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THE SUSTAINABILITY OF MALTESE GOVERNMENT DEBT: 2018Q1 UPDATE

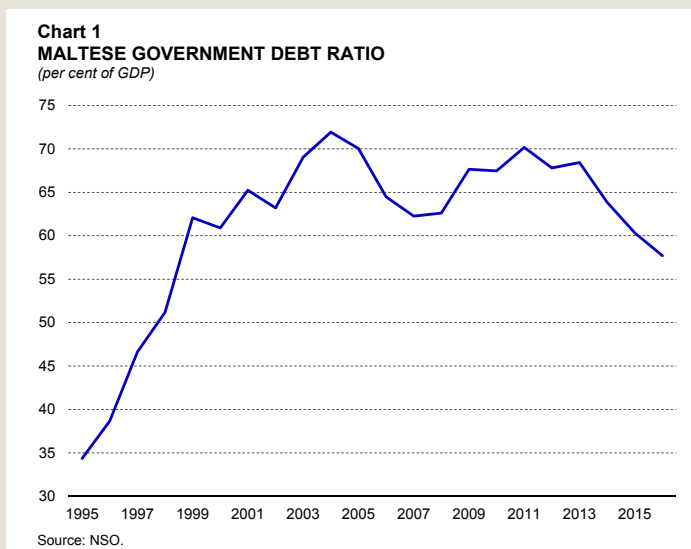
BOX 4: THE SUSTAINABILITY OF MALTESE GOVERNMENT DEBT: 2018Q1 UPDATE¹

The global financial and economic crisis, as well as the European sovereign debt crisis, have placed a significant strain on public finances in a number of advanced economies. Concerns over countries' ability to finance their rising debt commitments have led to an increased level of attention directed towards public debt sustainability, especially since sound public finances are a crucial foundation for price stability, financial stability and economic growth.

This Box provides an update of the Maltese government debt sustainability analysis found in Farrugia and Grech (2017) and thus assesses public debt sustainability over the next decade.² Although the government debt-to-GDP ratio in Malta is currently at its lowest level since the late 1990s, the study of debt sustainability remains highly relevant – regular sustainability assessments are appropriate since they allow any vulnerabilities to be identified in a timely manner.

Government debt developments in Malta

Chart 1 shows the evolution of the government debt-to-GDP ratio in Malta since the mid-1990s.³ It is possible to distinguish between four distinct periods. Between 1995 and 2004, the debt ratio more than doubled, rising sharply from 34.4% to 71.9% of GDP. In the following three-year period, the debt ratio witnessed a substantial improvement, declining to 62.3% by 2007. However, it deteriorated once again over the 2008 to 2011 period, climbing to 70.2%. Between 2012 and 2016, government finances entered another phase of consolidation, with the debt ratio decreasing considerably to 57.7%, thus falling for the first time since EU membership to below the 60% threshold established by the Maastricht Treaty. As at 2016, Malta had the sixth lowest debt ratio out of all 19 euro area countries, and its debt ratio stood at around 31 percentage points lower than the average for the euro area.



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² See Farrugia, J. and Grech, O., "The Sustainability of Maltese Government Debt Revisited", in Grech, A.G., and Zerafa, S. (eds.), *Challenges and Opportunities of Sustainable Economic Growth: the Case of Malta*, Central Bank of Malta, 2017.

³ This study uses the 2017Q3 vintage of national accounts and general government statistics, published in December 2017 and January 2018, respectively. Therefore, this debt sustainability exercise makes use of an additional year of data in comparison to our previous assessment.

The evolution of the debt ratio largely reflects the various stages of Maltese fiscal policy throughout the years: substantial budget deficits between the mid-1990s and early 2000s, fiscal consolidation shortly after EU accession, a looser fiscal stance following the onset of the global financial and economic crisis, and another period of fiscal tightening thereafter.

