

Inflation-indexed bonds: what potential in Georgia's financial development?

by Dr Alexander Lehmann

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Executive Summary

- Inflation-linked bonds (ILBs) offer 'real value' protection of principal and coupon payments. They therefore transfer inflation risk from the investor to the issuer.
- In many emerging markets ILBs have proven helpful in sustaining government debt issuance when inflation was volatile, or monetary stability was otherwise in doubt.
- About a dozen emerging markets have a sizable stock of ILBs outstanding, in total accounting for USD 500 bn in capitalisation. Five markets account for over 90% of that stock; in smaller markets issuance was often only intermittent. The investor base is typically domestic, and seeks long maturities.
- For state debt issuance in Georgia ILBs could offer a saving in financing costs if inflation risk premia demanded at issuance are in excess of actual inflation outcomes. A ready investor base exists in the local pension fund.

Georgia appears to meet the key technical preconditions for the introduction of ILBs: firstly, there is a price index that meets international best practice, which is compiled by GEOSTAT as an independent agency that is free from political influence; secondly, the government debt management strategy is relatively transparent and the primary issuance process is efficient; and thirdly, there is a nascent investor base, and the domestic pension fund will seek inflation protected long term assets.

In deciding to initiate the issuance of sovereign ILBs the authorities will have to weigh a number of conflicting policy objectives:

- ILBs will have an uncertain effect on funding costs. They may entail a reduction in the inflation risk premium though this may be wiped out by a higher premium demanded by investors to compensate for the lower liquidity of the instruments.
- ILBs would nevertheless reduce risks in sovereign debt management on account of a smoother profile in debt servicing costs relative to nominal GDP, and longer maturities.
- They could enhance the sustainability and viability of the pension scheme which would have access to long-term inflation protected state debt.
- Finally, ILBs might strengthen monetary policy autonomy and lend support the strategy of reducing the use of foreign currencies in the financial system ('de-dollarisation'). Secondary indexation of credit contracts could be managed by financial regulation; that of wages and prices is not likely without government encouragement.

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1 Introduction

Georgia's capital markets are still at an early stage of development, notwithstanding recent progress in fostering corporate bond issuance, facilitating the entry of international investors, and strengthening regulation. The establishment of a private pension fund in 2019 represents an important opportunity as a sizable local institutional investor will now emerge.

A key question for the country's capital market development strategy, and the supervision by the National Bank, is whether certain instruments and markets are missing and will not be developed independently by private market participants. Inflation-linked bonds (ILBs), which are common in many well-established government bond markets, could be such a missing instrument. They could offer an immediate market price for the real interest rate, and could be a key asset for investors with long-dated liabilities that seek protection against price shocks. GEL financial assets that are indexed to the local price level could take root more broadly and contain dollarisation, which has been a long-standing vulnerability of Georgia's financial system. The government could no longer benefit from inflation shocks at the expense of investors, and hence would be *less* likely to weaken monetary policy and inflation targeting.

This paper reviews the experience with inflation-linked bonds in emerging markets, and the conflicting policy objectives which the Georgian authorities would need to assess ahead of an introduction of such instruments. The paper is structured as follows: Section 2 provides an overview of the arguments for inflation-linked bonds (ILBs), and of some key design issues; Section 3 reviews country experiences, in particular in emerging markets, and distils the key preconditions that need to be in place (five cases are reviewed in the Appendix); Section 4 assesses to what extent these preconditions are met within Georgia and whether the introduction of ILBs is sensible in terms of sovereign debt management, capital market development and financial stability (de-dollarisation). Finally, section 5 offers a number of immediate priorities should the authorities decide to press ahead with the introduction of ILBs.

2 Inflation-linked bonds: rationale and technical aspects

2.1 The motivation for the sovereign issuer and for investors

All debt securities suffer from a credit risk, and an uncertain future real value of principal and interest. Government debt represents the highest quality financial liability in any jurisdiction, though investors are still exposed to the erosion of real returns by inflation. Variability in inflation has been a particular concern when emerging markets suffered repeated bouts of macroeconomic instability, and this motivated the first introduction of inflation-linked bonds (ILBs) in Brazil in 1964. Even today, as monetary policy has become more predictable in emerging markets, inflation remains a concern. A large component of commodities in price indices and a rapid pass-through of international into domestic prices can still derail expected returns.

An investor in a regular fixed coupon bond will experience an erosion of real value that is uncertain, and consequently adds a risk premium to the expected yield to compensate for this uncertainty. The distinguishing feature of ILBs is that they offer real value certainty for investors. The instrument offers a coupon payment and repays a principal that preserves constant real value as of the date of issuance. Essentially, inflation risk is transferred from the investor back to the issuer (almost always a

government). If there is a surprise in inflation, including due to an external shock, the issuer bears the costs, while the investor is protected.

From the perspective of a debt management office in an emerging market, ILB issuance is typically valued as a commitment device, if market participants see the inflation target as not fully credible. The inflation protection hence obviates the need to offer a premium to the investor that compensates for inflation risk. This represents a saving for the budget *upon issuance* of its debt. *Ex-post*, ILBs offer a saving over regular fixed coupon debt if over the maturity of the bond inflation turns out to have been lower than expected by investors at the time of issuance. In essence the issuance of ILBs is in the government's interest if it believes that the commitment of monetary policy to low inflation is stronger than currently priced in by the market.

