A framework for fiscal vulnerability assessment and its application to Poland

Tomasz Jędrzejowicz, Witold Koziński[1]

Abstract

The sharp worsening of fiscal positions in the aftermath of the global economic crisis has brought the issues of fiscal sustainability to the fore of economic policy debate. This has focused the attention of policymakers on the broader implications of unsustainable fiscal positions, including the consequences for monetary policy and financial stability. As a result, there is now an increased need for central banks to closely monitor risks to fiscal vulnerability. This note proposes a framework for such an assessment, consisting of five elements: (i) the level of public debt; (ii) the medium-term dynamics of public debt; (iii) long-term sustainability of public debt; (iv) public debt management and the liquidity position of the government; and (v) fiscal rules and institutions. The note also presents a brief assessment of Poland's fiscal vulnerability using the framework described above, and finds that Poland's vulnerability to fiscal risks is quite limited, although there is still a need to correct the fiscal imbalances that could otherwise lead to a build-up of public debt.

Keywords: Public debt, fiscal vulnerability, fiscal sustainability

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[1] Economic expert and Vice President, National Bank of Poland, respectively. The authors are grateful to Andrzej Sławiński for his valuable comments. Any errors or omissions are the sole responsibility of the authors. The views expressed in the paper are those of the authors and not necessarily those of the National Bank of Poland.

Introduction

The global economic crisis has led to a sharp worsening of government finances all over the world. Discretionary fiscal stimulus measures, automatic fiscal stabilisers, reversal of extraordinary revenue windfalls associated with asset price bubbles and the cost of government support to ailing financial institutions have all contributed to this worsening. As a result, public debt in advanced economies has risen from 73% of GDP in 2007 to 104% of GDP in 2011 and is projected to grow further.[2] Fiscal problems have manifested themselves with particular starkness in the form of a sovereign debt crisis in the euro area, where at least one member state is now widely considered to be insolvent.

These worrisome developments have brought the issues of fiscal sustainability to the fore of the economic policy debate. This has focused the attention of policymakers on the broader implications of unsustainable fiscal positions, including the consequences for monetary policy and financial stability. Blommestein and Turner (2011) argue that the current fiscal environment has set the stage for a new period of fiscal dominance, undermining the traditional division of labour between monetary, fiscal and public debt management authorities. Central bank interventions in sovereign bond markets, in some cases on a considerable scale, are one sign of this. Meanwhile, financial stability is being undermined by the reassessment of risk associated with sovereign bonds held by the financial sector, previously considered risk-free. As noted by Das et al (2011), the relationship between public debt vulnerability and financial stability tends to be procyclical. During a downswing, especially one triggered by financial sector dislocation, maintenance of the asset quality of the government's liabilities is much more critical in containing adverse developments in the real and financial sector. In such a situation, any threat to government solvency will have a negative impact on financial institutions' balance sheets, incomes and capital reserves. This may in turn result in the need for government support to bank resolution and restructuring, ultimately leading to a vicious circle of deteriorating government and financial sector balance sheets.

Another important recent development to be noted in this context is the increased aversion of financial markets to sovereign risk. Schuknecht et al (2010) show that the strength of the response of euro area government yield spreads to a higher public debt ratio increased eightfold in the period following the collapse of Lehman Brothers in September 2008. This increases the risk of a negative self-reinforcing feedback between fiscal sustainability risks and the financial market perception thereof. As has been evident in the euro area sovereign debt crisis, notably in the case of Italy, financial market concerns can aggravate fiscal sustainability problems, as an increase in government bond yields translates into a higher interest burden, thus increasing the size of the adjustment required to stabilise the debt ratio.

In this light, there is now a heightened need for close monitoring of risks to fiscal vulnerability, a role that should be performed by central banks. This note presents a framework for such an assessment and briefly describes its application to Poland.

1. Level of public debt

The headline ratio of public debt to GDP is the most commonly used measure of government solvency. The government budget constraint states that the current level of public debt must be repaid with future primary surpluses. Therefore, the higher the debt ratio, the more difficult it will be for government to generate sufficient surpluses. A higher debt ratio also implies a

[2] Source: IMF WEO database.

history of fiscal indiscipline, complicating the task of turning the situation around. However, the debt ratio is by no means a comprehensive measure of government solvency. There is also no clear consensus in the literature on what level of public debt may be considered safe.

