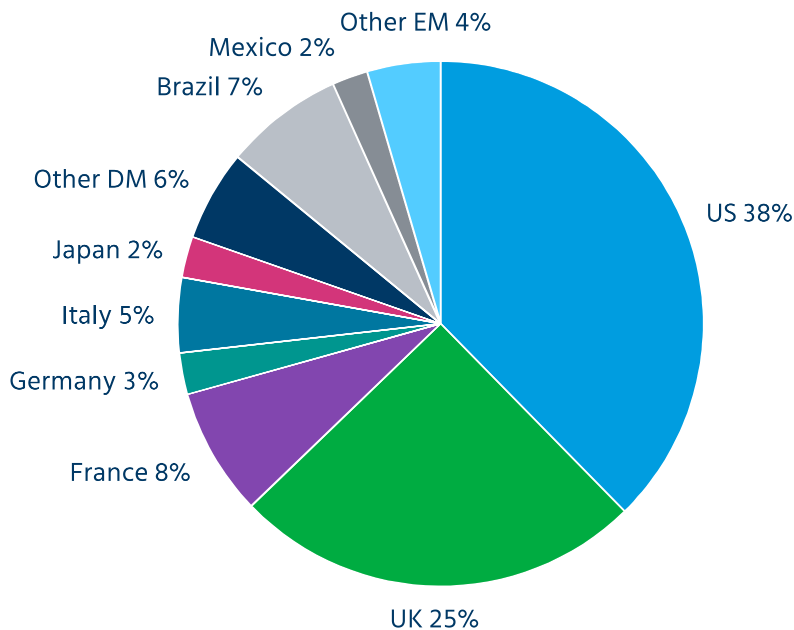
Market make-up

Globally, outstanding linkers are mainly concentrated in developed market countries, specifically the US and UK. France, the largest Euro issuer, is only around a third of the size of the UK.

Within emerging markets, Brazil does have a substantial linkers program, a legacy of wrestling with its past bouts of hyperinflation. Mexico, Turkey and South Africa are other long-time issuers of linkers in emerging markets, albeit at a smaller size. Issuance has been more limited in emerging markets in Asia and Eastern Europe, where there is less of a history of investors having to deal with high inflation.

Figure 2: Global linker market



Source: Barclays, as of March 2020.

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Do linkers work?

Short term

The critical observation for portfolio construction is that, **on a short-term basis, linkers are more exposed to changes in real rates than they are to changes in inflation expectations**. To illustrate this, figure 3 shows how returns on a 10-year US TIPS would fare under different assumptions for changes in real yields and inflation over the course of one year.

Figure 3: How one year returns on a 10-year TIPS change with inflation

Change in real yield (%)	Breakeven/Realized inflation (%)						
	-1%	0%	1%	2%	3%	4%	5%
-2.0%	21%	22%	23%	24%	25%	26%	26%
-1.5%	15%	17%	18%	19%	19%	20%	21%
-1.0%	10%	11%	12%	13%	14%	14%	15%
-0.5%	4%	6%	7%	7%	8%	9%	9%
0.0%	-1%	0%	1%	2%	3%	3%	4%
0.5%	-6%	-5%	-4%	-4%	-3%	-2%	-2%
1.0%	-12%	-11%	-10%	-9%	-9%	-8%	-8%
1.5%	-17%	-16%	-15%	-15%	-14%	-14%	-13%
2.0%	-23%	-22%	-21%	-20%	-20%	-19%	-19%

Analysis based on one year time horizon. Assumptions: Coupon = 0.125%, Initial value = $111, Breakeven inflation = 200 bps. For illustrative purposes only.

Long term

On an absolute basis, over the full life of a linker, the realized path of inflation will drive nominal returns. As such, the correlation of returns with realized inflation increases substantially when the time period being assessed is lengthened.

On a relative basis, versus a comparable nominal bond, the performance of a linker is determined by realized inflation versus what breakeven inflation was at the time of purchase.