As inflation is typically positively correlated with growth (and hence fiscal revenues), ILBs will also smooth government debt service costs relative to nominal GDP over the economic cycle. Such insurance against shocks will improve predictability of budget management. The exception are exogenous shocks, or periods of stagflation.

An investor who is offered ILBs and fixed coupon bonds of the same maturity will opt for the latter if the nominal yield exceeds the ILB real yield plus inflation expected at the time of issuance.¹ ILBs are attractive for investors whose liabilities are similarly linked to a nominal value (such as wages). Also, ILBs are held by long-term investors that also seek to match the maturity of their long-term liabilities and their assets. In emerging markets, these investors are predominantly domestic pension funds.

In advanced countries the utility of ILB has been questioned by investors. By contrast, in emerging markets with high and more variable inflation, the inclusion of ILBs in portfolios appears to improve the risk return characteristics over portfolios reliant on fixed coupon bonds (Swinkels, 2018).

ILBs have developed into a significant and sustainable component of government bond markets where there is a convergence of the issuer interests in efficient debt management in the context of high inflation risk premia, and investor interest in real value protection at long maturities. Central banks have often supported this shift in issuance strategy. As there is no longer any gain to the budget from inflation surprises, the credibility of monetary policy is strengthened.

There are two key draw-backs that explain why many countries have hesitated to introduce such instruments. First, ILBs erode market liquidity. They fragment the issuance by the government of standard fixed coupon instruments at certain benchmark maturities. ILB markets are normally much smaller than regular fixed coupon bond markets. Even where they are sizable, as in Brazil or Israel, the typical investor, such as a pension fund, adopts a 'buy and hold' strategy, and is less likely to trade in ILBs. Consequently, the issuer will need to pay a liquidity premium upon issuance, and this may wipe out his savings from the premium for inflation risk. Even for a market as liquid as that in the US the premium between ILBs (TIPS) and regular fixed coupon bonds could be very significant.²

A second criticism underlies a long-standing hesitation in Germany on such instruments. There is a concern that indexing of government debt spreads to broader indexing of private financial contracts,

¹ 'Break even inflation' is the term for the difference between fixed coupon and ILB instruments of the same maturity. If it exceeds inflation expected by investors over the bond maturity, fixed coupon instruments are more attractive.

² Pflueger and Viceira (2013) find a significant premium of 50-70 bps on US TIPS in the period since 2009. Andreasen and Christensen (2016) also find wider bid-ask spreads in the TIPS market, and a liquidity premium of similar magnitude.

and ultimately to prices and wages. As private businesses become accustomed to higher inflation, and are protected from it, the effectiveness of monetary policy would be eroded. A real devaluation and an inflationary surprise that reduces the real value of private debt contracts would become more difficult. Each of these concerns are addressed for the context of Georgia in section 4.

2.2 The design of ILBs

A key measure in valuing ILBs is the *index ratio*, which is the ratio of current price index over the price index at time of issue. This is normally calculated with a three-month lag (i.e. the current index ratio is based on the price index that was published three months previously), and interpolated in between the dates at which the price index is published. The issuer would make this index widely available to market participants on a data service such as Bloomberg. The face value of the ILB instrument is adjusted based on this index, thus securing a constant real value of the principal at maturity. The bond pays coupons at a fixed per cent of this adjusted face value, i.e. it delivers a constant real return.

The backdrop of this calculation method is that the coupon payments of the ILB are lower in nominal terms, and that its (bullet) repayment at maturity is larger. The traditional bond, by contrast, pays a higher constant coupon, whose real value declines over time, though pays the same original principal at maturity, which by then of course is lower in real terms.

A credible price index

The choice of the inflation index is crucial. A first consideration is to appeal to the demand for real value protection of both issuer liabilities and investor assets. The government issuer will seek a broad index that drives the nominal value of its tax base, such as the GDP deflator. A corporate issuer would prefer a narrower index that reflects price trends in its revenues. Investors, on the other hand, will seek to reflect their cost structure: wages and earnings for a pension fund, a consumer price index for a retail investor.

More important is the objective of choosing a transparent and reliable index, and for this reason all emerging markets reviewed below opted for some form of the consumer price index.³ This is generally the index that is best understood, most widely disseminated, released with shortest time lag, and is in principle available to all market participants. Only if there is large inflation volatility would individual parts of the price index diverge and investors might lose interest in a single indexation scheme. The choice of a single well-understood index will also prevent unnecessarily fragmenting the market.

The principal and coupon value of ILBs, as other contingent debt instruments, depend on a statistical measure. The independence of the statistical office therefore needs to be assured, and quality of the data need to be well documented. Investors will seek detailed information on such aspects in a bond prospectus. The government would need to offer reassurance that the statistics office is sufficiently independent, and not subject to interference. The statistics office, for its part, would need to:

- Offer a full disclosure of the composition and statistical compilation of the index;
- Explain and adhere to a timely publication of the index;

³ Some however, excluded certain components, as in the case of Spain and Italy (CPI, excluding tobacco), or Japan (excluding fresh foods).

- Offer reassurance against insider information or premature leaks of price data;
- Explain the approach to revising the index or developing alternative measures in future.

The deflation floor

The logic of real value protection suggests that the price of the principal would adjust downwards in case of price declines. Some developed countries adjust for this risk by offering protection against deflation on the principal (not the coupon). Investor preferences may call for such a protection, though this of course undermines the original rationale of fiscal insurance. The option to redeem at par even though the index value has fallen below 100 will affect the valuation of the instrument.