Some guidance on critical levels of public debt is provided by literature examining public debt developments in countries undergoing financial crises, including sovereign defaults. However, as these events have been largely confined to emerging market countries, at least in the period since the Second World War, empirical findings are also relevant for this group of countries. Reinhart et al (2003) put forward the concept of "debt intolerance" and grouped a sample of 53 developing and developed[3] countries according to their measure of debt intolerance. According to these authors, the level of debt intolerance may be explained by the average level of long-term foreign indebtedness and an insolvency risk index. In the case of countries with the highest debt intolerance, a foreign debt level of just 15% of GDP may already indicate a risk of insolvency. Daniel et al (2004) have analysed insolvency episodes in emerging countries over the past 30 years and found that 55% of them occurred when public debt was below 60% of GDP, while 35% of the cases occurred in countries with a debt ratio below 40% of GDP.

Daniel et al point out that the risk of insolvency is greater in emerging market countries due to, among other factors, a lower and more variable ratio of government revenue to GDP and a lower quality of institutions. Therefore, results obtained using a sample of emerging market countries may not be directly translated into conclusions regarding advanced economies.

While there is no sample of defaults in advanced economies, there are a number of quite recent studies that seek to determine the safe level of public debt from the viewpoint of its effect on economic growth. The general finding of these studies is that the negative impact of public debt on growth is non-linear and becomes significantly stronger once debt exceeds a critical threshold of around 90–100% of GDP. Checherita-Westphal and Rother (2010) have analysed this impact on a sample of 12 euro area countries and found that, in some of these cases, the critical threshold could be as low as 70% of GDP. Furthermore, the negative impact of debt on GDP growth appears earlier when there is higher volatility of inflation, interest rates and government spending. Kumar and Woo (2010) obtained similar results using a panel of advanced and emerging economies. Their results indicate, that during the period analysed (1970–2007), an average increase in the debt ratio by 10 percentage points of GDP slowed economic growth by 0.2 percentage points annually, although the effect was slightly weaker (0.15) for advanced economies. After accounting for a potential non-linear relationship between these variables, the authors found that the negative impact of rising public debt on economic growth becomes statistically significant only once debt exceeds 90% of GDP. Reinhart and Rogoff (2010) also observed a similar relationship, in addition indicating that in the case of emerging market economies, the critical level of external debt (public and private) amounts to 60% of GDP.

2. Medium-term dynamics of public debt

The change in the debt-to-GDP ratio may be decomposed into the primary balance, interest rate on government debt and the growth rate of the economy using the well-known equation.

$$d_t - d_{t-1} = \frac{r-g}{1+g} - p_t$$

where:

[3] The sample used in the study dates back 200 years in some cases, thereby covering sovereign default episodes in countries currently classified as developed.

d – debt-to-GDP ratio

r – interest rate

g – GDP growth

p – primary balance ratio to GDP

In order to obtain a true medium-term picture of public debt trends, one may apply cyclically adjusted figures to the equation – ie the cyclically adjusted primary balance and a potential, rather than actual, growth rate. However, at present, uncertainty regarding the cyclical position of the economy is particularly high.

Medium-term prospects for the development of the debt-to-GDP ratio crucially depend on a country's primary balance, the growth prospects of the economy and the risk premium attributed to the sovereign debt of the country in question. At the current juncture, the majority of advanced economies (20 out of 27 for which the IMF WEO provides data) are running a primary deficit, while potential growth estimates for this group of countries are historically low. This implies that public debt ratios around the world are not only high, but also face unfavourable medium-term trends.

3. Long-term sustainability of public debt

As noted by Baldacci et al (2011), fiscal solvency also depends on the extent to which long-term demographic and economic trends will put pressure on the budget. The majority of advanced economies are projected to face substantial fiscal pressures in the coming decades due to population ageing. IMF (2009) calculations show that for advanced countries, the net present value of the cost of ageing is about nine times higher than the estimated fiscal burden of the global economic crisis. A fiscal vulnerability analysis should also take these risks into account.

