Could the decrease in Belgian government debt-servicing costs offset increased age-related expenditure?

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Abstract

This paper argues that none of the secular trends that have driven down real interest rates over the past decades is likely to reverse in the near future. Government debt-servicing costs have therefore decreased significantly and can be expected to decrease further over the coming years. We calculate the direct gains accruing to the Belgian government from lower net debt interest payments and contrast them to the projected future increases in age-related expenditures. If interest rates remain on their current levels and savings on interest payments are channelled to cover the increases in age-related expenditures, they will cover two thirds of financing needs in these areas until 2030.

Keywords: interest rates, ageing, government debt management, risk

1 INTRODUCTION

One of the key stylised facts of advanced economies over the last three to four decades has been the persistent decrease in real interest rates. A related, parallel and intertwined development is the decline in the policy rate of central banks.

A number of negative effects stemming from the decline in these interest rates have been at the centre of monetary and financial policy debates in recent years. For central banks, the issue of the zero lower bound – i.e. how to conduct monetary policy when policy rates are at or just above zero – has been the central policy question. Pension funds and life insurers, which have traditionally relied on long-dated government bonds to finance liabilities, are finding themselves particularly challenged in meeting past commitments of financial return. Asset bubbles, in particular in the housing market, may further increase contingent liabilities of governments across the globe.

We argue in this paper, however, that this preoccupation is one-sided. Another key consequence of falling interest rates is the reduction in the servicing costs of large sovereign debt burdens. With a focus on Belgium, we show that the favourable re-financing environment has benefitted public finances in several ways. Like other heavily indebted countries, Belgium has managed to save significantly on debt-servicing costs. In addition, there is an on-going process of decreasing government debt in real terms and the government has managed to make its debt maturity profile less vulnerable to interest rate shocks.

On the other hand, the main future challenge to public finances in developed countries is the rising pressure stemming from their ageing societies. In some European countries, the increased expenditure is projected to amount to up to 7% of GDP by 2060 (European Commission, 2015). For Belgium, the situation is less dire. After the pension reform in 2015, which reduced the projected increase in pension expenditures by 2 percentage points by 2030, Belgium now faces an additional public expenditure burden of around 2.4% of GDP by 2030 (Federal Planning Bureau, 2017).

While government windfalls from lower interest rates are clearly not linked to any one specific expenditure item (i.e. expenditures related to an ageing population), in this case it is sensible to consider the two together. Both the downward movement in interest rates and the increase in pension and health-related expenditures are to some extent driven by demographic changes and societal ageing. Thus, if one (partly) offsets the other, this should be taken into account when addressing the public finance challenges of an ageing population.

In this study, we first review recent contributions to the debate on persistently low real interest rates and conclude that none of the trends that led to a decrease in risk-free interest rates can be expected to be reversed in the near future. We then relate the two diametrical trends, decreasing debt-servicing costs and the rise in age-related expenditure, and argue that, after the recent pension reform, the savings on the former offset around two thirds of the increase in the latter. Our projections, based on current secondary market yields on Belgian government bonds, show a further decrease in net debt interest payments by 1.6 percentage points of GDP between 2013 and 2030. Even in a hypothetical scenario in which interest rates rise moderately, the savings on debt-servicing costs would cover more than half of the additional public expenditure.

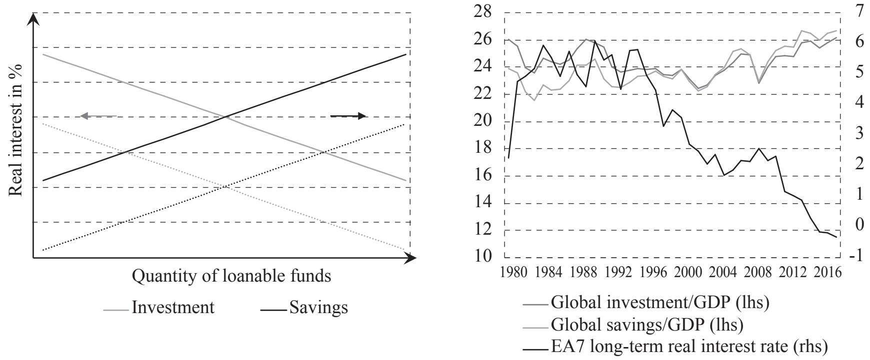
The remainder of this paper is structured as follows. The second and third sections provide the theoretical and empirical background for the fall in real interest rates across developed countries. It makes an effort to reconcile the results from diverse recent contributions, which range from overlapping generation models to growth accounting, and argues that a reversal of the strongest secular trends driving down real interest is not imminent or even likely. In the fourth section, the focus turns to Belgium and the direct impact of persistently low interest rates on its public finances. Section five concludes.

2 SAVINGS, INVESTMENT AND THE REAL RATE OF INTEREST

It is useful to start by breaking down the factors determining the real interest rate into a simple supply and demand problem. If supply, i.e. the propensity to save, increases, this puts a downward pressure on interest rates. Similarly, if demand, i.e. the propensity to invest, decreases, interest rates are expected to decline. Figure 1 (left hand side) shows a hypothetical scenario where the propensity to invest declines (i.e. an inward shift) and the propensity to save rises (i.e. an outward shift) such that the equilibrium volume of savings and investment as a share of GDP remains unchanged. This is in line with observed savings and investment (figure 1, right hand side): the amount of global savings and investment relative to GDP has remained approximately constant over the past three decades. A small increase can be observed between 2002 and 2007 and a new stable relative volume thereafter, interrupted only by a slump and a quick resurgence during the global financial crisis. During this period, long-term real interest rates have been in secular decline.

Figure 1

Global savings, investment and hypothetical real interest (in percent)



Note: EU-7 real interest rate is the unweighted average of long-term real interest rates in Belgium, Denmark, France, Germany, Italy, the Netherlands and the UK. Countries were selected based on long-term data availability.

Source: authors' own configuration based on Bean et al. (2015, left); AMECO and IMF WEO (right).

