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Economic  
Team

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## **Inflation-linked bonds in Belarus: Potential for financial market development and debt financing**

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## About the German Economic Team

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The German Economic Team (GET) advises the governments of Ukraine, Belarus, Moldova, Georgia and Uzbekistan regarding the design of economic policy reform processes and a sustainable development of the economic framework. As part of the project we also work in other countries on selected topics.

In a continuous dialogue with high-level decision makers of the project countries, we identify current problems in economic policy and then provide concrete policy recommendations based on independent analysis.

In addition, GET supports German institutions in the political, administrative and business sectors with its know-how and detailed knowledge of the region's economies.

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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.

Monetary policy in Belarus is not fully credible in the eyes of investors who may demand a risk premium in excess of what is warranted by the achieved stability in monetary policy. In this case, ILBs would offer a saving in debt servicing costs. They could also offer long-term assets to domestic investors, and assist in the shift out of USD financial assets.

There are a number of obstacles and costs which suggest the introduction of ILBs in Belarus would be premature. Given the relatively high share of regulated prices within the CPI, the debt service (coupon) on such bonds would be subject to government interference. Also, ILBs would fragment an already limited issuance of BYN denominated state bonds on the domestic markets. This would aggravate the problem of illiquidity in the domestic bond market. Pension and insurance funds are the typical investors in ILBs but are underdeveloped in Belarus.

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## 1 Introduction

Capital markets in Belarus are still at an early stage of development and the depth of the local bond market is well below that in central European EU countries. While numerous enterprises have issued bonds, there is very limited trading in such instruments. State debt outstanding in BYN is only about 7% of GDP, with only few issues in recent years. The updated financial market development strategy of 2019 sets a clear direction for the reform of the market. A key question for the country's capital market strategy, and for the management of the national debt, 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. BYN assets that are indexed to the local price level could take root more broadly and contain dollarization, which has been a long-standing vulnerability of the country'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 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 distills 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 in Belarus and whether the introduction of ILBs is sensible in terms of sovereign debt management, capital market development and financial stability (de-dollarization).

## 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 a fixed real value to 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 with a certain lag, while the investor is protected.

From the perspective of a debt management office in an emerging market, ILB issuance is typically sensible 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. If in a period of strong growth inflation surprises on the upside, debt service costs for the government go up commensurately, though relative to the nominal value of tax receipts this increase is more muted. 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.<sup>1</sup> ILBs are attractive for investors whose liabilities are similarly linked to a nominal value (such as wages). Also, ILBs are often 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, which are the main holders of such instruments.

In emerging markets with high and 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. As there is no longer any gain to the budget from inflation surprises, the credibility of monetary policy is strengthened. Central banks have therefore often supported issuance of such instruments.

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

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<sup>1</sup> '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.

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.<sup>2</sup>

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, 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 Belarus 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 publicly available to market participants on a data provider, such as Bloomberg. The face value of the ILB instrument is automatically 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, in other words 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.<sup>3</sup> 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.

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

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

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;
- 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.<sup>4</sup> 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**

In the post-war period, the global market for inflation-linked bonds has been dominated by issuance by governments in the advanced countries.<sup>5</sup> The UK began issuance in 1981, and the US in 1997, and these two issuers today jointly account for nearly  $\frac{3}{4}$  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,

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<sup>4</sup> 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.

<sup>5</sup> 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.



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 the RPI 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 relatively large share in debt outstanding there is a strategy to reduce the 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 only 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 such bonds, or ceased issuing. 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, transparent and compiled by an independent agency (see above Section 2.2).
- 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 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 can be summarised:

- 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 over a range of maturities is typically quite flat.