The spectre of outright deflation is no longer quite so remote as was the case when inflation-linked bonds were first launched. Several key markets, such as the UK or Japan, do not offer deflation protection. In the emerging markets this is also unusual, though for instance Mexico, Poland, Thailand and Russia, offer a 'par floor' for their bonds.

3 The global market for inflation indexed bonds

In April 2019 the global market for inflation linked bonds amounted to about USD 3.6 tr, of which about USD 500 bn had been issued by emerging market governments.⁴ Inflation-indexed bonds are a standard feature of developed capital markets, and are issued by a small number of emerging market sovereigns.

3.1 Advanced markets

Even though two emerging markets (Israel and Brazil) were the first to re-introduce ILBs in the post-war period, the market was quickly dominated by governments in advanced capital markets.⁵ The UK began issuance in 1981, and the US in 1997, and these two issuers today jointly account for nearly ¾ of the global market for such instruments.

- In the UK about GBP 451 bn in inflation-linked 'gilts' were outstanding at end-2019, with the longest maturity issued in 2013 at 55 years. The average time to maturity stood at 20 years, which is longer than for fixed-coupon bonds (and the time to maturity in total at 16 years is considerably longer than for other advanced countries). It is estimated that UK defined benefit pension schemes owned over 80% of long-dated index ILBs. All issues are indexed to the broad retail price index (RPI). Even though that index lost significance due to flaws in measurement, the narrower CPI index has not been used yet. The ILBs are seen to have strengthened financial resilience by lengthening average debt maturity and diversifying the investor base. Due to the

⁴ Figures refer to the Bloomberg Barclays World Government Inflation-Linked Bond (WGILB) index for industrialised countries and Bloomberg Barclays Emerging Markets Government Inflation-Linked Bond Index (EMGILB) for emerging markets. Figures are from HSBC (2019) of April 2019.

⁵ This practice linking interest payments to other prices can actually be traced back as far as 1742, when the state of Massachusetts issued debt linked to the price of silver.

relatively large share in debt outstanding there is a strategy to reduce share of total issuance over the coming years.

- The U.S. TIPS (Treasury inflation-protected securities) market amounted to over USD 1,500 bn in 2019. This is a much smaller segment of total U.S. debt (only 9%), compared to about 25% in the UK. TIPS are indexed to a sub-component of the US CPI index with a lag of 3 months. Maturities range between 5 and 30 years, and each issue would be re-opened twice.

This re-introduction of these instruments by the UK and the US was followed by France (1998), Italy (2003), and Japan (2006). It is notable that Germany introduced such bonds quite late in 2006 and that this market remains very small. This was due to the traditional scepticism about the effects of indexing, rooted in the experience of hyper-inflation in the interwar period. Also, some large government issuers, such as the Netherlands or New Zealand, have decided *not* to issue, or to ceased issuing, such bonds. This was in part due to the costs to liquidity in standard instruments.

3.2 Emerging markets

In emerging markets, the introduction of ILBs often became necessary to keep the government debt market alive during a period of high and variable inflation.

In post-war times Israel was the first market to issue inflation-linked bonds in 1955, followed by Brazil in 1964, where during a period of hyper-inflation inflation-linked bonds became the government's primary instrument of financing. More recently, other emerging market governments have taken up this asset type, with Mexico (in the present form first in 1996), South Africa (in 2000), and Turkey (in 2007) now being the largest markets (Table 1). These top five issuers accounted for 93% of the EM ILB asset class. There are ILBs issued by private entities, though overwhelmingly this is a market for sovereign bonds.

The appendix reviews experiences in five emerging markets: South Africa, Israel and Uruguay are regular issuers, Russia and Poland have only made intermittent use of this instrument. From these and other emerging markets the preconditions for the successful introduction of ILBs appear to be:

- The price index is credible and transparent (see above).
- There is a well-established base of local investors.
- The main government bond market is already relatively liquid (though in Latin America periods of hyper-inflation often disrupted the regular government bond issues, and motivated the introduction of ILBs).
- The primary issuance process is well developed, specifically with regular auctions, and a primary dealer system.

A limited domestic market is not necessarily an obstacle to establishing an ILBs. In Uruguay, for instance, ILBs are a standard component of primary issues to both domestic and foreign investors, and ILBs made up more than half of the local currency debt market (see Appendix). Indexation is widespread in both credit contracts and prices and wages, though at current exchange rates still about half of domestic credit is denominated in US dollars.

Several countries only introduced ILBs through only a small number of issues. In Poland, for instance, the initial introduction of this instrument was at the height of foreign investor participation in the local market (at a peak over 40%). ILBs are now limited to retail investors as local pension funds were barred from investing in state bonds in 2014.