The concept of fiscal sustainability

The starting point for assessing debt sustainability is the government budget constraint – an equation that governs the evolution of government debt. It can be expressed as:

$$d_t = \frac{1 + r_t}{1 + g_t} d_{t-1} - pb_t + dda_t$$

and shows that the debt-to-GDP ratio (d_t) is equal to the debt ratio inherited from the previous period (d_{t-1}) multiplied by the “snowball effect” – which captures the joint impact of the real effective interest rate (r_t) and the real GDP growth rate (g_t) – less the primary balance-to-GDP ratio (pb_t), plus the deficit-debt adjustment-to-GDP ratio (dda_t).⁴

If the government budget constraint is solved forward, one can derive a condition for debt sustainability, known as the inter-temporal budget constraint, which reveals that, for debt to be sustainable, the original debt and the interest accumulated over time will eventually have to be paid through sufficiently large surplus primary balances.⁵

This facet of sustainability, referred to as solvency, is a medium- to long-term concept. There is, however, another side to sustainability. As was highlighted by the recent European sovereign debt crisis, to be in a sustainable position, governments must also be liquid. Liquidity measures the government’s ability to access financial markets, allowing it to meet all upcoming obligations in the short term. These two dimensions of sustainability are both necessary and are closely interconnected.

Debt sustainability analysis for Malta

The scope of this study is to assess the sustainability of Maltese government debt over the next decade. In light of the theoretical framework discussed above, and in line with the International Monetary Fund’s (IMF) definition, sovereign debt is sustainable if the country is able to finance its policy objectives and service the resulting debt without having to resort to unduly large adjustments, which could otherwise compromise its stability.

We divide the debt sustainability exercise into two parts. First, we assess the government’s liquidity position, that is, whether its debt is sustainable in the short term. Second, we examine its solvency position, namely whether government debt is sustainable over the medium and long term.^{6,7}

Short-term sustainability: Liquidity

To assess short-term sustainability, we examine the composition of government debt along various dimensions as well as the evolution of government bond yields. In particular, we decompose Maltese

⁴ The real effective interest rate is the nominal effective interest rate net of inflation.

⁵ For further details on government debt dynamics and fiscal sustainability, see Farrugia, J. and Grech, O., “The Sustainability of Maltese Government Debt Revisited”, in Grech, A.G., and Zerafa, S. (eds.), *Challenges and Opportunities of Sustainable Economic Growth: the Case of Malta*, Central Bank of Malta, 2017, and references therein.

⁶ For an overview of the alternative methodologies employed in the literature to assess government debt sustainability, see European Commission (2011), “Public Finances in EMU – 2011”, *European Economy* 3/2011; and Amador, J., Braz, C., Campos, M., Sazedj, S., & Wemans, L. (2016), *Public Debt Sustainability: Methodologies and Debates in European Institutions*, Occasional Paper 01/16, Banco de Portugal.

⁷ Relatively recent assessments of the sustainability of Maltese government debt include IMF (2018), *Malta: 2017 Article IV Consultation Staff Report, Country Report No. 18/19*; Farrugia, J. and Grech, O., “The Sustainability of Maltese Government Debt Revisited”, in Grech, A.G., and Zerafa, S. (eds.), *Challenges and Opportunities of Sustainable Economic Growth: the Case of Malta*, Central Bank of Malta, 2017; and European Commission (2015), *Fiscal Sustainability Report, European Economy Institutional Paper* No. 18, European Commission. This study, however, relies on more recent data.

government debt by maturity (short-term vs long-term), by holder (resident vs non-resident), by currency (domestic currency vs foreign currency) and by instrument (fixed interest rate vs floating interest rate).

The data reveal that a substantial share of government debt has a residual maturity greater than one year. The share of longer-term maturity debt has risen over time and stood at around 94% in 2016. Consequently, debt needs to be rolled over rather infrequently and thus refinancing risks are more contained.

The share of government debt held by residents of Malta is significantly high. In 2016, more than 90% of debt was held by residents, with this share broadly increasing over time. Higher shares of debt held by residents are generally preferred since residents are likely to be less sensitive to developments in global financial markets because they usually have access to more accurate and timelier information than non-residents on domestic economic conditions.