## 4 Are ILBs a sensible innovation in Belarus?

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

### 4.1 Macroeconomic stability and inflation risk

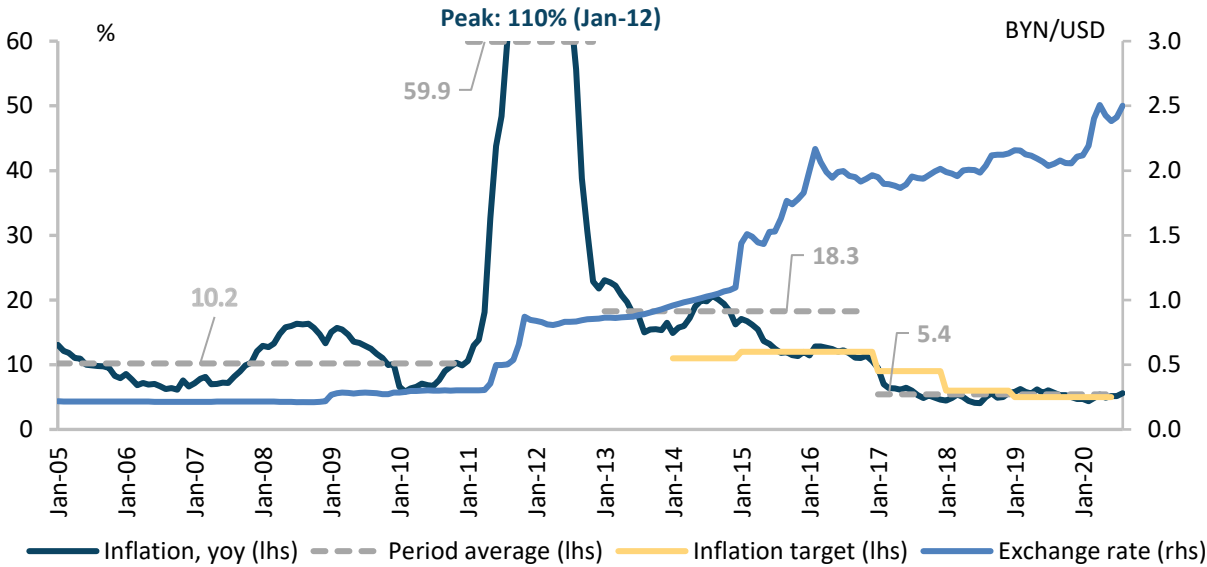
**Conclusion 1:** The National Bank's commitment to stable inflation remains less than fully credible to investors, and further risks loom in the current recession. The introduction of ILBs would therefore transfer a risk premium from investors to the state as issuer, and could result in a saving.

As other countries in the region, Belarus has a recent history of high and volatile inflation. Inflation has stabilized since the floating of the currency in 2014, and since early 2018 the NBRB has switched to the interbank rate as the monetary policy operational objective; in the medium-term, a transition towards an inflation targeting regime is planned. In August 2020 the inflation rate stood at 5.6%, close to the 5% target.

Despite this apparent success, as yet there is not a fully-fledged inflation targeting regime. This is due in particular to pervasive price controls and regulated prices; high dollarization which makes a floating BYN less credible (see below); and the high stock of government debt, which may further discourage the central bank from raising the interest rate when needed.

The 2020 recession, and associated instability, has further raised inflation risk as the banking system experience deposit outflows, and the BYN further depreciated. This is a particular risk for the solvency of the financial sector, which is highly dollarized. Further instability could put at risk access to financing on domestic and external debt markets, in which case a credible ILB instrument would reassure investors.

**Figure 1. Inflation and the BYN since 2005, NBRB targets and averages for corresponding periods**



Source: IMF IFS, NBRB, GET calculations

**4.2 Sovereign debt management**

**Conclusion 2:** The introduction of ILBs would further fragment the liquidity on the domestic market for state debt. A premium for illiquidity relative to standard bonds would need to be paid, and the issuance would not necessarily reduce debt service costs.

The Public finance management and financial market regulation 2020-2025 strategy<sup>6</sup> of Belarus calls for a market structure that is more balanced between banks and debt markets, an increased supply of bonds in the securities market, and the development of market infrastructure. Specifically, the Ministry of Finance has been tasked with making a regular and diversified offer of primary issues of state debt in BYN<sup>7</sup> with market characteristics and placement on the Belarusian Currency and Stock Exchange (BCSE) trading system.