4. Public debt management and liquidity position of the government

An assessment of fiscal vulnerability also needs to incorporate the structure of the government's balance sheet. As noted by Das et al (2010), the structure of public debt may become a channel or source of vulnerability to the real economy and the financial system. Therefore, this structure should be designed in such a way as to mitigate risk both for the government and for markets. Das et al point to two main sources of vulnerability – foreign currency-denominated liabilities and short-term liabilities. The difficulty in shaping the optimal debt structure lies in the trade-off between the cost of financing public debt and the risks of a given structure. In the past, emerging market economies often relied on foreign-currency borrowing because it was easier to obtain, particularly in the context of less developed local financial markets. Similarly, the cost of short-term borrowing, particularly in less developed financial markets, is also lower thanks to the lower risk premia. However, short maturities entail high rollover and refinancing risk, making the government prone to confidence crises.

The risks associated with large shares of foreign currency and short-term borrowing are illustrated in the financial crisis literature. Short-term debt, usually measured as a total of short-term public and private debt, plays a particularly important role. Hemming et al (2003) show that the share of short-term debt is usually considerably higher in periods directly preceding financial crises. As shown by Furman and Stiglitz (1998), the example of Asian crises indicates that excessive reliance on short-term funding leads to the risk of a self-fulfilling sudden-stop crisis.

As shown by Attinasi et al (2011) using a sample of euro area countries, the structure of public debt and other aspects of sovereign debt management have an impact on sovereign

yields in advanced countries too. Government bond spreads relative to German bunds are shown to be higher with a lower residual maturity of public debt and lower with a higher share of long-term outstanding debt. Spreads are also shown to be higher for countries with a lower liquidity in their sovereign debt markets.

5. Fiscal rules and institutions

Governments worldwide face a dilemma: they need to consolidate their fiscal position while safeguarding very fragile economic growth. A solution often suggested in the economic debate is for governments to make a firm commitment to fiscal consolidation, but to extend its implementation over a number of years, so as not to harm growth in the short run. The problem with this proposal is the credibility of the commitment to consolidate public finances. Once financial markets sense a threat of insolvency, no mere declaration about future adjustment measures is likely to dispel these fears, due to the obvious political risks surrounding such a declaration. A possible way to resolve this problem is through the introduction of fiscal rules and institutions that might help to convince financial markets and other economic agents that sound fiscal policies will be adhered to.

There is an extensive body of literature devoted to studying the impact of fiscal rules and institutions, based on the experience of US states, as well as European governments. The literature (see European Commission (2011) for a brief overview) generally finds that stronger fiscal frameworks are correlated with better fiscal outcomes, although identification of the channels through which this effect takes place has not been straightforward.

Since better fiscal frameworks have a positive impact on fiscal outcomes, while the latter are known to be a key determinant of government bond yields, the implication would be that strong fiscal rules and institutions should improve a government's fiscal prospects as well as the financial markets' perception thereof. This relationship has been shown empirically to hold in the US states, and, in more recent literature, in the EU countries. In particular, Iara and Wolff (2010) show that strong fiscal rules are of great importance in containing sovereign bond spreads, particularly in times of elevated market uncertainty. Under extreme circumstances, stronger fiscal rules can reduce sovereign bond spreads between euro area member states and Germany by as much as 80 to 100 basis points. The legal basis of the fiscal rules in force is found to be of particular importance. The authors argue that national fiscal rules have a beneficial effect by reducing the uncertainty of market expectations of fiscal variables, which is particularly important in times of higher risk aversion.

Feld et al (2011) show similar findings based on a study using data on Swiss cantons. The presence and the strength of fiscal rules in the cantons are deemed to contribute to lower risk premia. These effects are quantitatively quite significant, as the introduction of a strong fiscal rule may contribute to a decline in risk premia of more than 10 basis points.

In view of these findings regarding the impact of fiscal frameworks both on fiscal outcomes and on the financial markets' perception of sovereign risks, such frameworks may be considered another element of the assessment of fiscal vulnerability. Strong and credible rules clearly appear to be an important element in limiting fiscal risks.