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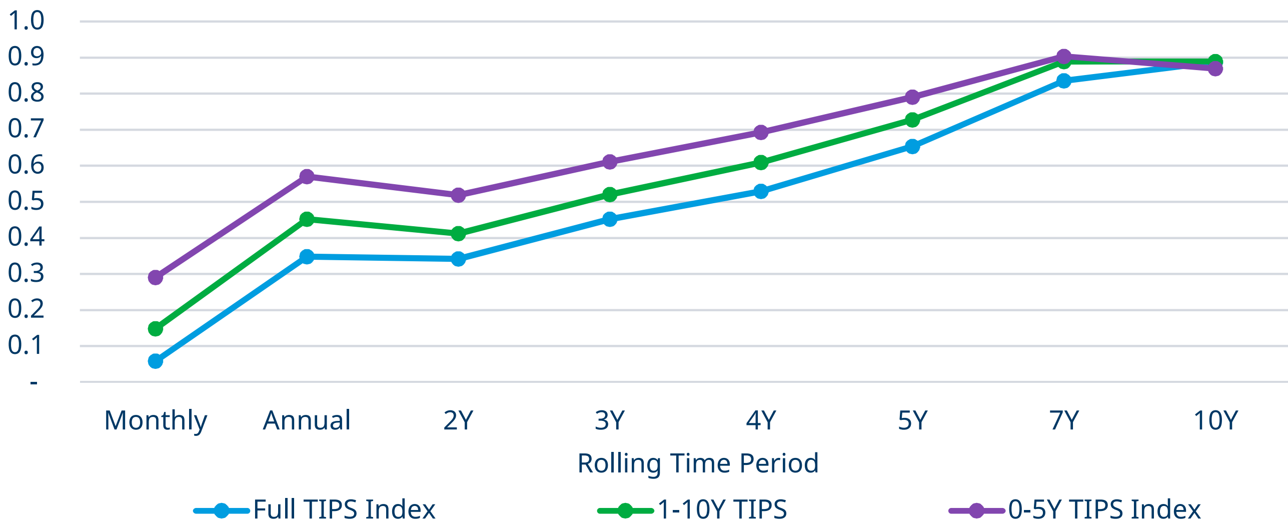
Figure 4: Correlation: TIPS index and CPI



Source: US Bureau of Labor Statistics via FRED, Bloomberg Barclays Indices.
Data: January 2000 to July 2021, Monthly Returns.

Stagflation and other inflationary scenarios

While linkers tend to only track inflation over longer time periods in a normal environment, they are often placed in portfolios specifically to protect against stagflation and other inflationary surprise scenarios. **In a stagflationary environment, where real rates initially tend be steady or falling, linkers tend to do a better job of providing a cushion against inflation via the principal accretion.** However, in a growth-oriented scenario like overheat, rising real rates tend to lead to mark-to-market losses for linkers.

Figure 5: Bonds returns[3] during different inflation scenarios

Scenario	Annualized return					
	TIPS			UST		
	1Y	3Y	5Y	1Y	3Y	5Y
Overheat	-1%	0%	1%	-6%	-2%	1%
Stagflation	3%	4%	5%	-8%	-4%	-1%
Financial repression	8%	5%	3%	2%	1%	1%

Source: Mercer. Data and scenarios as of June 30, 2021.

[3] Actual performance may be lower or higher than the performance data quoted. Return expectations are forward looking and reflective of Mercer's Capital Market Assumptions and Scenarios, as defined by asset class and incorporating return, standard deviation, and correlations. For fixed income, our process for setting asset class expected returns begins with developing an estimate of the long term normal level of economic growth and inflation. From these two key assumptions, we develop an estimate for the natural level of interest rates. With this information, we can then determine the expected long term return. For scenario analysis, forward looking scenarios are constructed that stress these building blocks. For scenario definitions, please see Appendix B. Manager impact on performance is not incorporated into expectations.