Table 1. Principal emerging market issuers of inflation-linked bonds, and their main features

Country	First Issue Date at their current format	Index	Index lag	Floor?	Frequency	Value outstanding (USD m, on 30 Jun 2017)
Brazil	May 00	IPCA, IGPM	Up to 4 weeks, includes forecasts	No floor	Semi-annual	272,118
Mexico	May 96	Unidas de Inversion (UDI)	up to 2 weeks	Par floor	Semi-annual	76,399
Israel	Jun 06	Israel CPI	Up to 1.5 months adjusted on inflation release	Coupon and principal par floor (Galil), No floor (ILCPI)	Annual	51,643
Turkey	Feb 07	Turkish CPI	2 to 3 months	Par floor	Semi-annual	44,979
South Africa	Mar 00	South Africa CPI nsa	3 to 4 months	Par floor	Semi-annual	36,991
South Korea	Feb 07	Korean CPI	2 to 3 months	No floor	Semi-annual	10,026
Russia	Jul 15	Russia CPI	3 to 4 months	Par floor	Semi-annual	9,455
Argentina	Dec 03	CER Consumer Price Index	T-5, T-10 to ACERER Index	No floor	Monthly or semi-annual	8,586
Chile	Sep 02	UF CPI	1 month to 9th of month	No floor	Semi-annual	7,829
Thailand	Jul 11	Thailand CPI	2 to 3 months	Par floor	Semi-annual	6,198
Uruguay	Jun 07	Uruguay Indexed Unit (Unidad Indexada)	1 month	No floor	Semi-annual	3,000
Poland	Sep 03	Polish CPI	2 to 3 months	Par floor	Annual	1,371
Colombia	Oct 02	UVR CPI	1 month to 15th of month	No floor	Monthly	1,229
Peru	Jun 03	VAC Index linked to monthly CPI	1 month	No floor	Semi-annual	1,130

Source: Colchester Global Investors

Several common experiences emerge:

- ILBs have longer maturity than regular fixed-rate bonds, for instance in Brazil extending to up to 30 years.
- The primary holders are domestic pension funds with longer holding periods.
- ILBs are not included in standard government bond benchmarks, and are hence less susceptible to changes in investor sentiment.
- Emerging market inflation linked bonds show less yield volatility than nominal (fixed coupon) bonds as they only reflect the real yield and omit variations in inflation expectations.
- Pricing and real yields evident in market prices reflect investor views on the sustainable long-term real rate of interest in the economy.
- The real yield curve is typically quite flat.

4 Are ILBs a sensible innovation in Georgia?

Prior to introducing ILBs in Georgia a number of conflicting policy objectives would need to be assessed.

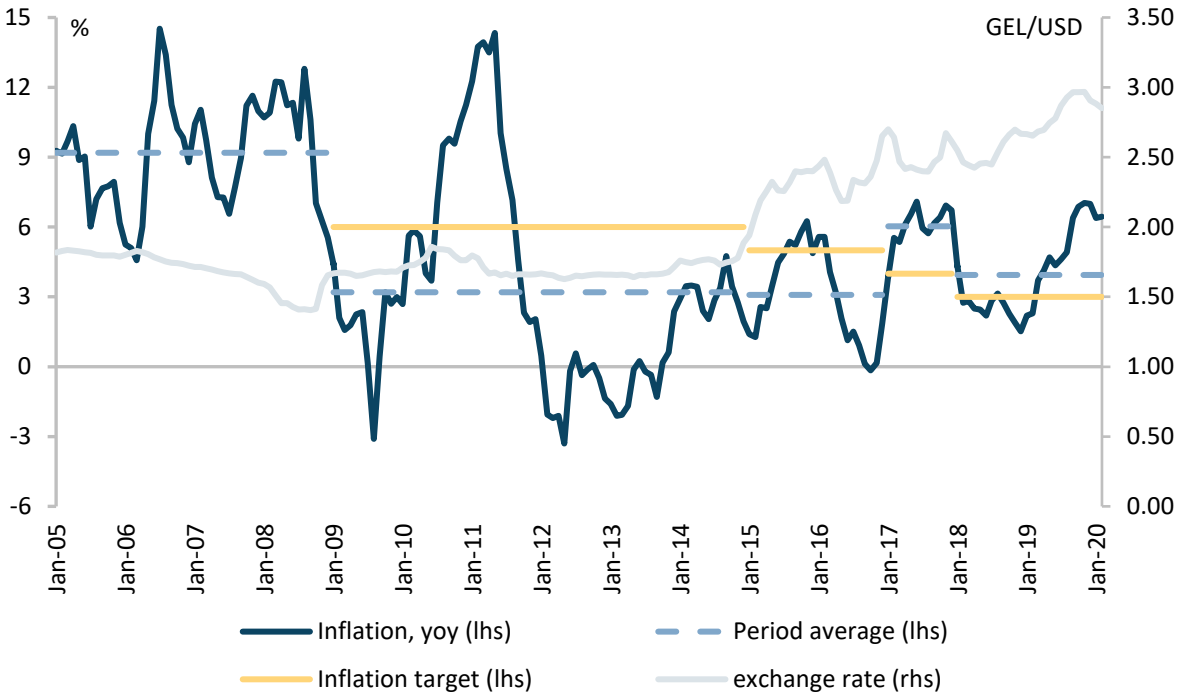
4.1 Macroeconomic stability and inflation risk

Conclusion 1: Georgia shares the key precondition that motivated many other emerging markets to introduce ILBs – its commitment to stable inflation is not fully credible to investors who demand a risk premium for holding local currency debt securities. The recent spike in inflation, and divergence from the NBG’s target, may have raised this risk premium.