Determining the shape of the investments/savings schedules and the concomitant move in the interest rate is a classic economic identification problem. Hence, the sensitivity of both savings and investment to changes in the interest rate has been analysed in a number of empirical studies with the most recent calculations by the IMF (2014a) showing the elasticity of investment to the real interest rate to be about -0.5, and an elasticity of saving to the real rate of about 0.15.

Although even extreme cases, i.e. a complete insensitivity of either desired investment or desired savings, cannot be ruled out, as noted by Bean et al. (2015), it is likely that the observed decline in real interest rates combined with unchanged relative volume is due to a shift in both the investment and savings schedules.

Given the uncertainties related to the shape of the investment and savings schedules and the observed trend in the real interest rate, recent contributions have focused on analysing secular trends that coincide with the decline in the real interest rate and affect either the savings and/or the investment schedule. Bean et al. (2015:21) argue that "while we cannot rely on the evolution of the global savings/investment share to identify the drivers of the decline in interest rates, we can still look directly at the correlation between those drivers and the movements in interest rates". While such a narrative approach will not establish causal links, with the aid of structural models of drivers of investment and savings, we should nonetheless be able to infer the direction of the effects (see Eggertson, Mehrotra and Robbins, 2017; and Rachel and Smith, 2015 for recent examples).[1] Our ambition here

[1] Borio et al. (2017) point out two technical issues with such a structural modeling approach: first, the underlying theoretical models rest on untested assumptions. Second, empirical models tend to be overidentified, which may pose a challenge to out-of-sample predictions. We will get back to that discussion below.

is therefore not to quantify these drivers in a growth accounting framework, but rather to assess to what extent secular trends that have been considered important drivers of global real interest rates in the recent literature can be expected to be reversed.

Our discussion of these interest rate drivers in section three is naturally based on what is often referred to as the risk-free long-term advanced country interest rate, commonly measured by 10-year sovereign bond yields adjusted by inflation expectations to convert nominal into real rates.[2] Projections of savings on government debt servicing cost in Belgium in section four are calculated based on nominal interest rates, under the implicit assumption of a constant inflation (expectation) rate over the relevant time period.[3]

3 SECULAR DRIVERS OF SAVINGS AND INVESTMENT AND THE ROLE OF MONETARY POLICY

In this section, we first briefly review the secular drivers that have been increasing *desired savings* and decreasing *desired investment* and qualitatively assess the likelihood of trend reversals in these variables, closely building on Rachel and Smith (2016). We then provide a brief discussion of the potential role of monetary regimes in determining real interest rates.

3.1 DESIRED SAVINGS

3.1.1 DEMOGRAPHICS

Analyses of the effect of ageing on the real interest are based on the life-cycle model of consumption and savings (Brumberg and Modigliani, 1954). Individual saving takes place when people are in their high-earning years, typically starting in their late 30s until they reach retirement age. Börsch-Supan (2003) has conducted the most comprehensive empirical study on six advanced countries – the United States, the United Kingdom, Germany, the Netherlands, Italy and Japan – and their results indeed show the above-described hump shape for most countries. Moreover, the author shows that there is little dissaving at older ages, a trend exacerbated by a rise in retirement age in many developed countries. The relatively recent trend of longer working lives adds additional uncertainty because it prolongs the prime savings years. Carvalho, Ferrero and Nechio (2016) stress that an increase in life expectancy heightens the propensity to save among the middle-aged cohort, as a prolonged retirement period is anticipated.

[2] A simple way to measure inflation expectations is to calculate the spread between yields of inflation-linked bonds and bond yields of the same maturity. A more precise theoretical concept is that of the equilibrium real interest rate; the real interest rate where real GDP equals potential GDP, i.e. where the output gap is zero and where the inflation rate is at the level of the target inflation rate. This unobserved interest rate has received much attention in recent literature and several authors have suggested models for estimating it (Justiniano and Primiceri, 2010; Barsky, Justiniano and Melosi, 2014; Cúrdia et al., 2015; Kiley, 2015; Laubach and Williams, 2015; Lubik and Matthes, 2015). See also Taylor and Wieland (2016) for a discussion on the shortcomings of these model-based approaches,

[3] In Belgium, inflation, as measured by changes in the consumer price index (CPI), has remained remarkably constant over the past decades (see figure A1 in the appendix I). Currently, all Belgian government bonds yield negatively when adjusted by inflation (see figure A2 in the appendix I).

At the same time, a slowdown in population growth has an ambiguous effect on the real interest rate: while the increase in capital per worker puts downward pressure on interest rates, an increasing number of retirees with a lower propensity to save might well offset this effect in the long run.

Overall, while global demographic forces may be slowly reversed over the coming decade, both the increase in longevity and retirement age are likely to dampen the reversal sufficiently to postpone the effect beyond the 2030 time horizon relevant to this study (Rachel and Smith, 2015).

3.1.2 WITHIN-COUNTRY INCOME INEQUALITY

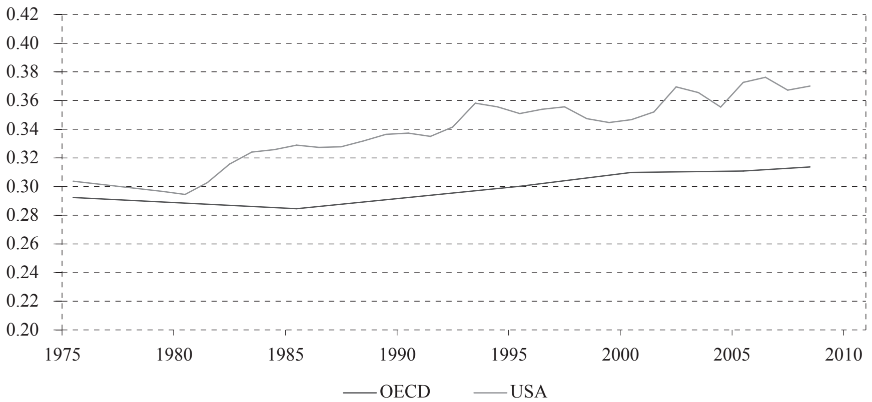
While inequality among countries has fallen, within-country inequality has risen overall in recent decades. This observation has most remarkably been brought to the surface of the debate by Piketty (2014). He provides evidence for a rising share of income held by the top decile of the population for a number of advanced and emerging economies.