Since 2004, virtually all debt has been denominated in the domestic currency and therefore there is almost no exposure to exchange rate risk.

Prior to 2009, all longer-dated government debt was subject to a fixed interest rate. Since 2009, the Government started to issue longer-term debt instruments that carry a variable interest rate. Although the share of longer-dated debt with a variable interest rate has risen over time, in 2016 it stood at less than 5%. As a result, interest rate risk is also largely contained.

In recent years, Maltese government bond yields converged to those for the euro area at low rates and stood below the yields of several other euro area countries. Moreover, domestic government bond yields have historically been rather stable. Market participants therefore perceive Maltese government debt as being relatively low risk.

Medium- to long-term sustainability: Solvency

To gauge sustainability over the medium to long term, we employ scenario analysis which forms the basis of conventional debt sustainability analysis (DSA). Starting from the government budget constraint, it involves assuming paths for the determinants of the evolution of the debt ratio ($g_t, i_t, \pi_t, pb_t, dda_t$) over a medium- to long-term horizon, to generate a trajectory of the debt ratio. In the light of the definition of sustainability presented above, projected paths for public debt are considered to be sustainable if they are unlikely to require 'major readjustments'.⁸ This study generates three separate scenarios for Maltese government debt over a ten-year horizon, spanning from 2017 to 2026, which explore different fiscal policies the Government is likely to pursue over this horizon. The assumptions underlying these scenarios are explained below and average values are provided in Table 1.

Table 1
SCENARIO ASSUMPTIONS: AVERAGES 2017-2026

Per cent

	Real GDP growth	Nominal interest rate	Inflation	Primary balance-to-GDP ratio	Deficit-debt adjustment-to-GDP ratio
Scenario 1	4.3	3.7	2.0	2.1	1.0
Scenario 2	4.3	3.7	2.0	0.8	1.0
Scenario 3	4.3	3.6	2.0	1.7	0.6

Source: Authors' calculations.

⁸ See Blanchard, O. J. (1990), "Suggestions for a New Set of Fiscal Indicators", Department of Economics and Statistics, *Working Paper No. 79*, OECD.

Scenario 1

The assumptions underlying the first scenario are based on the Bank's latest projections over the 2017-2020 period.⁹ Thereafter, assumptions that are commonly employed in conventional DSA exercises are generally adopted to generate the paths for the input variables. Since the current positive output gap is expected to close by 2021, over the rest of the projection horizon real GDP growth is set to equal the Bank's latest potential real GDP growth estimates. This produces a gradually declining profile for real GDP growth that falls to 3.2 % by 2026.

The nominal interest rate is defined as an effective rate, that is, interest payments paid in the current year as a percentage of the previous year's debt. The interest payments reflect projections of interest rates at different maturities and the maturity structure of government debt.¹⁰ The projected interest rates are derived by applying a spread on euro area interest rate projections provided by the European Central Bank (ECB), while the maturity structure of government debt projected for 2020 is assumed to persist throughout the rest of the projection horizon.¹¹

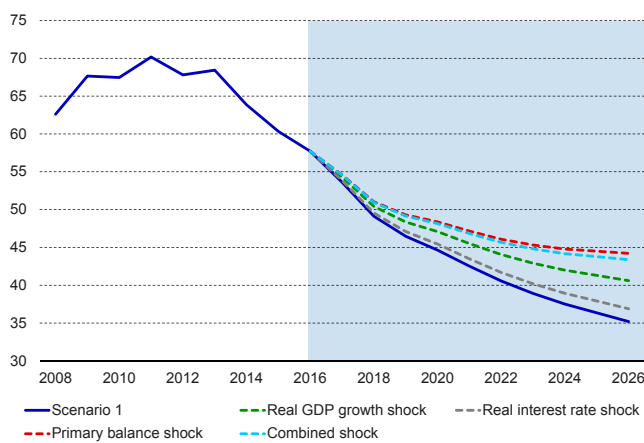
Inflation, as measured by growth in the GDP deflator, is assumed to remain at 2% beyond 2020, broadly in line with the ECB's objective of euro area inflation that is below, but close to, 2% over the medium term.