As other countries in the emerging Europe region, Georgia has undergone rapid structural transformation, and financial liberalisation. The country experienced inflation that was both very high (at above 7% on average in the 2000s), and volatile. Since 2009 the NBG has announced inflation targets, and the latest target is set at 3%. The IMF regards the inflation targeting regime credible, given improved macroeconomic policy, fiscal consolidation, and improved communications by the NBG (IMF, 2018). A liquidity facility complements short term interest rates as the main policy instrument. Up until 2Q2019 inflation expectations declined and the NBG reduced its policy rate in a number of steps up to March 2019, while at the same time tightening macro-prudential policy instruments targeted at retail credit.

Recent developments underline that inflation expectations are still susceptible to confidence shocks. From mid-2019 uncertainty over the effect of Russian travel restrictions impacted the exchange rate and resulted in a spike in inflation, which peaked at 7% in November 2019.

Figure 1. Inflation and the GEL since 2005, NBG targets and averages for corresponding periods



Sources: GEOSTAT, NBG, and GET calculations

4.2 Sovereign debt management

Conclusion 2: The introduction of ILBs would be in line with the stated government objectives to expand domestic sovereign debt issuance, and reduce refinancing risks. As liquidity will be reduced, and a higher illiquidity premium may need to be paid at issuance, the effect on debt service costs is ambiguous.

Georgia’s General Government Debt Management Strategy (DMS) for the years 2019-2021 sets the parallel objectives of, firstly, covering government financial needs while minimizing costs, consistent with a prudent degree of risk; and, secondly, to develop the domestic market of government securities.

79% of Georgia’s government debt is owed to external creditors. Most of this debt has been contracted on concessional terms, and the weighted average interest rate at end-2019 was estimated at 1.98%. The one outstanding Eurobond is costly with an original coupon rate of 6.875%, though this represents only a minor share of about 9% of government external debt.⁶ Domestic treasury bonds and bills are similarly a minor financing source (accounting for less than 9% of the total at end-2018) and incurred a much higher interest rate of 8.3% on average.

The DMS recognises that in the long term the government will not be able to rely on concessional borrowing sources to the same extent as in the past, and that external borrowing incurs significant exchange rate risk. Domestic borrowing, while more costly, reduces exchange rate risk for the government and is seen to support domestic capital market development.

⁶ At end-2019 this bond was trading at a yield of 2.43%.

That said, the domestic government bond market is dominated by a small number of domestic commercial banks, while significant domestic institutional investors are absent. Foreign investors can access the local government bond market through Clearstream since 2018, though their exposure is still marginal. Low liquidity is a significant barrier to further market development. The DMS therefore sets as an immediate objective greater liquidity of the domestic government securities market through an increase in the issuance of benchmark bonds, and in market size. The DMS targets an increase in the domestic debt to 20% by 2021, and an increase to 35% over the medium term.

While the local bond market in state debt is reasonably liquid at 1- and 2-year maturities, there is only limited turnover for the five-year benchmark bond. There was only GEL 480 m issuance at 5-year maturity in 2019, compared to about 1.2 bn at 1- and 2-year maturity. There has been only intermittent issuance at small volumes at 10-year maturity in the past years. Switching the long-term issues, and in particular the ten-year benchmark, from fixed coupon to ILB would therefore come at little cost in market liquidity.

Table 2. Weighted Average Interest Rates on General Government Domestic and External Debt by the End of 2018

	Weighted Average Interest Rate of the Portfolio	Weighted Average Interest Rate for Last Year
Domestic Debt	8.3%	7.5%
<i>6-month T-Bills</i>	7.1%*	7.2%
<i>12-month T-Bills</i>	7.3%	7.3%
<i>2-year T-Bonds</i>	7.6%	7.4%
<i>5-year T-Bonds</i>	8.8%	7.7%
<i>10-year T-Bonds</i>	10.3%	9.1%
Government Bonds	8.4%	7.8%
External Debt	1.5%	0.8%
<i>Creditor Financing</i>	1.4%	0.8%
<i>Legacy Debt</i>	3.5%	-
Eurobond	6.9%	-

Source: Ministry of Finance. (*) Weighted average interest rate for last 6 month

4.3 The investor base and implications for capital market development

Conclusion 3: The new Georgian pension fund would seek to invest in inflation linked bond government bonds as these would reduce value at risk, and allow targeting real returns relative to the CPI benchmark envisaged in the investment policy. More predictable replacement ratios (payout at retirement relative to earnings), would strengthen public support of the new pension system. At present liquidity in GEL state bonds at the long end is limited, so the offering ILBs for certain maturities need not come at the cost of a higher liquidity premium.

Apart from the government as issuer, Georgia's bond market is dominated by IFIs, which account for about one third of market capitalisation. There has been a steady increase in GEL denominated corporate bonds in recent years, though most are held to maturity by local banks, which benefit from the repo facility at the NBG. Lack of liquidity remains the key impediment to market development.

The Georgian pension fund was established when the pensions law came into effect in January 2019 and initiated investments shortly after. At end-2019 assets stood at GEL 507 m. These were invested entirely in bank deposits, and investment in a limited set of securities was expected for the first half of 2020. The agency will ultimately offer three stylised portfolios of different risk appetites, though an investment policy is yet to be formulated. There will be about GEL 500 m inflows per year. In early 2020 (before a scenario of stagnation or recession related to the COVID-19 crisis became likely) pension fund assets were expected to expand to GEL 4 bn over the next four years. Two thirds will need to be allocated to the safest assets of local state bonds, cash and deposits.