While within-country inequality has indeed risen among OECD countries on average, detailed studies on the effect of rising inequality on savings are only available for the US (see Dynan, Skinner and Zeldes, 2004; Saez and Zucamn, 2014) where the effect is more pronounced than in other OECD countries, as shown in figure 2.

Regardless of the causal effect of within-country inequality on global real interest rates, there appears to be no evidence of a trend reversal in the short to medium term.

Figure 2

Gini coefficient of income inequality in the US and the OECD (average value of all OECD members)



Source: author's own configuration based on OECD data.

3.1.3. SAVINGS IN EMERGING MARKETS AND CHINESE FINANCIAL MARKET INTEGRATION

After 2000, savings in emerging markets relative to GDP have increased significantly, after being roughly constant in the preceding two decades. The IMF (2014a) notes that global savings rates went up by 1.7 percentage points between 2000 and 2007, 1.5 percentage points of which were due to higher emerging market savings, 0.8 percentage points to the higher share of emerging markets in global GDP and a 0.6 percentage point decline to lower relative savings rates in advanced economies.

While foreign exchange accumulation in the aftermath of the 1997-98 crisis in the whole of Asia has certainly contributed to higher demand for safe advanced-economy assets, Bean et al. (2015) stress that China in particular has been a drag on global interest rates. The combination of a rise in savings and large current account surpluses caused by China's export-led growth model resulted in an extensive outflow of funds. These went mainly into advanced economies where they pushed down real interest rates, enabled by Chinese financial market integration. Many underlying drivers for high net savings rates, which are deeply rooted in the household, the firm and the government sector, have been cited (Tao Yang, 2012). Ma and Yi (2010), for example, identify corporate restructuring, the Lewis model of transformation and rapid ageing as the main driving forces. In the medium term, these forces will reach a plateau and slightly reverse (Ma and Tao Yang, 2013). This trajectory is in line with IMF forecasts that predict a decline in both Chinese gross national savings and a more moderate current account. In the same vein, Chinese foreign exchange reserves dropped sharply between the end of 2014 and early 2016, but the latest numbers show that this trend is already faltering, albeit not reversing (IMF, 2016a).

3.2 DESIRED INVESTMENT

3.2.1 RISE IN THE SPREAD BETWEEN THE RISK-FREE RATE AND THE COST OF CAPITAL

There appears to be a clear shift of preference among investors, towards safe assets.[4] The aggregate equity risk premium, defined by the cost of equity minus the risk-free rate, has increased globally between 2000 and 2016 with the exception of emerging market economies where it has fluctuated around a constant level since 2000 (Credit Suisse, 2016).

The reason this trend has important implications for global real interest rates is its impact on companies' investment decisions. Investment decisions depend on the weighted average cost of capital (WACC), the weighted average of a company's debt servicing costs and its cost of equity. With the equity risk premium shooting up, these costs increased vis-à-vis the risk-free rate, making corporate investment relatively less attractive. As Rachel and Smith (2015) note, predicting the future

[4] This shift in itself may be driven by aging societies, see Liu and Spiegel (2011).

of the equity premium is difficult, but the post-crisis regulatory landscape does not favour a trend in either direction.

3.2.2 RELATIVE PRICE OF CAPITAL GOODS

Cheaper capital may have two effects on investment: first, it may trigger more investment as lower marginal returns are needed to recoup the price of capital, and second, a given amount of investment can be maintained by dedicating a relatively smaller share of overall production to capital-intensive projects. As illustrated convincingly by Rachel and Smith (2015), the 30% decline in the relative price of capital goods from the 1980s had an overall negative effect on investment, as the elasticity of substitution between labour and capital was not sufficiently high to contain the effect (see also Thwaites, 2015).

3.2.3 REDUCED PROFITABILITY OF INVESTMENT

The above decline in the relative price of investment was predominant until the early 2000s. In the aftermath of the global financial crisis, a different force took over: a drop in investment profitability. A study by the IMF (2014a) shows empirically that between 1980 and 2013, both total factor productivity and the expected investment profitability declined substantially.[5]

The study points to the conclusion that, in the near to medium term, there are no signs of increasing investment profitability, absent substantial structural reforms.

3.2.4 PUBLIC INVESTMENT DECLINE IN ADVANCED ECONOMIES

Public investment in advanced economies has been on a declining path since the 1980s, putting a downward pressure on real interest rates (IMF, 2014b). Recent declines are partly explained by the downward pressure on total public expenditures in many countries after the 2008 financial crisis. However, Jäger and Schmidt (2016) suggest that the long-run trend is a structural feature of an ageing society. They predict that the trend will only reverse once the share of older people in the electorate reverses. Analyses by the IMF (2016b) confirm this view and do not predict a reversal of the trend in the near future.

In conclusion, while linking secular trends to the decline in the propensity to invest seems evident, explaining the rise in the propensity to save is more difficult. While emerging market reserve accumulation and structural phenomena in China have certainly contributed to lower real interest rates in advanced economies, other secular trends such as the rise in within-country inequality and the link between ageing and desired savings, albeit widely accepted, are difficult to establish empirically. The conclusion we draw is that while we cannot quantify the

[5] See IMF (2014a:19) for details on the empirical specification estimated. Essentially, the authors regress real private investment on a measure of lagged real GDP. They then analyse the structure of the forecast error under the hypothesis that it is negative if real investment declined more than what can be predicted by the lagged real output term.

importance of the different secular drivers of low real interest rates, we consider it unlikely that any of the causative factors will reverse any time soon.