Between 2021 and 2026, the structural component of the primary balance as a percentage of GDP is assumed to gradually converge towards its long-run average. Since the output gap is closed over this period, the cyclical component is equal to zero. It is also assumed that there will be no temporary measures. Together, this produces a primary balance ratio that is set to deteriorate gradually but remain positive.¹² This implies that the overall balance-to-GDP ratio is expected to worsen to -0.2% by 2026, which would largely be brought about through the decline in the primary balance ratio since movements in the nominal interest rate are expected to be minimal.

From 2021 onward, the deficit-debt adjustment is set to equal its long-run average.

As Chart 2 reveals, these assumptions produce a trajectory for the debt-to-GDP ratio that is set to decline steadily by more than 22 percentage points over the course of the next decade, from 57.7% in 2016 to 35.2%

Chart 2
MALTESE GOVERNMENT DEBT RATIO UNDER SCENARIO 1
(per cent of GDP)



Source: Authors' calculations.

⁹ These projections, which use the 2017Q3 vintage of national accounts and general government statistics, published in December 2017 and January 2018, respectively, can be found in Chapter 3 of this publication.

¹⁰ We distinguish between four maturities: three months, one year, five years and more than five years.

¹¹ The euro area interest rate projections were provided by the ECB as part of the common set of assumptions underlying the Eurosystem's December 2017 Broad Macroeconomic Projection Exercise (BMPE).

¹² The primary balance is equal to the structural primary balance plus the cyclical primary balance and temporary measures. Since under this scenario the latter two components are equal to zero between 2021 and 2026, the primary balance is equal to the structural primary balance over this period.

in 2026. This improvement in the Government's fiscal position largely mirrors robust real GDP growth, reinforced by large primary balances.

Scenario 2

The assumptions behind the second scenario are identical to those for the first scenario, except in one respect: the path the primary balance ratio is assumed to take between 2021 and 2026.¹³ While the projections for the primary balance ratio covering the 2017-2020 period are taken from the Bank's latest projections and are thus the same as those employed under the first scenario, thereafter the dynamics of the primary balance ratio are governed by a fiscal reaction function. The fiscal reaction function is estimated on the basis of historic data and suggests that, in Malta, the Government generally counteracts rising debt levels by improving the primary balance, and vice-versa.¹⁴

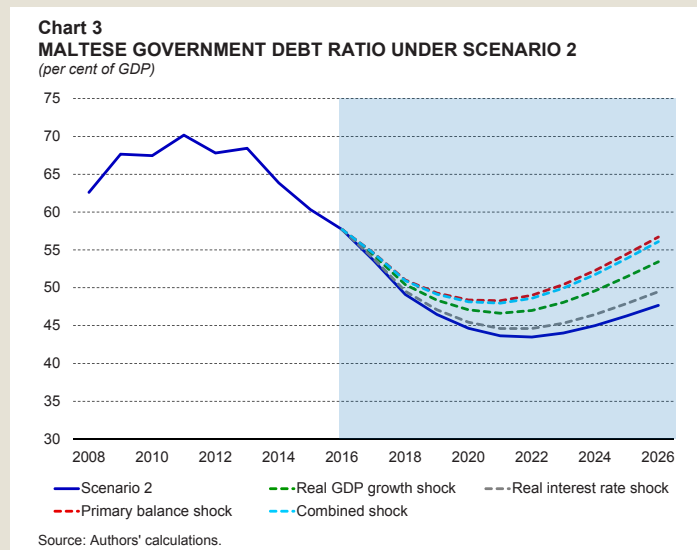
Consequently, between 2021 and 2026, the primary balance deteriorates in response to past improvements in the debt ratio, going into deficit from 2022 onwards. However, this worsening of the primary balance acts as a strain on the debt ratio, causing the primary balance to deteriorate at a diminishing rate. The fiscal reaction function thus offers an alternative path for the primary balance ratio that is less favourable than that presented under the first scenario. This translates into an overall balance ratio that worsens considerably to -3.3% by the end of the projection horizon. This would again mainly be the result of a weakening primary balance position since changes in the nominal interest rate are projected to be marginal.