The pension fund's investment policy was awaiting NBG approval and not public at the time of writing. It is understood to set limitations for 'value at risk' and seek return relative to the CPI benchmarks. ILBs would therefore be an attractive asset class for the pension fund, given the protection these instruments offer should inflationary expectations shift. The fund could likely absorb a large part of government issuance of the ten-year benchmark bond, though would in any case adopt a 'buy-and-hold' strategy.

The new pension scheme is set up as a defined contribution scheme. Pension assets that are credited to individual accounts can be withdrawn at pension age as a lump sum, or through a phased withdrawal. In essence, therefore, the individual participant bears the investment risk in the fund. Including ILBs in the portfolio would reduce risks to the replacement ratio (the ratio of payout, or income stream resulting from payout to past earnings of the retiree). This would likely bolster political acceptance and public support of an as yet untested source of retirement income.

In pension schemes in other emerging markets, ILBs are a core holding, and pension funds account for the majority of ILBs outstanding. Defined benefit funds typically seek to match maturities of assets with future liabilities, and ILBs are seen to evolve in line with real wage trends. In emerging markets, annuities have often emerged during the payout phase.

Other investors could also be engaged. The pension fund would act in a lead role of 'anchor investor', alongside a broader set of investors. Foreign investors would like accept limited exposure. Due to demanding issue size thresholds for both regular and inflation linked bonds in emerging markets, Georgian debt will not be included in local currency bond benchmarks. Some countries, including Poland, also offer inflation linked state debt to retail investors.

4.4 De-dollarisation of the financial system and monetary policy autonomy

Conclusion 4: Wider use of indexing could support the de-dollarisation strategy, expanding demand for GEL assets over those denominated in USD. The introduction of ILBs could encourage private financial institutions to offer indexed loans, or private entities to issue indexed bonds, based on the same index used for ILBs. Autonomy of the National Bank would likely be strengthened.

High dollarisation remains the major vulnerability of Georgia's financial system, and weakens the effectiveness of monetary policy. The NBG is well advanced in establishing a credible flexible exchange rate regime, and has announced inflation targets since 2009. Experience in other emerging markets

suggests this is one of the key preconditions for reducing the use of foreign currency in the financial system. Nevertheless, the flight out of GEL deposits and other assets in mid-2019 fuelled expectations for further depreciation, and this risk re-emerged amidst the general flight from emerging markets during the COVID-19 crisis. A GEL instrument protected from inflation could offer a ‘safe asset’ function (given the close correlation of prices and the GEL, as shown in Figure 1 above).

Local market development could be the next priority in the NBG’s de-dollarisation strategy. The announced expansion of government debt issuance in domestic markets will be supportive in that effort. In other markets, ILBs have acted as a stepping stone towards a fully-fledged local currency debt market. Where confidence in local currency denominated assets is weak, local currency products that are indexed based on the government ILB scheme can be an alternative, as underlined by experience in a few Latin American countries.

Chile, for instance, has had a long history of indexation of deposits going back to 1959. Following the 1982 banking crisis indexed debt became the mainstay of sovereign funding. The indexing unit used for government debt then became increasingly widely used by banks which were required by regulation to use the same unit. A fully funded pension system also emerged from 1980, and acquired large shares of indexed state debt.⁷ A successful disinflation programme and adoption of a floating exchange rate regime initiated de-dollarisation. This was backed up by prudential measures and indexation, which persisted well after stabilisation. Indexed savings in the local currency increased rapidly, once the largest state bank offered such products. By 2010 peso-denominated deposits had reached 90% of total deposits (also see detail on Uruguay in the appendix).⁸

The wider use of indexation in the financial system and in domestic prices should not be a concern. The use of the index in bank credit contracts would need to be sanctioned in the NBG’s regulation of credit institutions. Even though there may be demand for indexed credit products and other financial assets, financial indexation could be easily contained.

There is a legitimate concern over the indexation of wage contracts and other prices. Widespread indexation would introduce rigidities of real prices and asset values that would limit the effectiveness of monetary and exchange rate policy (due to an inability to engineer a depreciation of the real exchange rate). It is unlikely such price indexation would emerge unless the public sector would offer indexed wages, which would be put the large informal sector at a disadvantage.

There are two further and more technical objections to indexation: making credit contracts contingent on a price index will require that the index is credible and trusted by foreign investors, and can be referred to in credit contracts. The index used for state debt may not meet this standard. Finally, as banks need to switch large parts of their asset and liability sides to indexed units, significant investment in IT capacity needs to be undertaken.

⁷ Herrera and R. Valdes (2004): Dedollarisation, indexation and nominalization: the Chilean experience, Inter-American Development Bank.

⁸ Price (1997).

4.5 The credibility of the price index

Conclusion 5: The Georgian CPI meets international best practice, though more detail on the methodology could be disclosed. GEOSTAT is seen as independent.

A key precondition for the successful introduction of ILBs is that the price index that is used for indexing is relevant for a wide variety of market participants, that the methodology is transparent, and that the statistical agency that compiles the index is free from political influence (see section 2.2). The methodology underlying national statistics, and the independence of institutions compiling such data, are the primary concerns of emerging market investors in contingent debt.

