The Debt Sustainability Criteria of the Fiscal Responsibility Act

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THE DEBT SUSTAINABILITY CRITERIA OF THE FISCAL RESPONSIBILITY ACT

by: Ahmed Zayan Mohamed*

1. Introduction

Since 1985, the fiscal balance of the government of Maldives has continuously been in deficit. This has led to a consistent rise in public debt, with the stock of public and publicly-guaranteed debt reaching 78% of nominal GDP[1] in 2013, compared to just 38% of GDP in 2004. To control this upward spiral, the Fiscal Responsibility Act[2] (FRA), which seeks to assure responsible and sustainable fiscal behaviour, sets out two criteria which puts constraints on debt-to-GDP and deficit-to-GDP levels of the government[3]. Similar legal restrictions are present in other countries as well, with the most well-known example being the debt-to-GDP and deficit-to-GDP limits in place for member countries of the European Economic and Monetary Union (EMU). The article looks at the two criteria in the FRA, and using theoretically consistent methods, shows the combinations of debt-to-GDP and deficit-to-GDP ratios which are likely to be sustainable. A background of the trend and composition of public debt over the recent past, and a comparison of the domestic case with that of the EMU are also presented.

2. Public Debt over the Past Decade

In 2004, the ratio of public and publicly-guaranteed debt stood at 38% of GDP, which translated to MVR5.3 billion. Only a modest increase was observed in the debt-to-GDP ratio over the following three years, with no significant changes taking place apart from

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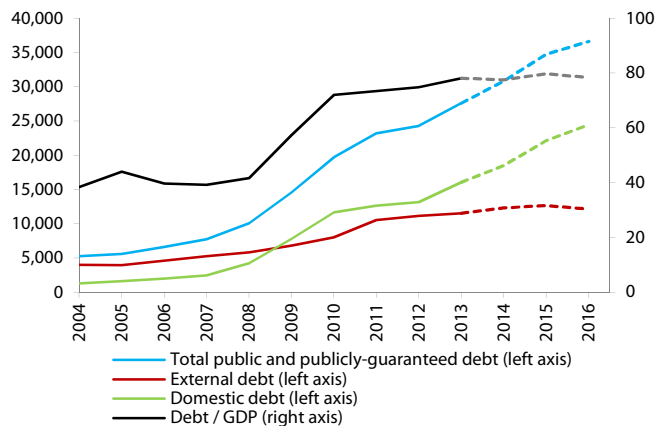1   From here on, all references to GDP imply nominal GDP, unless otherwise specified.

2   Act number: 7/2013.

3   The relevant clauses came into effect in May 2014.

a hike in 2005 which reflected the recovery efforts after the Indian Ocean tsunami in December 2004. However, these reconstruction efforts marked the beginning of an upward trajectory in the *absolute* stock of public debt[4], which rose at an increasing pace over the following years. As such, the year-on-year growth rate of public debt reached staggering levels by 2009, registering at 45% and 35% in 2009 and 2010 respectively. After remaining stable, the debt-to-GDP ratio also jumped over these two years from 42% in 2008 to 72% in 2010, as the accelerating debt level was coupled with a significant slowdown in the historically high growth rates of GDP from 2009 onwards[5]. The debt-to-GDP ratio continued to edge upwards, and ended 2013 at a historical high of 78% (MVR27.7 billion).

Figure 1: Debt Indicators, 2004–2016
(millions of rufiyaa)

Total public and publicly-guaranteed debt (left axis)
External debt (left axis)
Domestic debt (left axis)
Debt / GDP (right axis)

Source: Ministry of Finance and Treasury

Regarding the composition of public debt, external debt accounted for more than half of the total stock of public and publicly-guaranteed debt up to 2008. The following year saw a reversal as domestic debt exceeded external debt for the first time. This remains the case to date, as the reliance on domestic sources for government deficit financing increased in prominence with the introduction of government securities such as treasury bills and treasury bonds.

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4   The debt-to-GDP ratio was more stable because the high rate of increase of public debt was matched by high growth rates of nominal GDP experienced during the first few years after the tsunami.

5   The average growth rate of GDP during the period 2004–2008 was 15.6%, while the same during 2009–2013 was 7.9%.

3. The FRA "Parameters"

As per the FRA, its purpose is to ensure that fiscal policy is carried out in a responsible and sustainable manner which promotes transparency and accountability. This includes (but is not limited to) maintaining public debt-to-GDP at a sustainable level, while managing government expenditure (and thus the deficit/surplus) within bounds that are consistent with the aforementioned objective of achieving debt sustainability. As such, two "parameters" or criteria are set out in the FRA which puts strict limits on the government deficit and public debt:

- By the end of 2016, total public and publicly-guaranteed debt should be reduced and maintained so that it does not exceed 60% of GDP of the *previous year*[6] ($\text{Debt}_t / \text{GDP}_{t-1} \leq 60\%$).