State debt issued on the domestic market is relatively small (6.5% of GDP as of September 1, 2020).<sup>8</sup> Even domestically issued state debt is primarily in foreign currency. In this way the state absorbs the excess FX liquidity of the banking sector. This offers lower funding costs, though at the cost of perpetuating dollarization, and aggravating the currency risks in the public sector balance sheet.

Between 2015 and end-2017, 14 issues of state debt were in BYN, which amounted to only BYN 1.5 bn cumulatively. There were, however, no such issues in 2018/2019. As the above-mentioned debt and financial market strategy calls for enhanced BYN issuance of state debt, additional issues in BYN were done in 2020 (Figure 2 depicts local bond issues in BYN since 2015).

<sup>6</sup> See [http://minfin.gov.by/upload/bp/act/postsm\\_120320\\_143.pdf](http://minfin.gov.by/upload/bp/act/postsm_120320_143.pdf).

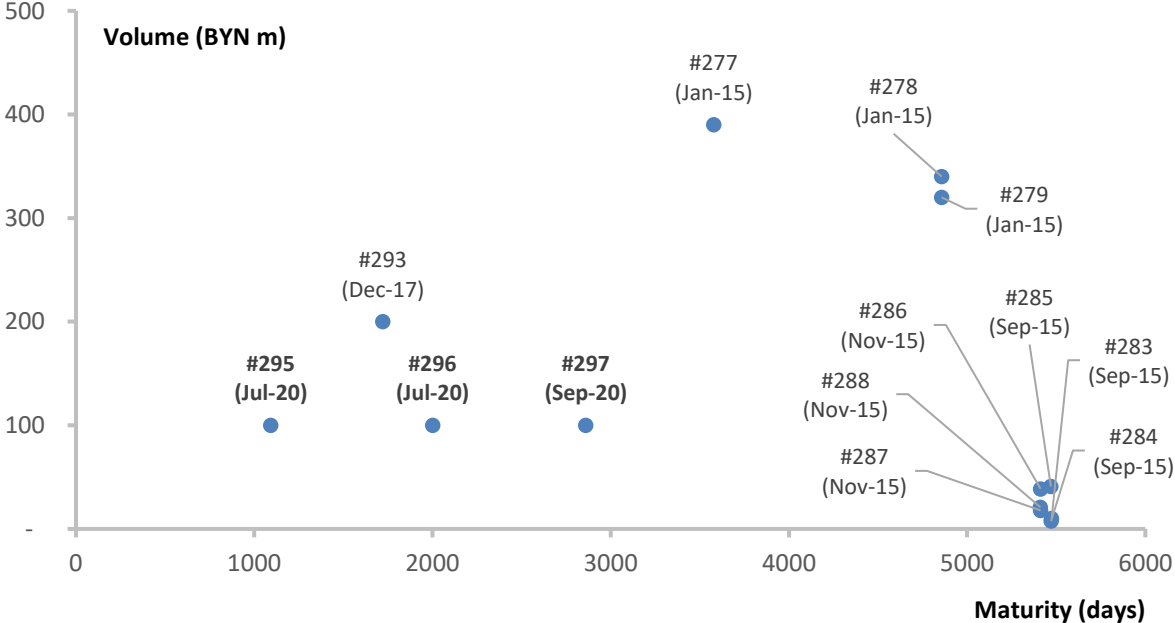
<sup>7</sup> Target share of annual debt issued in BYN to total domestic debt issued is set to 10% in 2020, gradually growing to 50% in 2025.

<sup>8</sup> The figure is based on information provided by the Ministry of Finance: [http://www.minfin.gov.by/en/public\\_debt/condition/](http://www.minfin.gov.by/en/public_debt/condition/). Note: This number does not correspond to figures on Belarus published by the IMF, as it does not include debt and guaranteed debt of local authorities.