Nonetheless, these assumptions together generate a path for the debt ratio that is set to fall by around 10 percentage points over the projection horizon, from 57.7% in 2016 to 47.7% in 2026, as shown in Chart 3.

This improvement in public finances is largely brought about by strong real economic activity and primary surpluses recorded until 2021.

Scenario 3

Under the third scenario, the assumptions for real GDP growth and inflation are identical to those underlying the first and second scenarios, while the assumed paths for the nominal interest rate, the primary balance-to-GDP ratio and the deficit-debt adjustment-to-GDP ratio



¹³ Note that while the assumptions relating to the nominal interest rate are the same as those under the first scenario, the data for the nominal interest rate might itself be different since this depends on the level of debt, which is different between the two scenarios.

¹⁴ For further details on fiscal reaction functions, including the one underlying this scenario, see Farrugia, J. and Grech, O., "The Sustainability of Maltese Government Debt Revisited", in Grech, A.G., and Zerafa, S. (eds.), *Challenges and Opportunities of Sustainable Economic Growth: the Case of Malta*, Central Bank of Malta, 2017, and references therein.

differ in some respects. Between 2017 and 2020, the projections for the latter three variables are those found in the Government's budget for 2018.¹⁵

Thereafter, the assumptions behind the nominal interest rate are the same as those found in the other scenarios.¹⁶

From 2021 onwards, the budget in structural terms is set to be in balance, in line with the medium-term objectives laid out in the Stability and Growth Pact.

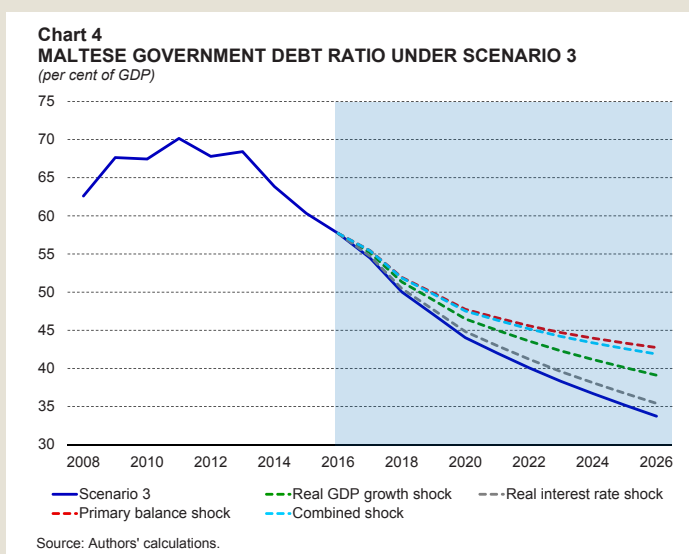
The assumptions behind the cyclical component of the primary balance and temporary measures are the same as those found under the first scenario. This produces a positive primary balance ratio that declines only slightly between 2021 and 2026 and an overall balance ratio that is virtually in balance over this period.

Similar to the other scenarios, beyond 2020, the deficit-debt adjustment is assumed to take its long-run average value.

Overall, the trajectory of the primary balance ratio is less favourable than that underlying the first scenario, but more optimistic than that assumed under the second scenario. The paths of the nominal interest rate and the deficit-debt adjustment ratio are slightly more favourable than those found in the previous scenarios. As shown in Chart 4, these assumptions translate into a debt ratio that is set to decline markedly from 57.7% in 2016 to 33.7% by 2026, thus falling by 24 percentage points over the next decade. This strengthening of the Government's fiscal position is largely driven by robust economic growth, but also by considerable primary surpluses.