- After 2016, the overall budget balance of the government should not exceed 3.5% of GDP ($\text{Deficit}_t / \text{GDP}_t \leq 3.5\%$).

Legally imposed limits on government debt and deficit are uncommon among major developed economies, although examples include the United States, and more well-known, the EMU. Similar constraints are more commonly found in developing economies, which generally require more disciplining on the fiscal front. Examples of emerging markets that have such limits include Pakistan and Mongolia.

4. The Case of the EMU

The Treaty on the European Union (European Union, 1992) imposes limits on the public debt and deficit of EMU member countries. In particular, the "Protocol on the Excessive Deficit Procedure" of the treaty states that government debt-to-GDP (at market prices) of member states should not exceed 60%, and that government deficit-to-GDP (at market prices) should not exceed 3%[7]. The Stability and Growth Pact, which is a rule-based framework to coordinate fiscal policy among European Union member countries, elaborates further and sets out fines which can be dealt out to countries found in violation

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6   The debt-to-GDP ratios discussed in the previous section of the article referred to debt as a percentage of GDP of the same year. The debt-to-GDP for 2013 under the definition of the FRA (debt as a percentage of GDP of the previous year) stood much higher at 85.0%.

7   The debt-to-GDP ratio is arbitrarily set, while the corresponding deficit-to-GDP limit assumes that the average growth rate of nominal GDP for EMU countries is stable at 5%. The relationship connecting the criteria will be discussed in following sections.

of the above mentioned criteria. However, this has not been enforced in practice, as imposing large fines on ailing economies will only add to the burden they already face. Possibly owing to the lax enforcement, strict adherence to the reference values has not been successful to date, with the Excessive Deficit Procedure (the procedure initiated if a member country breaches or is in risk of breaching the 3% deficit-to-GDP threshold *or* the 60% debt-to-GDP threshold) currently ongoing for 17 out of the 28 European Union member states.

5. Theoretical Link between the Two Ratios

One of the key purposes of the FRA is to promote public debt sustainability. According to Pasinetti (1998), public debt is sustainable when the ratio of public debt-to-GDP decreases, or at least, remains constant. Formally, this holds when the following condition is satisfied[8].

$$\left(\frac{D}{Y}\right)_{t>0} \leq \left(\frac{D}{Y}\right)_{t=0}$$

where $D > 0$: public debt

Y: nominal GDP

t: time

As per this definition, it must also be that:

$$\frac{\delta}{g}\frac{D}{Y} \leq \frac{D}{Y}\,, \qquad \delta \leq g$$

where δ: annual growth rate of public debt

g: annual growth rate of nominal GDP

As the government deficit (or surplus) is the flow element of public debt, the deficit-to-GDP and debt-to-GDP ratios are directly linked. A few more notations need to be

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8   For a more formal and detailed discussion on the derivation, see Pasinetti (1998).

introduced to formally derive a standard identity linking the two ratios, and ultimately arrive at a boundary relation for the public debt sustainability area.

$R > 0$: total annual public revenue (nominal)

$G > 0$: total annual public expenditure net of interest (nominal)

i: annual nominal rate of interest

$S = -\Delta D$: annual total public deficit or surplus (nominal)

The standard identity of national fiscal accountancy based on total public deficit can now expressed as:

$$S = -\Delta D = R - G - iD$$

Expressing the above identity relative to nominal GDP gives:

$$\frac{S}{Y} = -\frac{\Delta D}{D}\frac{D}{Y} = -\delta\frac{D}{Y} \ ,$$

where $\Delta D/D$ is the growth rate of public debt and is therefore equal to δ. As defined earlier, the growth rate of public debt (δ) must be less than or equal to the growth rate of nominal GDP (g) for public debt to be sustainable (see Table 1 for actual rates of growth of nominal GDP and public debt). Therefore, this inequality must strictly bind $(\delta = g)$ on the boundary which marks out the debt sustainability area. Consequently, the boundary relation of debt sustainability can be written as:

$$\frac{S}{Y} = -g\frac{D}{Y} \ ,$$

and the corresponding sustainability *area* for public debt and deficit is given by:

$$\frac{S}{Y} \geq -g\frac{D}{Y} \ .$$

The key assumption underlying this derivation is that whatever the ratio of debt-to-GDP chosen is the appropriate one. It should be noted that this does not conflict with the definition of debt sustainability as that depends on the *growth rates* of both nominal GDP and the stock of debt, and not on the initial *level* of debt stock. To the author's knowledge, the literature has not proposed an optimal level of public debt or a corresponding ratio

Table 1: Annual Growth Rates of Public Debt and Nominal GDP, 2005–2013
(percent change)

Year	Public debt	Nominal GDP
2005	6	(8)
2006	18	31
2007	17	18
2008	30	23
2009	45	5
2010	35	8
2011	18	16
2012	7	3
2013	11	9

Source: National Bureau of Statistics, Ministry of Finance and Treasury

of debt-to-GDP. In fact, proposing a universally acceptable level of public debt would likely be practically impossible, due to the large amount country-specific heterogeneity and the judgmental decisions that will involve the computation of such a number.