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Real return dilemma

While so far we have focused mainly on the inflation protection embedded in linkers, there is an alternative way to look at linkers' structure. The alternative viewpoint is the provision of a guaranteed real return or real yield. However, are real yields attractive enough to argue for locking in now? Unfortunately, at present, an investment in linkers would lock in negative real yields across developed markets. As such, except versus nominal bonds, which already embed the same real yields, linkers are relatively unattractive on a hold to maturity basis. Versus nominal bonds, linkers at least could benefit from an inflation surprise, as global central banks are likely to continue to repress yields in an effort to support higher debt loads and fiscal deficits. Worth noting, in certain jurisdictions, such as the UK, linkers also serve a hedging purpose for regulatory reasons, which can create a supply-demand imbalance that further perpetuates negative real yields.

Figure 6: Yield and breakeven comparison

Country	10-year real yield	10-year breakeven
France	-1.75%	1.62%
Germany	-2.04%	1.63%
Italy	-0.87%	1.46%
UK	-3.00%	3.71%
US	-1.10%	2.37%

Source: Barclays; Data as of September 9, 2021.

Conclusion

With 10-year real yields below 0%, linkers certainly do not appear particularly appealing in isolation. However, linkers could potentially significantly outperform nominal bonds in an inflationary period, while still providing some degree of risk-off hedge in an investor's portfolio. What linkers do not provide is portfolio level, mark-to-market protection from inflation. For more holistic, portfolio-oriented solutions, please see Mercer's paper: Inflation protection - Hope for the best, but build robust portfolios.

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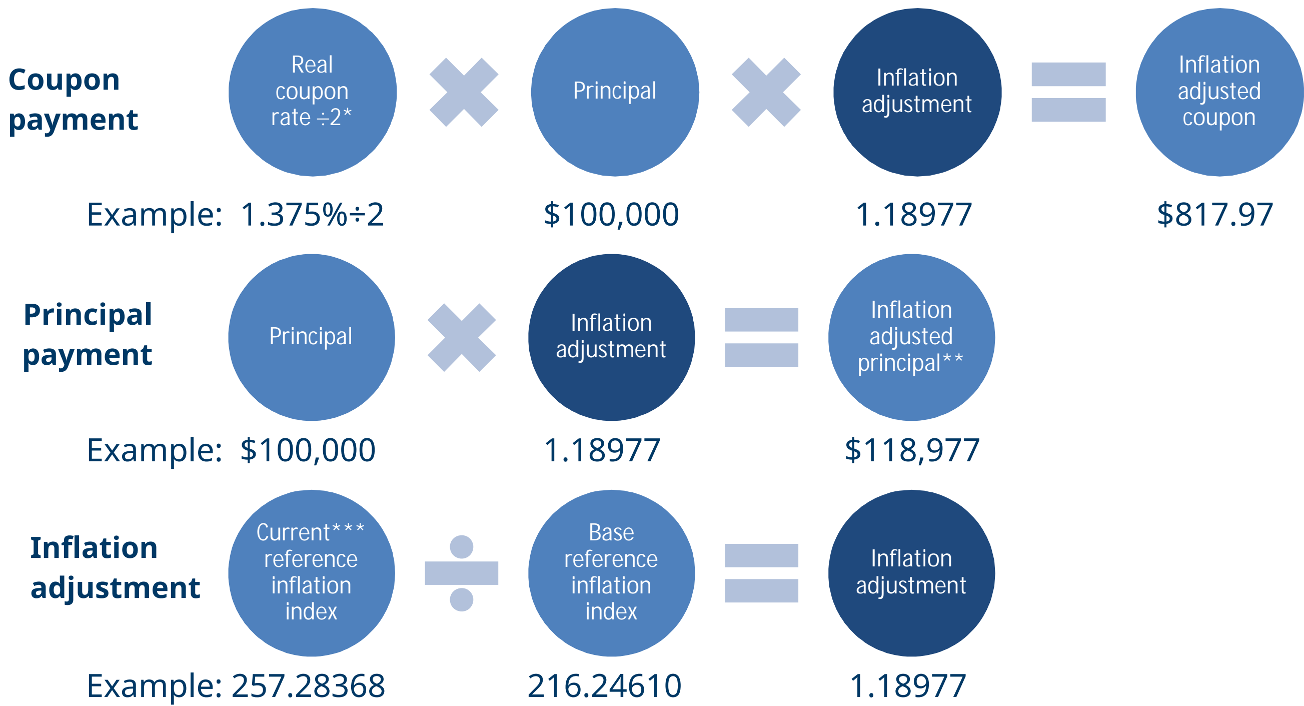
Appendix A: How linkers work