As regards the technical aspects, in the view of the IMF (2018) Georgia’s consumer price index broadly meets international standards. In its latest evaluation the fund observes that there is some room for improving the compilation of price data, though that data provision is broadly adequate. The consumer price index relies on data from urban areas only. Work on a residential property price index and a broader coverage of services in the producer price index is ongoing.⁹

Table 3. Composition of the Georgian CPI

Name of goods / services	Share (%)
Food and non-alcoholic beverages	31.3
Alcoholic beverages, tobacco	6.4
Clothing and footwear	3.9
Housing, water, gas, electricity, and other fuels	9.0
Furnishings, housing appliances and equipment, routine house maintenance	5.9
Healthcare	7.8
Transport	12.1
Communication	3.8
Recreation and culture	3.8
Education	5.0
Hotels, cafes and restaurants	5.4
Miscellaneous goods and services	5.5

Source: GEOSTAT

Crucially for potential investors in ILBs, GEOSTAT appears quite transparent with its methodology for the price index, which is available online (Table 3).¹⁰ This includes explanations of how data are collected and how the index is constructed. GEOSTAT additionally provides detailed consumer indices for

⁹ IMF Art. IV report 2018.

¹⁰ See link [here](#).

all key components of the consumer price basket, calculates core inflation and core inflation without tobacco (tobacco being one of the drivers of CPI inflation in the past five years due to continuous increase in excise tax). However, details on the prices of individual products or services are confidential, and weights used in compiling the index are not available. An updated consumer basket is published every year. Changes in the calculation of CPI data are accompanied by explanatory notes, and occasionally by media briefings.¹¹ Inflation indices are published at the beginning of each month with corresponding explanations. The statistical agency is regarded as sufficiently independent, and there have been no reports of unauthorized or early access to its data.

5 Recommendations

The emergence of the Georgian pension fund offers an immediate opportunity to introduce inflation-linked bonds. The decision to introduce ILBs should be based on close coordination between the ministry as the issuer on the one hand and key banks and investors on the other, in particular the pension fund.

The likely asset allocation of the pension fund will be articulated in its investment policy but will likely offer an opportunity to issue 5- or 10-year benchmark bonds on a limited scale. Should such an issue be considered several steps could help prepare the issue:

- A further strengthening of the credibility of the domestic price index, and of GEOSTAT, by publishing additional detail on the compilation of the index, and a history and ongoing series of a new inflation-adjusted ‘unit of account’.
- The Ministry of Finance should assess the appetite of foreign investors and of the Georgian pension fund for ILBs, ascertaining feasible maturities.
- The Debt Management Strategy of the government should clarify its approach to risk management and how the trade-off between costs of financing and reduced refinancing risks would be evaluated. Specifically, this should quantify the appetite for short term and dollar denominated government debt on the one hand and domestic fixed coupon and indexed debt on the other. If a decision to issue ILBs is taken the debt management strategy and issuance plan should provide some clarity how often such issues would be made.
- The NBG should examine to what extent inflation-indexation could be a sensible tool in the de-dollarisation strategy, clarifying possible implications of the ILB index being replicated in private credit markets.
- Further, the NBG could examine the appetite of banks for ILB assets, and costs resulting from an upgrade of IT systems, in introducing inflation-indexed GEL loans and mortgages.

¹¹ The revision of Georgia’s national accounts methodology led to a large upward revision of GDP in 2019, due to better data on the services sector and the informal economy. This revision was supported by technical assistance from the IMF and was well explained by GEOSTAT.

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6 Appendix: emerging market experiences with ILBs

6.1 South Africa¹²

South Africa has a well-developed domestic capital market for government and private bonds. The country's debt management office has set caps both for the share of short-term debt to total domestic debt and for the share of foreign debt in total government debt at 15%. It has delivered on these targets. In standard fixed rate bonds, the average term to maturity stood at about 13.5 years in late 2018.

Prior to the introduction of inflation-indexed products the country's debt management office focused on reducing the cost of debt within acceptable risk limits, diversifying instruments, and ensuring access to domestic and international markets.

A first inflation-indexed bond was issued in 2000. Since about 2005 the country's debt management strategy has focused more squarely on a debt structure that would insulate the budget from volatility in interest expenditures due to inflation and exchange rate fluctuations.

The decision to issue inflation-linked products more consistently was based on a thorough review of experiences in other markets, which highlighted the following preconditions: a sound price index; regular issuance through a primary dealer system; and liquidity in the secondary markets. A credible macro policy, committed to controlling inflation, appeared a crucial precondition, and seemed to be in place at the time.

With about USD 38 bn in inflation-linked bonds outstanding in 2019, this market is the fifth largest among emerging markets. Inflation indexed products amounted to about 20% of long-term funding (excluding Treasury bills). These are principal (not interest) indexed products. Maturities of between 5 and 32 years have been issued. However, the liquidity of inflation-linked products is considerably lower than for standard bonds, and account for only about 4.5% of total turnover. This appears to be due to the exceptionally large share of pension funds in the investor base (between 40 and 60%, compared to between 2 and 25% for conventional bonds). The DMO therefore does not engage in liability management operations with these instruments, and does not require its primary dealers to 'make a market' in inflation-linked products.

6.2 Russia¹³

With USD 6 bn of inflation-linked bonds (ILBs) outstanding on 1 January 2020 Russia is one of the smallest emerging markets for this asset class. To date, issuance has not been significant and on 1 January 2020 ILBs accounted for only 4% of domestic public debt.