3.3 MONETARY POLICY

The above qualitative review of the structural determinants of savings and investment implicitly assumes long-run neutrality of monetary policy. This view has been challenged, most prominently in a recent contribution by Borio et al. (2017), who argue that "interest rates necessarily reflect the interplay between the central bank's reaction function and private-sector beliefs and behaviour" (p. 22).

Empirically, their criticism of the structural explanations deduced by proponents of the savings-investment narrative is based on the observation that the decline in real interest rates across the globe also coincided with a change in monetary policy regimes from post-Bretton Woods to an explicit inflation/price stability targeting.

For our research question at hand, two points are important to mention with respect to these findings. First, disentangling a potentially endogenous monetary policy regime change from structural economic factors is impossible for a number of econometric reasons.[6] Second, it is unlikely that advanced-country monetary regimes will change over the relevant time horizon until 2030.

An issue more relevant to short- and medium-term changes in advanced country real interest rates is the unconventional monetary policies recently carried out by major central banks. Quantitative easing (QE) programmes in Japan, the United Kingdom, the United States and the euro area have certainly had a negative effect on long-term government bond yields.[7] Although there is an ongoing discussion of the effectiveness of the different (short term) transmission channels of QE (see Alcidi et al., 2015), the general phenomenon of low interest rates have not been reversed after the end of the first generation of the ECB's QE programme; conceivably because structural factors driving longer term interest rates are unchanged.[8]

[6] Boeri et al. (2017) attempt to tackle this issue by analyzing long-term data over more than a century and including both monetary regime change dummies as well as variables that capture savings and investment drivers in an empirical specification. They then proceed to argue that variation in country-specific real interest rates is mostly explained by the regime-change dummies. However, this approach is econometrically difficult: since all trends coincide, the regime change dummies are essentially country-specific era fixed effects. In such a specification, the investment and saving proxy variables are estimated based on the variation left around the mean within these country-by-era fixed effects. This could still be informative if there was heterogeneity across countries in monetary regime changes which do not coincide with trends in relevant structural parameters; however, there is very little of such heterogeneity in advanced countries (see table 9, p. 27 in Boeri et al., 2017). A further issue with including savings and investment drivers as independent variables simultaneously is the multi-collinearity between these variables. Some of them, such as GDP growth, population growth and life expectancy are by definition highly correlated, which will both affect point estimates (in an a priori unknown manner) and increase the standard errors around these estimates.

[7] See for example Breedon, Chadha and Waters (2012), who find that the Bank of England's QE1 lowered government bond yields by 50 to 100 basis points.

[8] The ECB's President, Mario Draghi, summed up the situation well in a recent speech: "[raising real interest rates can] only be achieved by structural reforms that elicit a structural rebalancing of saving and investment".

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4 THE EFFECT OF PERSISTENTLY LOW INTEREST RATES ON PUBLIC FINANCES: THE CASE OF BELGIUM

In this section, we first discuss and calculate the potential for Belgium to save on net debt interest payments. We then contrast these potential savings with projected additional age-related expenditure.

4.1 SAVINGS ON NET DEBT INTEREST PAYMENTS IN BELGIUM

The falling interest rates have led to lower government net debt interest payments throughout European countries. Most of the gains have already been realised over the past decade. Table 1 below shows the current interest payments of selected European governments (column 2) and contrasts them with current 10-year benchmark yields (column 3) to indicate additional savings potential.

Table 1

Selected European governments and their potential to save further on debt servicing costs

Country	**Current (2017) net debt interest payments (in %)**	**Current (02/2017) 10-year government bond yields (in %)**	**Current (01/2017) average residual maturity of total outstanding debt (in years)**	**Current (2017) net debt/GDP (in %)**	**Share of government gross debt held by foreign investors (2018, in %)**
France	1.7	1.07	7.2	87.5	47.3
Germany	0.8	0.26	5.8	44.5	47.7
UK	2.2	1.20	14.9	77.5	n/a
Italy	3.6	2.21	6.8	119.0	29.4
Belgium	2.3	0.82	8.7	90.1	52.7
Portugal	3.7	3.92	6.5	110.1	52.1

Data sources: OECD Economic Outlook 2016, Bloomberg, ECB, IMF WEO 2017 and Eurostat for columns from left to right.

The current average residual maturity (column 4) gives an additional indication of the cost-saving potential: the low interest rate environment makes it cheaper to de-risk the maturity profile of government debt. Governments that have issued debt with a longer average maturity have therefore more potential to save on the issuance of future debt. Current government net debt as a share of GDP (column 5) indicates the potential for savings relative to the total debt burden when assets held by the government are subtracted.[9]

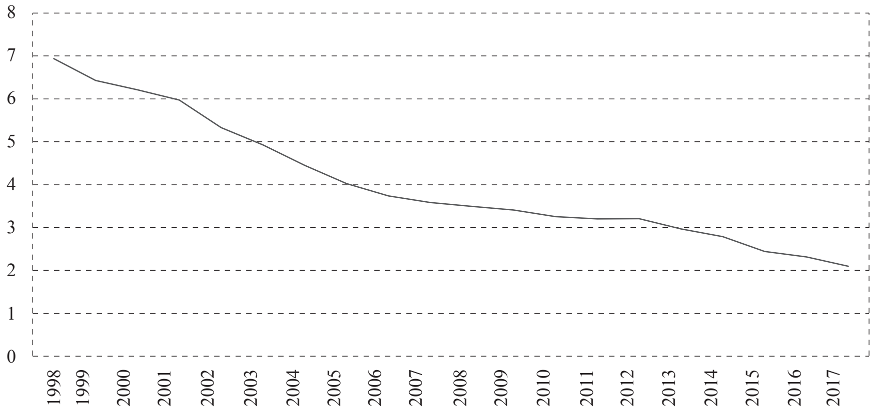
With government net debt (calculated as gross debt net of intra-governmental debt, financial assets held by the government and debt held by the central bank) of

[9] Arguably, government gross debt to GDP is the more relevant measure for short- to medium- term debt sustainability analysis. However, for our purposes, it is important to consider assets held by the government as their value will be equally affected by changes in the interest rate environment.

around 90.1% in 2017, a fall in the real interest rates has had a substantial impact on public finances in Belgium.[10] Net debt interest payments have decreased from about 7% of GDP in 1998 to the current level of around 2.3% (figure 3).