Sensitivity analysis

In order to assess the robustness of the projected debt trajectories, each scenario is subjected to four adverse shocks. The shocks show how the debt trajectories would change if the macroeconomic or fiscal environment is less favourable than assumed under the three scenarios. The first three are adverse single-variable shocks to the real GDP growth rate, the real interest rate and the primary balance ratio, calculated as the baseline projection minus 0.5 of a historical standard deviation in the case of the real GDP growth and primary balance ratio shocks, and plus 0.5 of a historical standard deviation in the case of the real interest rate shock. Since an economic shock generally affects the real GDP growth rate, the real interest rate and the primary balance ratio simultaneously, the fourth



¹⁵ The projections for real GDP growth and inflation are not taken from the Government's budget for 2018 because these were based on a national accounts vintage which was later subject to substantial revisions.

¹⁶ See footnote 13.

shock is an adverse multi-variable shock of 0.25 of a historical standard deviation in all three variables.¹⁷ The shocks are all permanent ones, that is, they persist throughout the 2017-2026 period.^{18,19}

As shown in Charts 2-4, the sensitivity analysis reveals that under many of the shock scenarios, the debt ratio remains on a downward trajectory. Moreover, in those cases where the shock eventually pushes the debt ratio along an upward path, increases in the ratio are very moderate and it remains below the current level throughout the projection horizon.

Is Maltese government debt sustainable?

What can one infer about the sustainability of Maltese government debt? One should recall that overall debt sustainability requires the debt to be sustainable in both the short run, as well as the medium to long run. Starting with the short-term, the composition of Maltese government debt is highly favourable for sustainability considerations since a substantial portion of the debt is longer-dated, held by residents, denominated in domestic currency and subject to a fixed interest rate. In addition, Maltese government bond yields have been low and stable in recent years.

Turning to medium- to long-term sustainability, within the context of scenario analysis, projected debt paths are deemed to be sustainable if they are unlikely to require 'major readjustments', such as substantial increases in taxation, major cuts in government spending or outright default. This exercise does not point towards a likely need for drastic adjustments. First, the three principal scenarios suggest that the debt-to-GDP ratio is set to decline markedly over the next ten years. Since the Government can sustain the current debt ratio, it is unlikely to face difficulties in servicing lower debt ratios in the absence of significant changes to the current economic landscape. Second, sensitivity analysis reveals that the need for major adjustments will be unlikely even if substantial shocks materialise since debt ratios will still remain below the current level.

In the light of the foregoing, Maltese government debt appears to be sustainable in both the short and the medium to long run. In other words, the Government's fiscal position is both liquid and solvent. However, this is subject to a number of caveats.

The results are subject to limitations associated with the methodology employed. Firstly, although the empirical literature points towards interdependencies between these variables, this tool does not usually capture such feedback effects. Secondly, scenario analysis only delivers reliable results to the extent that the assumed paths set for the macroeconomic, fiscal and financial variables used as inputs are realised. The sustainability of Maltese government debt hinges on the assumption that there will be fiscal rigour over the medium to long term, with the Government registering primary surpluses or moderate primary deficits. It is therefore important for the Government to adhere to its commitment towards fiscal discipline, particularly during economic upturns. Fiscal discipline is also vital to provide sufficient fiscal space – that is, buffers that allow room for fiscal manoeuvre – to counter adverse shocks. The verdict of sustainability also rests on the assumption of robust economic growth over the projection horizon. Thus, it is imperative that the Government pursues policies geared towards solid and sustained economic growth through, for example, further labour market reforms, investment in education, infrastructure and technology, financial deepening and improved efficiency and effectiveness of public institutions.

¹⁷ The historical standard deviations are based on data covering the 2000-2016 period.

¹⁸ The nature of these shocks, including their magnitude, is commonly found in the literature.