6. Application to the Maldivian Economy

## 6.1 Theoretically Consistent Debt Sustainability Area

It has been shown that the growth rate of nominal GDP is crucial in determining a deficit-to-GDP ratio that is consistent with a pre-determined "acceptable" level of public debt or debt-to-GDP ratio. For the Maldives, the average annual growth rate of nominal GDP between 2009 and 2013 was 7.9%. As such, Figure 2 illustrates the theoretically consistent debt sustainability area for the Maldives. Different debt-to-GDP ratios correspond to different deficit-to-GDP ratios, holding constant the growth rate of nominal GDP. The boundary relation for debt sustainability slopes downwards with a gradient of -7.9[9].

As Figure 2 shows, the deficit-to-GDP ratio that is theoretically consistent with a debt-to-GDP ratio of 60% is 4.8%[10] (the negative sign on the graph indicates that it is indeed a deficit and not a budget surplus), taking as given the realised average growth of nominal GDP over the past five years. This is in contrast to the much tighter deficit-to-

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9   The absolute value of the gradient is the average growth rate of nominal GDP by construction.

10   As mentioned before, the selection of a target debt –to-GDP ratio is an arbitrary and subjective process.

Figure 2: The Theoretically Consistent Debt Sustainability Area
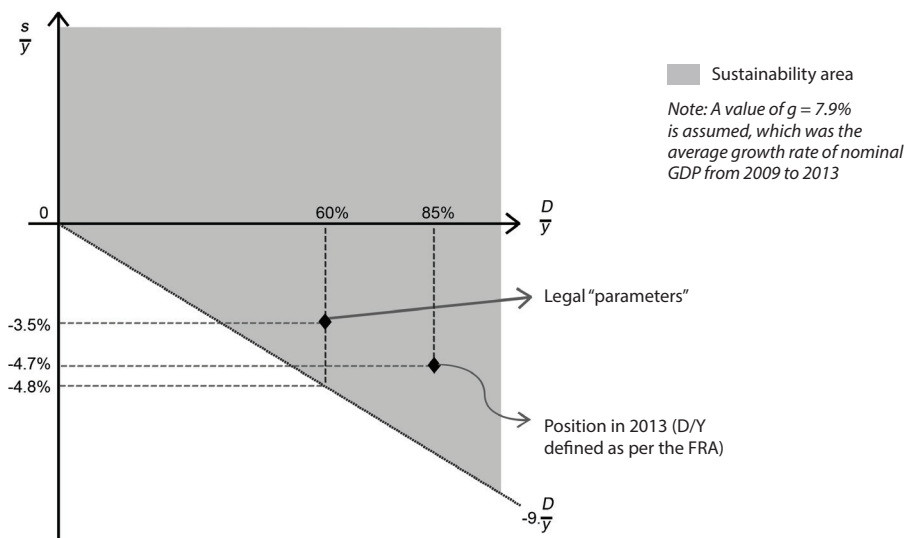
GDP ratio of 3.5% imposed by the FRA, implying that in theory, it will be possible to sustain larger deficits than that prescribed by law while staying within the 60% limit of debt-to-GDP. Consequently, the combination of the FRA parameters (denoted as "legal parameters" on the figure) falls within the debt sustainability area shown above. Table 2 shows the boundary combinations of debt and deficit-to-GDP ratios that are consistent with a nominal GDP growth rate of 7.9%.

Table 2: Debt Sustainability Boundaries for D/Y and S/Y for g = 7.9%
(percent)

D/Y	S/Y
20	-1.6
30	-2.4
40	-3.2
50	-4.0
60	**-4.8**
70	-5.6
80	-6.4
85	**-6.8**
90	-7.1
100	-7.9

6.2   Debt Sustainability Area under the FRA

Working backwards from the parameters set out in the FRA, it can be deduced that the growth rate of nominal GDP assumed in the Act is 5.8%. Figure 3 shows the debt sustainability area assuming this new growth rate of nominal GDP. The boundary relation for debt sustainability still slopes downwards but with a gradient of -5.8.