Figure 3

Belgian general government net debt interest payments (in percent of GDP)



Source: authors' illustration based on data from OECD Economic Outlook 2015.

The maturity profile indicates that spikes mostly emerge in the short term, with 16% of total government debt maturing in 2016 and slightly more than that in 2017. After a third peak in 2021, the profile flattens out (European Commission, 2016 and Bloomberg data). Major forecasts predict a decrease in interest rate expenditure between 0.5 percentage points of GDP (IMF, 2016c) and 0.3 percentage points of GDP (OECD, 2015) over the years 2018 and 2019. Our own calculations confirm these projections and extends them until 2030. To do so, we first utilise detailed data on Belgian government debt composition for all years until 2030, including information on coupon payments and maturity dates for all liabilities.[11] Figure 4 (left hand side) below shows the weighted average fixed coupons of non-treasury bill debt maturing by year (2016-30).[12]

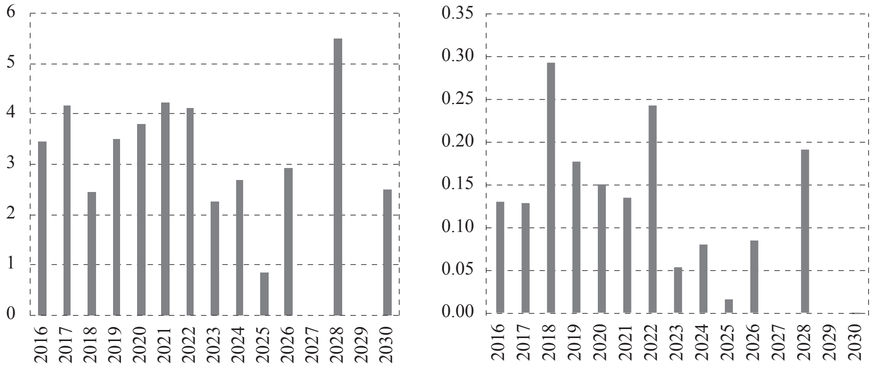
We then calculate savings on government interest rate payments until 2030 based on a number of reasonable assumptions. First, we assume that debt composition, i.e. the shares issued in treasury bills, government bonds and other loans, remains constant.[13] Second, we then assume that the government rolls over maturing sovereign bonds by issuing new bonds that pay coupons equal to the secondary market

[10] Note that net government debt is decreasing in most euro area countries due to the ECB's sovereign bond purchasing program. In January 2017, the euro area national central banks held 14% of gross government debt in the euro area (with the exception of Greece, which is not eligible to participate in the program).
[11] Data was extracted from Bloomberg.
[12] Since treasury bills have a maximum maturity of one year, we do not expect further gains accruing to them. We thus focus our estimates on all other bonds.
[13] The Belgian government also entered into a number of forward rate agreements, typically using 3 month and 6 month Euribor as the floating rate. The resulting coupons are all very close to zero. We do not consider them in our analysis for both their negligible small amounts and reasons of simplicity.

yields of bonds with a maturity equivalent to the weighted average maturity of total government bonds[14]. Under the additional assumption that both real interest rates and inflation expectations remain constant over the relevant time horizon ewe can estimate expected savings on interest payments (figure 4, right hand side).

Figure 4

Weighted average fixed coupon on Belgian non-treasury bill debt maturing in the indicated years 2016-2030 (left hand side) and savings on coupon payments as a percentage of GDP under a no-interest-rate-change assumption, 2016-2030



Source: authors' elaboration on Bloomberg and IMF WEO data.

The highest gains were thus realised in 2017 and are expected for 2022, with declining interest rate expenditure of 0.3% and 0.25% of GDP, respectively. A further peak occurs in 2028.

How much can the Belgian government possibly save? In order to determine the lower bound for net debt interest payments, consider the following thought experiment: bonds of a maturity equalling slightly above eight years – the weighted average maturity of all outstanding debt – currently yield 0.37%. Multiplying this number by outstanding Belgian net debt to GDP of 90.1% gives us a lower bound for net debt interest payments of 0.33% of GDP.[15] Of course, this extreme scenario is not likely to materialise in full due to other considerations affecting the optimal composition of total government debt. Accumulating the expected gains displayed in figure 3 and adjusting them downward to consider only interest payments on government net debt gives us an estimate for savings of about 1.1 percentage points of GDP until the end of 2030, taking 2015 as the base year (figure 5). This number increases to 1.6 percentage points of GDP if measured from 2013 (from which year we have age related expenditure projections, cf. below).[16]

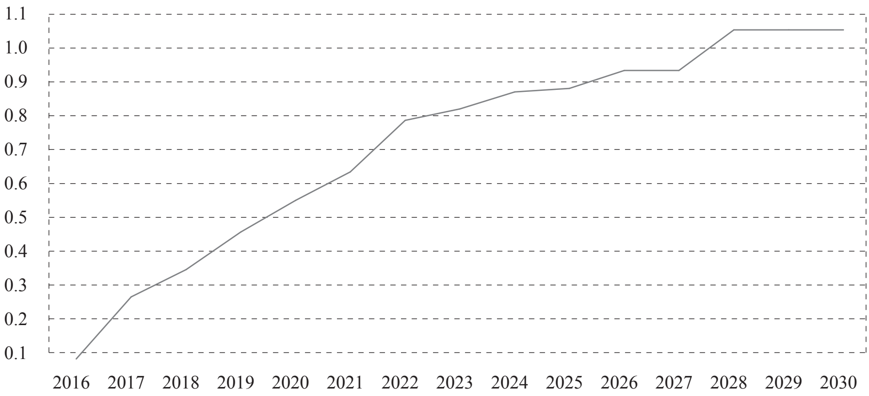
[14] This assumption is conservative for two reasons. First, we assume a linear and positively sloped yield curve. Figure A2 in the appendix shows that this assumption is reasonable – the "flattening out" of the yield curve for maturities >20 years only increases potential gains. Second, in reality, public debt management is not static. Increased future growth expectations that would result in a steeper yield curve could easily be compensated for by issuing more short-term debt.