Figure 7: Calculating coupon payments and principal (Example: 10-year US TIPS that matured Jan 15, 2020)



Internal calculations using data from US Treasury and US Bureau of Labor Statistics. For illustrative purposes only.
**Semi-annual coupon payment = Reported coupon rate divided by 2.*
***At maturity, principal may or may not be protected from deflation depending on jurisdiction. See footnote 3.*
****Reference rates are often lagged indices given that contemporaneous inflation would not be reported for several months given data gathering timelines. The lag varies from country to country.*

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Illustrating inflation impact on coupon and principal payments

Figure 8: Coupon payments over life of linker

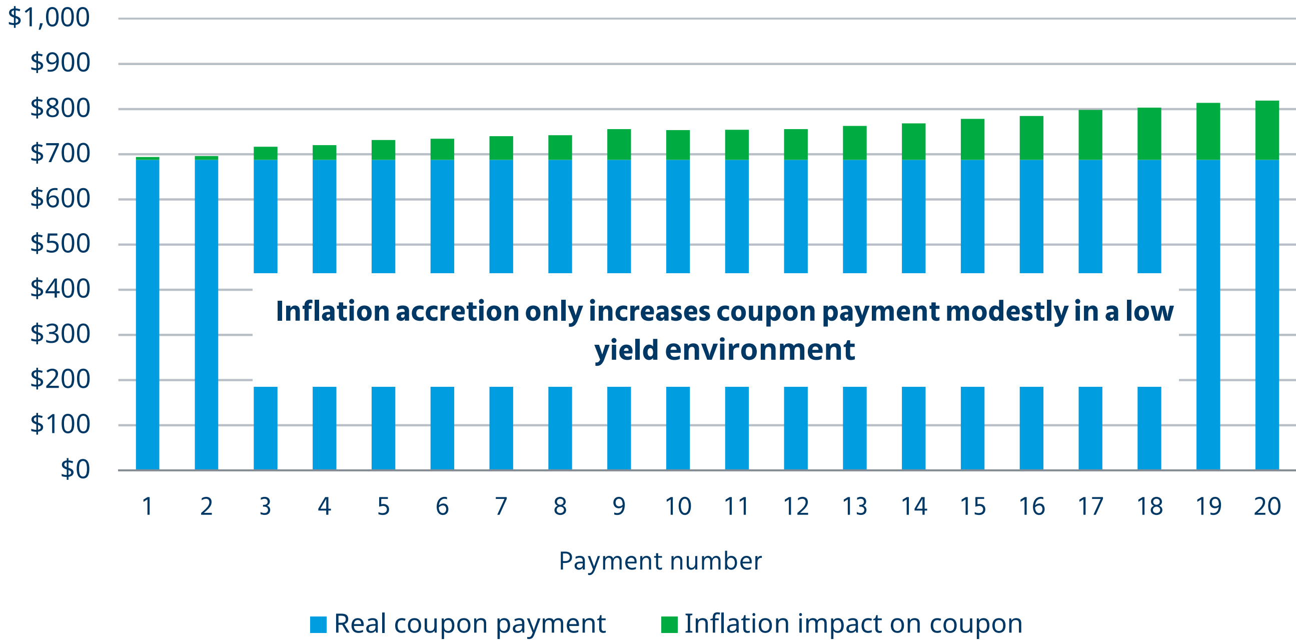
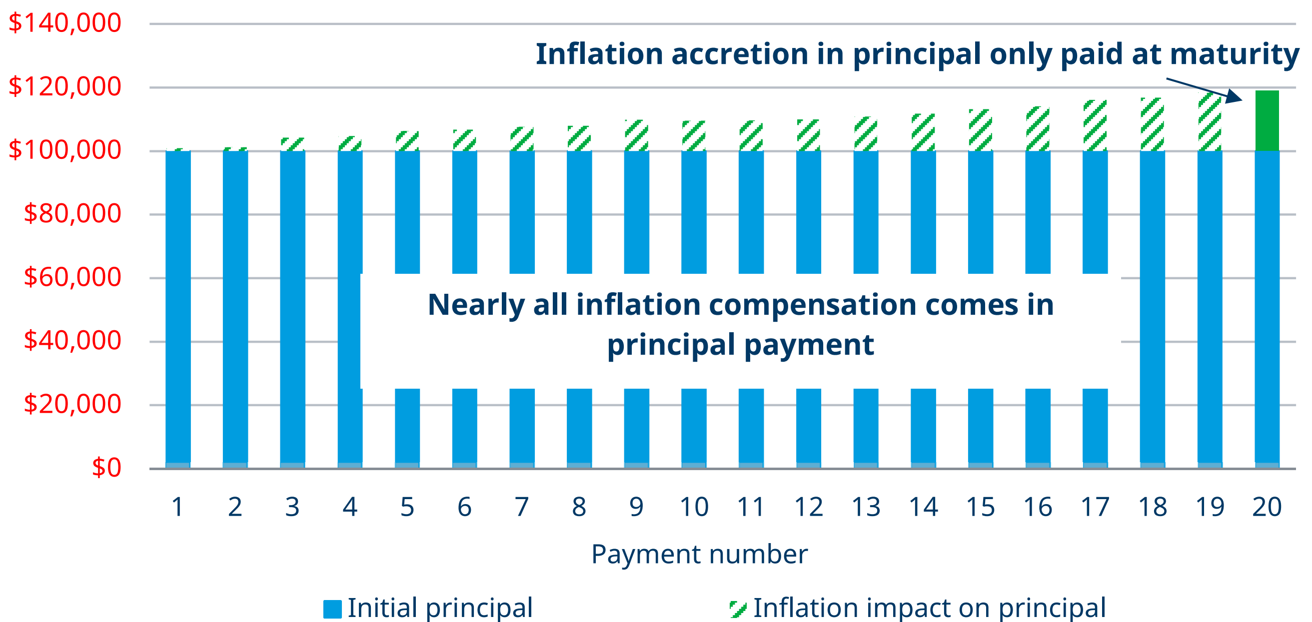