As regards a longer-term strategy, our earlier paper (GET, 2020) pointed out that the objective of a liquid market in domestic BYN denominated state debt is sensible for an efficient debt management strategy. However, to accomplish a more regular issuance on the domestic market, the debt management office would need to phase out direct placements of state debt with individual banks, and also to enhance transparency through an issuance plan. The government would essentially become a price taker in the market. A primary dealer system, which would ensure that bid and offer prices are quoted on an ongoing basis, would be predicated on such transparency, though also depend on bank soundness.

The introduction of ILBs would complicate the ambition of a liquid domestic market in BYN denominated state debt. The already limited BYN issuance would be further fragmented. In the domestic issuance of state bonds illiquidity of standard bonds would be an even greater problem, raising funding costs, and making price determination more difficult.

**Figure 2. Domestic Debt issued in BYN since 2015**



Source: Ministry of Finance  
 Note: Date of issuance is reported in the brackets

**4.3 The investor base and implications for capital market development**

**Conclusion 3:** The investor base in Belarus is extremely limited. Unlike in other emerging markets which successfully introduced ILBs, there are no significant local pension funds with long-term investment horizons. This would limit demand for ILBs.

The domestic investor base for state bonds as yet remains very limited, and essentially rests with commercial banks. The capital position of Belarusian banks will come further under pressure, as debt distress of households and enterprises further intensifies in the current recession, and given the BYN depreciation, constraining taking further exposures to the sovereign. Current trends suggest a significant liquidity shortage in the banking sector as the NBRB halted its regular BYN liquidity supply and the overnight interbank rate significantly increased (partly to over 25% in Sep-20 vs only 4% in Aug-20).

International clearing of investment position held in Belarus is still not possible, limiting foreign investment in the local market. Due to demanding issue size thresholds for both regular and inflation linked bonds in emerging markets, Belarusian debt would not be included in local currency bond benchmarks. Some countries, including Poland, also offer inflation linked state debt to retail investors.

The typical investor in ILBs are domestic pension and insurance funds with long term liabilities. 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.

The above-mentioned financial sector development strategy of Belarus envisages an expansion of the insurance sector and of supplementary pensions. The introduction of ILBs should await a fuller development of this sector.

#### 4.4 De-dollarization of the financial system and monetary policy autonomy

**Conclusion 4:** Wider use of indexing could support the de-dollarization strategy in Belarus, expanding demand for BYN 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 dollarization remains the major vulnerability of the financial system, and weakens the effectiveness of monetary policy.

Experience in other emerging markets suggests that a credible inflation targeting framework is one of the key preconditions for reducing the use of foreign currency in the financial system. Currently, the flight out of BYN deposits and other assets has fuelled expectations for a further depreciation. A local currency instrument protected from inflation could offer a 'safe asset' function.

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.<sup>9</sup> A successful disinflation programme and adoption of a floating exchange rate regime initiated de-dollarization. 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).<sup>10</sup>

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 regulation of credit

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<sup>9</sup> Herrera and R. Valdes (2004): Dedollarisation, indexation and nominalization: the Chilean experience, Inter-American Development Bank.

<sup>10</sup> Price (1997).

institutions. Even though there may be demand for indexed credit products and other financial assets, financial indexation could be easily contained.

Critics of ILBs also point to the possible 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.

#### 4.5 The credibility of the price index

**Conclusion 5:** The Belarussian CPI meets international best practice: Belstat follows international recommendations regarding the accounting of prices (tariffs) for goods and services included in the consumer basket. However, a significant amount of goods (e.g. social important goods) is subject to price regulations and thus exposed to political influence.

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.

In the case of Belarus, the CPI is calculated by Belstat. An IMF mission on CPI and PPI from 2014<sup>11</sup> has found the consumer price index calculated by Belstat to comply with international standards as specified in the CPI manuals published by the IMF jointly with the ILO, World Bank, OECD, and UNECE. This conclusion was re-affirmed in the latest IMF report in November 2018.<sup>12</sup>

The methods used to record prices and utility tariffs were deemed to follow international best practice, with some recommendations made to improve the calculation of average electricity and water supply tariffs. As such, there do not seem to be any problems regarding the technical aspects behind the CPI calculation. A detailed breakdown of the composition – which can be openly accessed at the Belstat homepage<sup>13</sup> – is presented in Table 2 below.