[15] Data on the Belgian net debt-to-GDP ratio were extracted from the IMF's World Economic Outlook database.

[16] To see this, add the 0.5 percentage point fall in figure 5 from 2013 to 2015 to the projected 1.1 percentage points from 2015 to 2030.

Figure 5

Historical and forecast aggregate savings on Belgian government net debt coupon payments, 2016-30 (percent of GDP)



Source: authors' own calculations based on Bloomberg data.

An important question is how the savings (as a percent of GDP) on interest payments translate into an improvement of public finances. Since part of the windfall for the government in terms of lower interest payments represents a loss in interest income of the domestic population, it does have implications in terms of income and consumption taxes; government tax intake will be lower. In addition, there may be second-order general equilibrium effects. Because lower interest rates on debt are a global phenomenon, the extent to which the domestic population is exposed depends on the net international investment position of the country's investors.[17] As an example, foreigners hold around 50% of outstanding Belgian government debt (table 1 above). If the volume of foreign debt held by Belgians (which experienced a similar decline in interest rates) was at a value of less than 50% of government gross debt, parts of the government savings on interest rate payments would be a windfall from abroad and would not affect the real domestic economy. If, on the other hand, Belgians held foreign bonds equivalent to a value greater than 50% of Belgian government gross debt, the global fall in interest rates would affect the domestic real economy to a relatively larger extent.

Belgium's net international investment position (NIIP) shows that the country is a net global investor with net assets valued at approximate 50% of GDP, a value that has remained relatively stable over the past few years. However, this surplus is composed of a large surplus in equity securities (€147 billion or 35% of GDP) and a surplus in residual investment, including financial derivatives (€112 billion or 27% of GDP). The position in debt securities, on the other hand, shows a deficit of €66 billion (or -17% of GDP).[18] Thus, the direct effect of a global decline in interest rates (and a rise in the equity premium) is likely to benefit Belgian investors.

[17] The relative riskiness of the investment portfolio (i.e. the composition in terms of equity and debt instruments) across countries is also a factor. If Belgians are more likely to hold equity relative to other nationalities, lower interest rates would affect their investment income comparatively less.

[18] All calculations based on 2016-Q4 data of the Bank of Belgium; GDP (2016) data as reported by Eurostat.

The overall impact that lower interest rates have on consumption via implicit transfers from bond holders to the government is arguably small. First, there is a limited direct effect on households. In the case of Belgium, residents outside the financial sectors held only a very small share (<5%) of outstanding Belgian government debt in 2018.[19] Hence, the effect would come from lower dividends or equity valuations of banks and insurance companies, which only have a small effect on consumption (Case, Quigley and Shiller, 2005). Other holders of government debt are pension funds and mutual funds invested in safe assets. The impact of their investment performance on household behaviour is arguably limited.

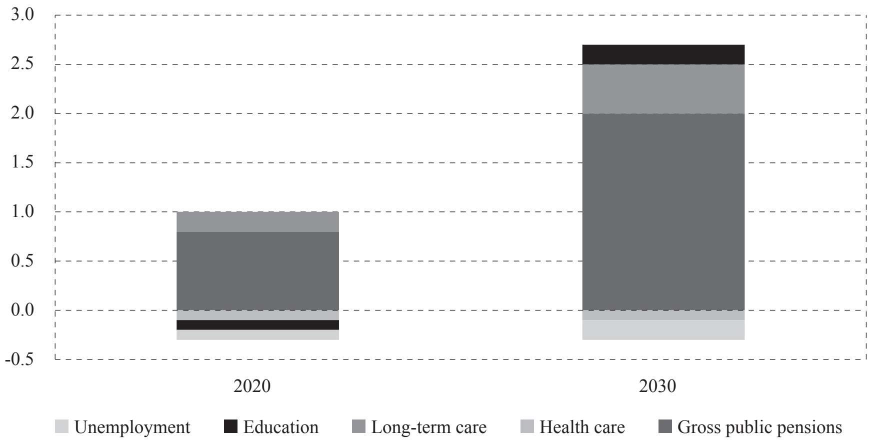
The persistently low interest rates further allowed Belgian public debt managers to strategically issue sovereign bonds and thereby flatten out the debt maturity profile despite the high debt-to-GDP ratio. While it is more difficult to quantify the positive value of such de-risking (and we can thus not directly account for it in our calculations), we nevertheless discuss the implications further in appendix II.

4.1 CAN DECREASED DEBT-SERVICING COSTS OFFSET INCREASED AGE-RELATED EXPENDITURE?

Combining information from the European Commission's 2015 ageing report and the Belgium Federal Planning Bureau's (2017) update on forecast pension expenditure allows us to display changes in age-related expenditure in Belgium from 2013 to 2030 (and 2020) (figure 6).

Figure 6

Disaggregated changes in age-related expenditure in Belgium with base year 2013 as a percent of GDP, 2013-2030



Source: authors' illustration based on data from the European Commission and the Belgian Federal Planning Bureau.

Overall, age-related expenditure increases by 2.4 percentage points of GDP over the time horizon under consideration. Increased spending on public pensions

[19] Eurostat data.

(+2.0), long-term care (+0.5) and education (+0.2) are slightly counter-balanced by lower health care (-0.1) and decreased unemployment expenditure (-0.2).

Comparing these numbers to the projected savings on government net debt interest payments of 1.6 percentage points of GDP from 2013 to 2030 shows that the latter offsets the former to a large extent. More precisely, savings on net debt interest payments can cover roughly two thirds of age-related expenditure under the no-interest-rate change scenario measured from the baseline of 2013. In a hypothetical scenario where secondary market yields on average maturity debt increase to 1.5% in 2020 (thus, by 113 basis points), savings on net debt interest payments would still cover 54% of the additional age-related expenditure (see appendix I).