Figure 9: Principal accretion over life of linker



For illustrative purposes only. Source: Mercer internal calculations (following standard TIPS formula as shown above) using data from US Treasury and US Bureau of Labor Statistics. Approximately based on a $100,000 investment in the 10-Year TIPS issued January 15, 2010 with a real coupon 1.375%.

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Appendix B: Scenario definitions/implications

Scenario	Strategy selection implications
Financial repression	Easy monetary policy is maintained despite a strong growth environment as central banks focus more on average inflation targeting. Real interest rates remain negative, helping to inflate away debt built up during the pandemic. All asset classes do well in nominal terms, but in real terms, fixed income suffers.
Stagflation	Continued COVID outbreaks combined with ongoing fiscal support lead to worsening supply and labor shortages. Inflation expectations become unanchored. Eventually, central banks are forced to dramatically hike rates in an effort to regain control. The result spares few asset classes. Commodities and gold are the only reliable hedges against these tail risks in the short term. Should conditions develop into a protracted stagflation environment, inflation-linked bonds would be expected to provide some protection.
Overheat	Strong economic growth, paired with inflation running hot, forces central banks to raise rates. Along with higher rates, this leads to a steeper yield curve, which hurts duration-sensitive assets. Growth slows, putting downward pressure on equity valuations. Gold and nominal bonds do poorly thanks to rising real yields — shorter duration and floating rate assets are preferred.

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October 2021

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