Poland: an assessment of fiscal vulnerability

Fiscal deficits increased sizeably in Poland during the economic crisis. This was related to a number of factors, but discretionary anti-crisis stimulus measures or government support for the financial sector were not among them. Fiscal policy had been loosened, but this was related to cuts in taxes and social contributions that had been put in place before the onset of the crisis, as well as a considerable increase in public investment, partly related to the co-financing of EU funds and largely taking place at the local government level. In addition, while Poland is widely known to be the only country in the EU to escape recession in 2009,

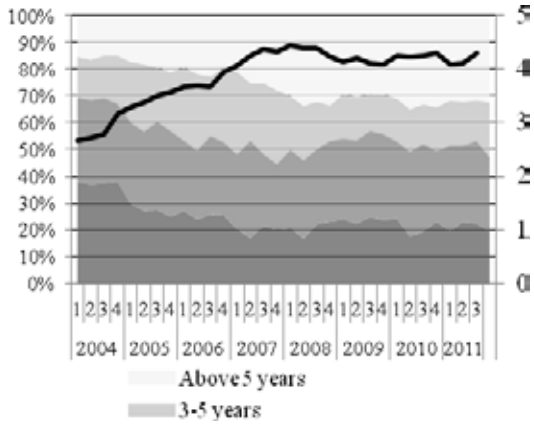
the economy did slow considerably and automatic stabilisers were allowed to come into effect. According to European Commission estimates, the output gap deteriorated by 2.9 percentage points of GDP in 2009, as compared with an average worsening of 5.2 points in the EU.

Despite the increase in the deficit to 7.1% of GDP in 2009 and to 7.8% in 2010, public debt increased only moderately, owing to continued economic growth and to privatisation receipts that helped to offset the government's high borrowing requirements. Debt in ESA95 terms rose from a low of 45% of GDP in 2007 to 56.7% of GDP in 2011 (European Commission estimate). This is a quite moderate level, even taking into account that Poland may not yet have fully graduated from the emerging market into the advanced economy club.

The general government primary deficit rose to around 5% of GDP in 2009–10, causing a sharp increase in the ratio of public debt to GDP. At the same time, the good performance of the economy meant that, even in those two years, nominal GDP growth (5.3%) was on average only slightly lower than the interest rate on public debt (5.7%). The outlook for public debt dynamics may be expected to improve considerably in the coming years, notably in connection with fiscal consolidation measures implemented in 2011–12. As a result of these measures, the primary deficit is expected to decline to well below 1% of GDP in 2012.[4] Although even this proportion may not yet be considered a safe level, the government's declarations point to continued fiscal consolidation. Assuming these plans are fulfilled and that economic growth gradually recovers, the government is expecting the ESA95 debt-to-GDP ratio to decline steadily to around 50% of GDP in 2015.[5]

Chart 1

Maturity structure of domestic public debt in Poland

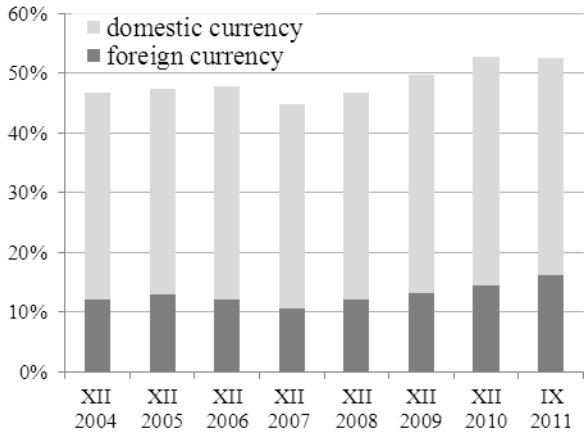


Source: Ministry of Finance.

Chart 2

Currency structure of government debt* in Poland

(% of GDP)



* Public debt according to the domestic definition

Source: Ministry of Finance.

[4] According to the latest IMF forecast (December 2011), the general government deficit is expected to fall to 3¼% of GDP in 2012. Interest payments may be expected to reach close to 3% of GDP.