5 CONCLUSION

In this paper, we review recent contributions to the debate on the drivers of real interest rates. We conclude that, while we are uncertain to what extent each secular driver contributed to the decline in real rates over the past two decades, there is no evidence that any of them could be reversed substantially in the near future. Thus, we expect real interest rates to remain low in the medium-term.

The following expected decrease in Belgium's debt-servicing costs could offset the increase in age-related expenditure to a large extent. Even in a scenario of slowly increasing interest rates, the direct gains accruing to Belgian public finances from persistently low interest rates cover a substantial share of age-related financing needs until 2030, thus minimizing the need for further adjustments to Belgium's primary balance if these savings are channelled towards public pensions, long-term care and education. Similar mechanisms would apply to other highly indebted countries.

Indirect gains stem from an extension of debt maturities (see appendix II) and a decrease of Belgian government debt in real terms, with potential long-term benefits for sovereign debt sustainability.

We note that our findings are relevant to the medium-term only. Despite the pension reform in Belgium, age-related expenditure will continue to increase in Belgium until 2069 (Belgium Federal Planning Bureau, 2017) and the dampening effect from the low interest rate environment will soon reach its peak. This finding thus closely relates to a recent contribution by Elmendorf and Sheiner (2017) who argue that the combination of an aging society and low interest rates changes the government's optimal spending path: while spending adjustments to cover future liabilities should be enacted as soon as possible (and thus give relevant actors time to adjust), they should not be implemented now. The low interest environment can thus be seen as a tool to buy time, but not to abandon inevitable structural reforms.

Disclosure statement

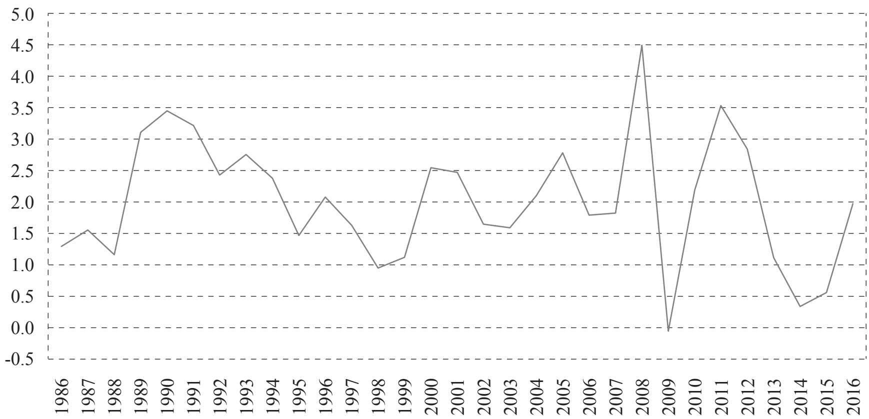
No potential conflict of interest was reported by the authors.

APPENDIX I

BACKGROUND FIGURES

Figure A1

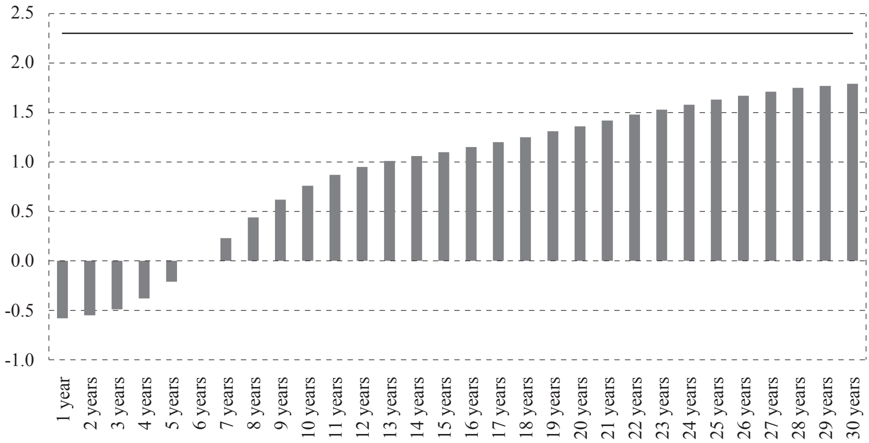
Annual growth of CPI inflation in Belgium (in percent), 1986-2016



Data source: OECD.

Figure A2

Belgian secondary market government bond yields (07/05/2017) and Belgian y-o-y CPI inflation (03/2017) (in percent)

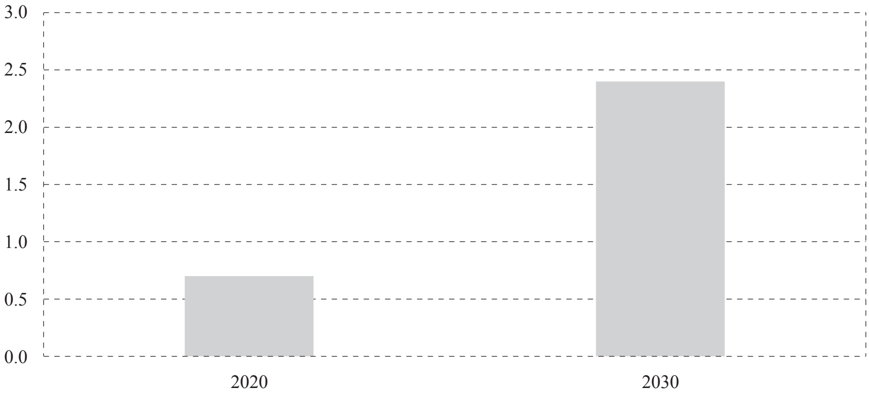


Note: all government issued bonds are currently below the Belgian CPI inflation rate (figure A2). Thus, virtually any newly issued bond decreases Belgian government debt in real terms.

Source: OECD.