¹⁹ The economic activity shock translates into real GDP growth that is 1.3 percentage points lower in each year of the projection horizon. Under the interest rate shock, real interest rates are 0.4 percentage point higher throughout, while the fiscal shock is equivalent to primary balance-to-GDP ratios that are 1.0 percentage point lower in all years. The combined shock translates into real GDP growth that is 0.7 percentage point lower, real interest rates that are 0.2 percentage point higher and primary balance ratios that are 0.5 percentage point lower in each year.

In addition, this analysis is based on explicit government liabilities only. However, there are other liabilities that could have to be borne by the Government, such as contingent liabilities, implicit liabilities and other off-budget liabilities.²⁰

Contingent liabilities, in the form of government guarantees, could pose a long-term fiscal risk. Government-guaranteed debt in Malta has been relatively high in recent years. As at 2016, it stood at 14.1% of nominal GDP, one of the highest rates recorded among EU countries. Nearly three-fourths of this debt was issued to just four entities, while more than two-thirds of it is concentrated among corporations within the energy sector.²¹

The ongoing restructuring of public corporations is, however, contributing towards restoring profitability which, in turn, reduces the risk associated with these liabilities. Moreover, towards the end of 2017, a large guarantee in the energy sector, amounting to around 3.3% of GDP was withdrawn, after the entity concerned repaid all debt for which the Government acted as guarantor. Consequently, government guaranteed debt is expected to be lower in the coming years. Going forward, this debt could be lowered further through improved governance and additional restructuring of public corporations.

Another long-term fiscal risk stems from implicit liabilities, in the form of ageing costs (pensions, healthcare and long-term care). Malta is projected to have the highest increase in age-related spending in the EU between 2013 and 2060.²² Over this span, pension spending is expected to increase by 3.2 percentage points of GDP, while healthcare and long-term care costs are expected to rise by 2.1 and 1.2 percentage points, respectively, for a total increase in ageing costs of 6.5 percentage points, which is 4.7 percentage points higher than the EU average. However, Malta's spending on social security as a proportion of GDP is currently well below the EU average and is expected to remain so till at least 2040.^{23,24} These risks can be mitigated by, for example, addressing at a sufficiently early stage the projected increase in ageing-relating expenditures associated with an ageing population through further pension and healthcare reform.²⁵

In conclusion, the global financial and economic crisis and the European sovereign debt crisis were a bitter reminder that sustainable public finances are a crucial pillar of a healthy economy. Its absence threatens price stability, financial stability and economic growth. It is therefore crucial that a sound fiscal framework that supports the sustainable evolution of public finances, which in turn safeguards the stability and prosperity of the broader economy, is in place at all times.

²⁰ Contingent liabilities are future liabilities that only arise if a particular event materialises, an example being the guarantees the Government has given to cover borrowings by public non-financial corporations. Implicit liabilities relate mostly to entitlements that fall due in the future, such as pensions, healthcare and long-term care spending associated with an ageing population. Off-budget liabilities are liabilities that originally do not fall under the definition of general government but could eventually become classified as government debt. This may arise from, for example, the reclassification of state-owned enterprises as part of general government. A case in point is the reclassification of Malta Shipyards Limited in 2008.

²¹ Additional details can be found in National Audit Office Malta (2017), Annual Audit Report – Public Accounts 2016.

²² See European Commission (2015), The 2015 Ageing Report, European Economy Paper No. 3/2015, European Commission for further details.

²³ In 2016, social security spending in Malta amounted to 10.9% of GDP, whereas the figure for the EU stood at 20.9%, nearly double that of Malta.

²⁴ The key results presented in this study are in line with those put forward by IMF (2018), Malta: 2017 Article IV Consultation Staff Report, Country Report No. 18/19; and European Commission (2015), Fiscal Sustainability Report, *European Economy Institutional Paper* No. 18.

²⁵ See Farrugia, J. and Grech, O., "The Sustainability of Maltese Government Debt Revisited", in Grech, A.G., and Zerafa, S. (eds.), *Challenges and Opportunities of Sustainable Economic Growth: the Case of Malta*, Central Bank of Malta, 2017, for further details on these caveats.