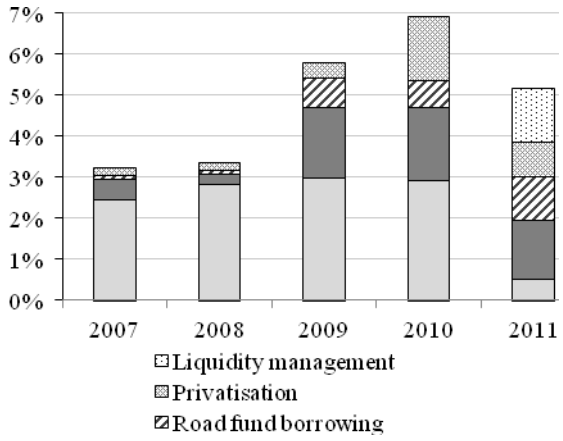
[5] According to "The Public Finance Sector debt management strategy in the years 2012–15" accompanying the 2012 budget draft, submitted to Parliament in December 2011.

The financial crisis has not affected the debt management strategy and the structure of public debt to any large extent. As a result of the liquidity crisis in 2008, the debt managers offered more Treasury bills that year, as shown in Chart 4. However, this was a temporary development that did not materially impact the maturity structure of public debt – the average maturity declined slightly in 2009, but stayed at a level well above that seen in 2004–07 (Chart 1). The currency structure of debt issuance changed more visibly during 2009–10, as the share of bonds issued on international markets increased, driven partly by strong demand.[6] The overall increase in net borrowing requirements in 2009–10 has been financed largely by higher foreign borrowing, the transfer of road construction financing to the National Road Fund[7] and, particularly in 2010, increased privatisation receipts. Meanwhile, net domestic issuance by the Finance Ministry debt managers has remained broadly stable at a level of around 3% of GDP (Chart 3).

Chart 3

Financing of net borrowing requirements of the central government

(% of GDP)

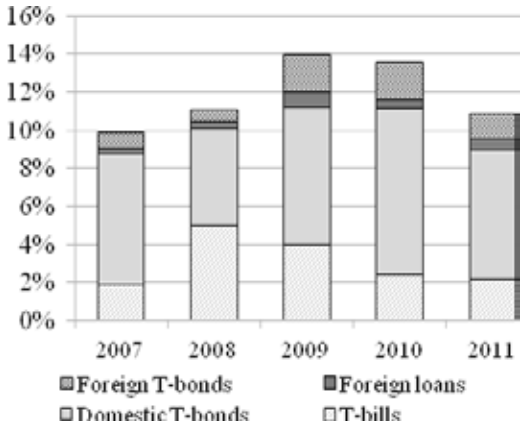


Source: Ministry of Finance.

Chart 4

Financing of gross borrowing requirements of the central government

(% of GDP)



Source: Ministry of Finance.

The increased share of foreign financing does imply an increase in exchange rate risk, although this shift was quite moderate. Nonetheless, the elevated exchange rate volatility during 2011 has been perceived by the markets as a factor that could lead to a large increase in the debt-to-GDP ratio and even cause it to reach the prudential threshold of 55% of GDP. In the end, these fears have proved to be unfounded, after NBP interventions have helped to reduce the exchange rate volatility.

The higher share of foreign financing at the same time implies a lengthening of the average maturity, as foreign debt is generally issued for longer periods. The overall (domestic and foreign) average maturity of central government debt reached an all-time high of 5.45 years at the end of the third quarter of 2011.

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[6] For example, in mid-July 2009, Poland issued benchmark bonds worth $2 billion in the US market but, in view of exceptionally strong demand, the issue was reopened two weeks later and another $1.5 billion was issued.

[7] The Fund obtained funding independently – from loans from international financial institutions (eg the EIB) and through issuance of "road bonds" conducted by the state bank BGK.