The Russian Ministry of Finance offered two issues of inflation-indexed bonds (OFZ-IN) in 2015 and 2018. The initial offer generated significant interest from investors, and was about 2.6 times oversubscribed. In total 71 Russian and international investors bid for the issue. At the time, this was ever

¹² Based on "South Africa's experience in the role of inflation linked bonds for the sovereign", presentation at the [UNCTAD, IMF and World Bank Workshop](#).

¹³ Based on Public Debt Management Policy of the Russian Federation for 2017–2019 (2017).

single placement in Russian debt market, and was offered with a premium in the coupon rate (discount to par value). Russian OFZ-IN bonds are now included in indices tracked by international index funds, such as Barclays's Emerging Markets Government Inflation-Linked Bond Index (EMGILB).

According to the ministry's debt management strategy, the auction was structured in a way to accomplish a number of objectives:

- Offering real-value protection to domestic pension funds, which considered ILBs as closely aligned with their mandates, offering a relatively safe real return. 18 Russian pension funds participated (in the initial offering), in addition to 13 foreign funds. The total share of this investor class in the allocation was 59% with Russian bidders accounting for 33%.
- Encouraging a minimum exposure by foreign investors which accounted for 26% of bids, which was seen as a validation of Russia's access to international markets.
- Ensuring sufficient liquidity. As a focus on pension funds and asset managers seemed insufficient to support an actively trading secondary market, the DMO required a significant allocation (41%) to Russian banks.

The debt management strategy acknowledges that in a stable market environment (with a downward trend in interest rates) primary issuance will focus on fixed coupon bonds. ILBs will not form a significant source of financing, and are used primarily to provide a borrowing cost benchmark for corporate borrowers and a measure of inflation expectations. In case of higher interest rate volatility issuance of floating coupon and IL bonds would be stepped up.

6.3 Poland¹⁴

Poland has one of the most liquid domestic government bond markets in emerging Europe. State debt stood at 47% of GDP at end-2019, and foreign currency debt amounted to little more than a quarter of that debt stock. Overall, foreign residents hold about a third of government debt.

The latest debt management strategy sets the goals of minimizing debt servicing costs, given the constraints of refinancing risks, exchange and interest rate risks. In this context, ILBs are acknowledged to have a role in sovereign risk management (potentially offering a real rate yield curve). However, currently this market represents one of the smallest segments among emerging market inflation-linked bonds (at about USD 1.2 bn tradeable ILBs).

The current bond auction model makes only vague mention of ILBs which may be offered if the investor interest is deemed sufficient. ILBs in the wholesale domestic Treasury market were issued for the last time in 2016. Out of total state treasury debt the stock of inflation linked bonds accounted for only 0.7%, though the bonds are popular as savings bonds among retail investors.

¹⁴ Based on The Public Finance Sector Debt Management Strategy in the years 2020-2023 (2019).

6.4 Israel¹⁵

Israel is one of the most prominent emerging markets with inflation-linked bonds and its experience with this instrument goes back to 1955. At the time, the country was battling with high inflation, so only foreign currency or indexed bonds would be accepted by the public.

As a result, most government debt became indexed to the CPI. However, inflationary pressure persisted in the 1970s and the government failed to contain price pressures.

The Israeli experience also highlights problems with index lags: before 1984, there was a quarterly lag which left IL bondholders largely unprotected when inflation accelerated. While the lag was since reduced to one month, it shows that a key feature of indexed bonds, namely protection from inflation, can fail in times of high inflation.

During the 1980s, inflation was brought down, which was the dawn for the advancement of fixed coupon domestic debt, which has since become an important part of the national debt portfolio. At the end of 2018, CPI-linked debt accounted for 52% of total debt and amounted to roughly USD 410 bn. The Government Debt Management Unit points out that the reasons for keeping CPI-indexed debt are diversification of financing sources, meeting market demand for inflation-protected instruments and the issuance of non-tradable bonds designated primarily for pension funds. However, the current strategy prioritises fixed coupon debt over ILBs. While the stock of CPI-linked tradeable debt accounted for 40% in 2018, newly issued CPI-linked debt only made up 24%.

6.5 Uruguay¹⁶

Uruguay similarly introduced ILBs following the period of high inflation in the 1980s. It saw a rapid increase in the role of CPI-linked bonds which rose to 28% of total central government debt and about 58% of all local currency debt at year-end 2019. In January 2020, the country had four international and nine domestic inflation-protected bonds outstanding, totalling USD 8.9 bn.

In the domestic market, maturities ranging from 4 to 15 years, have been issued. The international bonds have maturities of 17 to 30 years. At year-end 2019, 79% of international inflation-linked bonds were held by domestic investors. The funding strategy has recently focussed on marketing nominal fixed rate debt to international investors, thereby diversifying the investor base and mitigating exchange rate risks.¹⁷

An inflation-indexed unit of account for financial assets was introduced in 2001. There has been a substantial reduction in dollarisation since then, with the share of FX credit falling from about 80% in 2002 to 51% in 2018, though overall stabilization in inflation contributed to this development.

¹⁵ Based on Price (1997), Kleiman (1977) and The Annual Report of the Debt Management Unit in the Accountant General's Office 2018.

¹⁶ Based on Uruguay Sovereign Debt Report (January 2020).

¹⁷ See Uruguay Sovereign Debt Report (January 2018) and link [here](#).