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<sup>11</sup> [Summary of IMF mission results by Belstat.](#)

<sup>12</sup> IMF - [Republic of Belarus 2018 Article IV Consultation.](#)

<sup>13</sup> [Belstat data on CPI composition.](#)

**Table 2. Composition of Belarusian CPI**

Name of goods / services	Share (%)
<b>Food, beverages and tobacco products</b>	<b>43.3</b>
Food and non-alcoholic beverages	38.0
Alcoholic beverages, tobacco	5.4
<b>Non-food products</b>	<b>32.3</b>
Clothing and footwear	7.3
Furnishings, housing appliances and other household goods	6.8
Cars, car parts, motorcycles, bicycles and fuel	6.1
Medicine	3.1
Electronics	2.6
Other non-food products	6.3
<b>Services</b>	<b>24.4</b>
Housing and household services	10.4
Communication	5.4
Transport	2.3
Recreation and culture	1.9
Education and healthcare	2.3
Other services	2.1

Source: Belstat; based on 2018 data

Belstat is regarded as sufficiently independent, and there have been no reports of unauthorized or early access to its data. These key values (namely “independence in exercising state statistical activities” and “confidentiality of data”) are defined in the Law of the Republic of Belarus “On State Statistics”.<sup>14</sup> General methodological information is published by Belstat on their official website; this includes explanations of how data is collected and how the index is constructed. Average prices for all components of the CPI are freely available in all detail for the recent years and on a more aggregate level for a longer time horizon. Inflation indices for the preceding month are published at the middle of each month with corresponding explanations and additional information (incl. inflation expectations) complemented by the National Bank.<sup>15</sup>

It is important to note, however, that Belarus has an extensive history of price regulation for a wide range of products (e.g. socially important foodstuffs, alcohol, public services and tariffs, petrol etc.). While partial liberalisation was achieved over the recent years, roughly 20% of the CPI basket remain regulated.<sup>16</sup> For the most time, price growth of regulated goods and services was above the growth of unregulated prices. As such, while having a share close to 20% in the overall basket, price growth

<sup>14</sup> See [link](#).

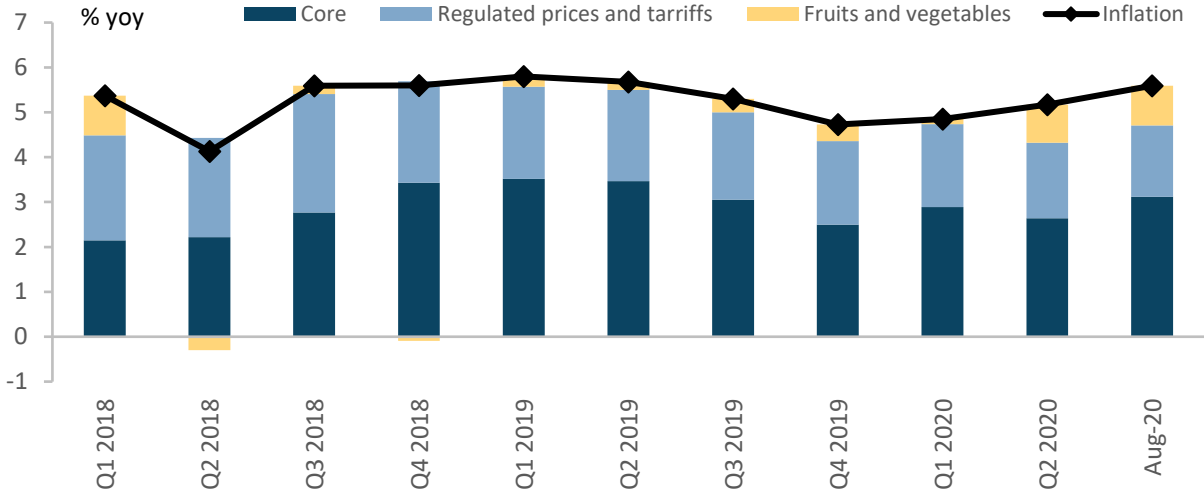
<sup>15</sup> See [website](#) of the NBRB.