Figure A3

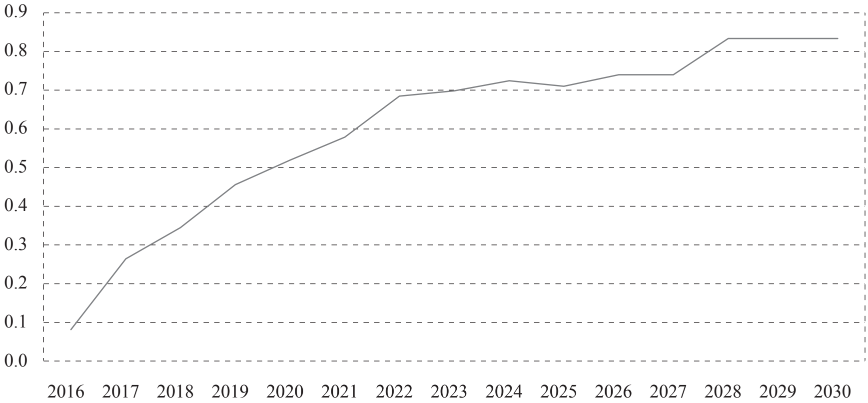
Overall change in age-related expenditure by 2020 and 2030 in Belgium (base year 2013; in percent)



Source: authors' illustration based on data from the European Commission and Belgian FPB.

Figure A4

Forecast annual savings on net debt coupon payments (in percent of GDP)



Note: based on a hypothetical scenario that assumes an increase in the average yield of maturity debt in the secondary market from the current level to 1.5% in 2020.

Source: authors' own calculations based on Bloomberg data.

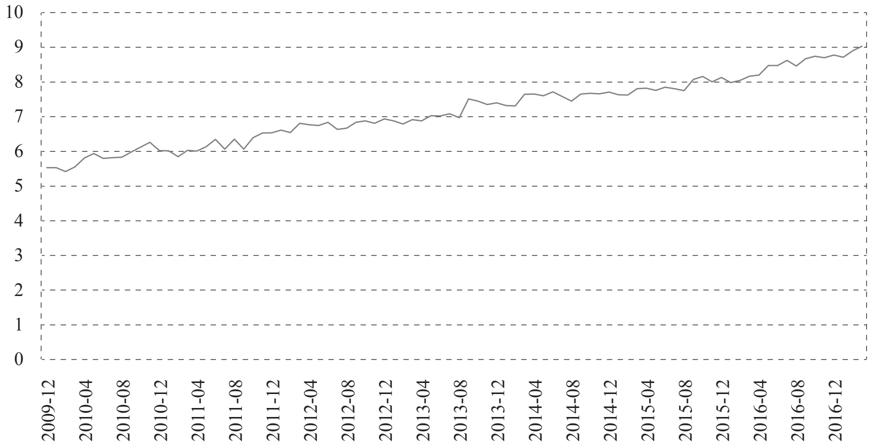
APPENDIX II

BELGIUM'S GOVERNMENT DEBT MATURITY PROFILE

The low interest environment led to a shift in Belgium's government debt maturity profile. The weighted average maturity of total outstanding government debt increased by 3.5 years between January 2010 and March 2017, allowing the Belgian government to de-risk its debt structure without paying a high default risk premium (figure A5).[20]

Figure A5

Weighted average maturity of total Belgian government debt, in years



Data source: ECB.

An extension of maturities is a difficult yet important task. Heavily indebted countries like Belgium usually have maturity profiles skewed to the short term as governments' commitments to low inflation become less credible when debt is high (Blanchard and Missale, 1991). While the credibility argument only applies to a very limited extent in a monetary union, several authors emphasise a second reason.[21] Default risk alone may explain the short-term nature of debt maturity profiles when governments have accumulated significant debt in the past (Alesina et al., 1992).

The more debt a government takes on, the higher the default risk premium that investors demand on long-term debt. Rolling over large amounts of debt every year entails a high vulnerability to sudden rises in interest rates, rendering default exponentially more likely with every year. This motivates governments to take on

[20] As pointed out by Gros (2016), purchasing domestic government bonds by national central banks effectively decreases their maturity to 0. As of 31 March 2017, the National Bank of Belgium held Belgian government debt worth €49 billion (11% of outstanding debt) with a weighted average maturity of 10.1 years within the ECB's public sector purchase program (PSPP). This effectively reduces the weighted average maturity of government debt still traded on the secondary market to 8.7 years and the weighted average maturity of total outstanding debt to 7.9 years, which still constitutes a large increase over the past years.

[21] The costs of leaving a monetary union are generally considered too high.

high amounts of short-term debt, which exacerbates the issue rather than solving it. Escaping from such a bad equilibrium can generally only be accomplished by a significant reduction in the debt burden. Belgium and other heavily indebted advanced countries, however, seem to have managed a reduction of their short-term debt owing to the current low-interest environment.

In general, lengthening and thus smoothing the structure of government debt by avoiding maturity peaks makes confidence crises among investors less likely. If the amount of debt maturing every year is small, even severe crises characterised by a rapid rise in sovereign bond yields would not put pressure on public finances. As these dynamics are typically priced in by financial market participants, the magnitude of a sovereign bond price decline will eventually be less severe.

All in all, the government of Belgium has thus benefitted substantially from the global decline in interest rates. Besides the immediately favourable effect on debt-servicing costs, Belgium's government debt is currently decreasing in real terms and its maturity profile has become less risky. The direct gains from the latter two effects are difficult to quantify. The most significant indirect effect is the positive impact on Belgium's credit rating as the above factors are taken into consideration by all major credit rating agencies. As stated in the introduction, we abstain from speculating on potential private sector losses that may eventually inflict costs on the public sector. Contrasting the increased financial market risk caused by the low interest rate environment with the gains on decreased government interest payments would be another useful exercise. Further analysis of the case of Belgium should also consider the impact on pension funds and the "search-for-yield" behaviour to meet commitments made to beneficiaries.

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