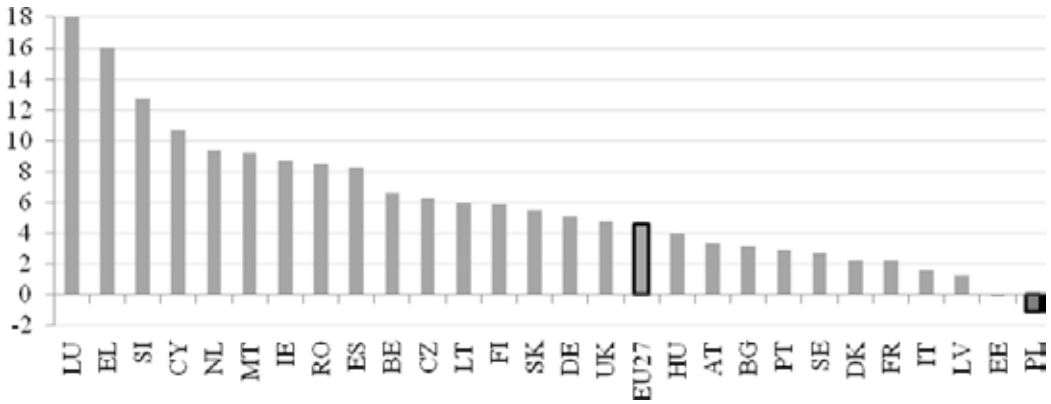
Government financing is also exposed to rollover risk. In Poland's case, the scale of this risk is, inter alia, related to the share of non-resident investors on the domestic Treasury bond market. This share is currently at one of the highest levels in the market's history, having risen to almost 32% in the autumn of 2011, up from a low of 15% in early 2009. If non-resident investors were to suddenly withdraw, this could potentially imply liquidity problems for public debt management. As a precautionary measure, the government maintains sizeable cash reserves that averaged around 2.6% of GDP in 2011. For emergency use, the government has also secured a Flexible Credit Line (FCL) from the IMF.

Poland's population is currently projected to age more rapidly than most others in the EU – the old-age dependency ratio being projected to increase from 21% in 2010 to 71% in 2060, while in the EU on average it is set to rise from 28% to 58%.[8] In spite of this, according to the European Commission Sustainability Report 2009, the long-term impact of ageing on public finances is among the lowest in the EU, as ageing-related expenditure is actually projected to decline by 1.1 percentage points of GDP between 2010 and 2060.

Chart 5

Projected change in ageing-related public expenditure between 2010 and 2060

(percentage points of GDP)



Source: European Commission Sustainability Report 2009.

The underlying reason is a far-reaching reform of the pension system introduced in 1999, which transformed a defined-benefit pension system into a partly-funded defined-contribution system. As a result, future pension benefits will be directly linked to an individual's career history and will take into account life expectancy. In addition, pensions will be partly financed from a mandatory funded pillar, relieving the pressure on public finances.

Poland has a well established fiscal policy anchor, consisting of a constitutional ceiling on public debt of 60% of GDP, accompanied by prudential thresholds of 50% and 55% of GDP. These limits are set out in the public finance act, the breaching of which triggers fiscal adjustment measures. The constitutional basis makes the rule an exceptionally strong one. Besides Germany, Poland is the only country in the EU with a constitutional fiscal rule.[9] The

[8] Source: Eurostat. Dependency ratio calculated as ratio of number of persons aged 65+ to those aged 20–64.

[9] Source: European Commission database on numerical fiscal rules. Spain adopted a constitutional fiscal rule in 2011 which is scheduled to go into effect in 2020.

Polish fiscal rule framework has been in force since 1998, meaning that there is already a considerable body of evidence on its effects. In that time, the debt ratio has exceeded the 50% of GDP threshold and approached the 55% threshold on two occasions, in 2003–04 and 2011–12. In both these instances, the rule signalled the need for fiscal consolidation and policymakers have acted upon this signal. In 2003–04, the government presented and partly implemented the so-called Hausner plan of public expenditure reform, encompassing a number of structural measures that will curb spending in the medium to long term. In 2011–12, the government has also implemented a large-scale fiscal consolidation programme, yielding a cumulative fiscal adjustment of close to 4 percentage points of GDP.

Overall, the assessment presented above indicates that Poland's vulnerability to fiscal risks is quite limited. There is still room for improvement as regards the level of public debt and, in particular, its medium-term dynamics, since there is a need to correct the general government primary deficit. However, longer-term fiscal prospects appear to be quite favourable, as a result of the pension reform introduced in 1999. In addition, Poland's fiscal rule framework may be viewed as an additional factor that will contribute to the soundness of fiscal policies in the future.

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