<sup>16</sup> See IMF Country Report 15/137 (2015) and 19/10 (2019).



of regulated items has contributed on average 40 percent of total inflation over the last two years (see Figure 3).

**Figure 3. Contribution of different components to inflation growth**



Source: NBRB

While price controls typically aim at keeping price levels below the market equilibrium, it has been shown in the literature that they can also create an upward pressure on inflation due to the high costs of maintaining such a subsidy; this is often the case for countries in Central and Eastern EU and leads to a higher price growth of regulated goods.<sup>17</sup> During the COVID-19 crisis, the idea of introducing new price regulations for socially important foodstuffs appeared for a moment<sup>18</sup>, before the respective Decree being cancelled shortly thereafter. All in all, this demonstrates that CPI in Belarus is exposed to political influence. The debt service due on ILBs would be subject to the government’s own actions in regulating prices, and this would be a concern for investors.

**5 Conclusions**

Inflation-linked bonds have become a core instrument of sovereign financing on domestic debt markets for many emerging market countries. Such instruments were often introduced in times of macro-economic instability, when access to debt markets through regular instruments was in doubt. Generally, they are held by significant domestic institutional investors with a long investment horizon, importantly pension funds. They can serve as an instrument of efficient debt management, where investors question the credibility of monetary policy, and demand an excessive risk premium. In a highly dollarized economy, such as Belarus, the index defined by ILB could also help create local currency financial instruments that are protected from inflation. In the long term, ILBs could be an instrument offered in a fully liquid and well-functioning market in Belarus.

At present, the introduction of such instruments in Belarus would be premature. The domestic debt market is highly illiquid, and there is only a very narrow local investor base. Therefore, the auction and

<sup>17</sup> Ęgert (2007), L nnemann and Math  (2010), IMF Country Report 15/137 (2015).

<sup>18</sup> Decree Nr. 184 from 30.03.2020.

pricing mechanisms are not sufficiently developed. Foreign investors are still discouraged from entering the local market due to the absence of international clearing. All investors would be concerned about the impact of regulated prices on the price index to which the new bonds would be linked.

A priority should be to step up BYN issuance of state debt in the domestic market, and do so on the basis of a more transparent issuance plan, and a market-based auction mechanism. Within such a framework individual brokers could be incentivised to act as primary dealers, and quote an ongoing price at several maturities. This agenda has become more urgent as the recession in 2020, and the associated rise in dollarization, has raised currency risks in the private and financial sectors, and further undermined the functioning of monetary policy.

## 6 Appendix: emerging market experiences with ILBs

### 6.1 [South Africa](#)<sup>19</sup>

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

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<sup>19</sup> 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](#).

management operations with these instruments, and does not require its primary dealers to ‘make a market’ in inflation-linked products.

## 6.2 [Russia](#)<sup>20</sup>

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 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 [Poland](#)<sup>21</sup>

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,

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<sup>20</sup> Based on Public Debt Management Policy of the Russian Federation for 2017–2019 (2017).

<sup>21</sup> Based on The Public Finance Sector Debt Management Strategy in the years 2020-2023 (2019).

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.

#### 6.4 [Israel<sup>22</sup>](#)

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 [Uruguay<sup>23</sup>](#)

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

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<sup>22</sup> Based on Price (1997), Kleiman (1977) and The Annual Report of the Debt Management Unit in the Accountant General's Office 2018.

<sup>23</sup> Based on Uruguay Sovereign Debt Report (January 2020).

fixed rate debt to international investors, thereby diversifying the investor base and mitigating exchange rate risks.<sup>24</sup>

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.

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<sup>24</sup> See Uruguay Sovereign Debt Report (January 2018) and link [here](#).

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