Figure 3: The Debt Sustainability Area Implied by the FRA
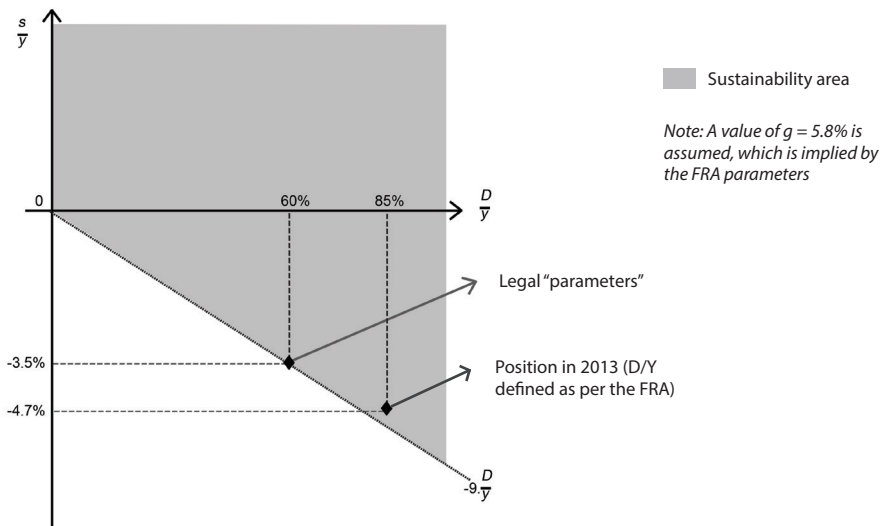
The main difference between the boundary relations mapped out in Figures 2 and 3 is that the deficit-to-GDP ratios corresponding to the same debt-to-GDP ratios are significantly lower when the growth rate of nominal GDP implied by the FRA is applied. This is because according to the definition of debt sustainability, a lower growth rate of nominal GDP will entail the rate of growth of debt to be lower (that is, for the deficit to be smaller) as well to prevent the ratio of debt-to-GDP from increasing. Table 3 shows the new boundary combinations of debt and deficit-to-GDP ratios that are consistent with a nominal GDP growth rate of 5.8%.

Table 3: Debt Sustainability Boundaries for D/Y and S/Y for g = 5.8%
(percent)

D/Y	S/Y
20	-1.2
30	-1.8
40	-2.3
50	-2.9
60	**-3.5**
70	-4.1
80	-4.7
85	**-5.0**
90	-5.3
100	-5.8

6.3   Debt Sustainability Achieved?

In 2013, the debt-to-GDP ratio as defined by the FRA (that is, Debt$_t$/GDP$_{t-1}$) stood at 85%, while the deficit-to-GDP ratio stood at -4.7%. Although both measures are above the legally imposed ceilings, this combination appears to be sustainable under both the theoretical and FRA scenarios discussed above (see the "Position in 2013" in Figures 2 and 3). However, this may be a very misleading conclusion, as in official fiscal numbers, a large amount of arrears have not been taken into account in the deficit numbers. As such, the position in 2013 is likely to be outside the "sustainable" area in both Figures 2 and 3 once this is accounted for. In the more practically relevant scenario, that is, the case under the FRA, the deficit-to-GDP ratio is likely to significantly exceed -5.0%, which is the boundary deficit-to-GDP ratio corresponding to an 85% debt-to-GDP ratio. Therefore, despite the apparent achievement of debt sustainability, representative fiscal numbers are likely to show that actually, the deficit needs to be reduced and maintained at a significantly lower level to attain this.

7.   Suitability of the FRA "Parameters"

The target ratios set out in the FRA implicitly assumes that the annual growth rate of nominal GDP will be at 5.8%. As long as nominal GDP growth is equal to or higher than this, achieving debt sustainability at the target debt-to-GDP ratio of 60% will not

be problematic if the deficit is reduced and maintained at most around 3.5% of GDP. However, if the growth rate of nominal GDP falls below 5.8%, the boundary line depicted in Figure 3 will pivot around the origin and rotate upwards (absolute value of the gradient of the line will fall), reducing the debt sustainability area. This might result in public debt being unsustainable even though the legal parameters are adhered to. Nevertheless, looking at historical data, this is unlikely to be an issue as the Maldives has experienced relatively high nominal GDP growth rates on a consistent basis. Even if the need to change the parameters does arise due to an unexpected (and prolonged) decline in growth, the FRA requires the Minister of Finance and Treasury to revise the target debt-to-GDP ratio accordingly every five years. The changes in economic conditions can thus be addressed while doing so.

The implicit nominal GDP growth rate of the FRA being significantly below the observed national average can be helpful in instilling fiscal responsibility. As the FRA came into effect in May 2014, the government will need to take significant measures to bring public debt within the legal bounds in the next three years. To achieve this, the fiscal deficit has to be greatly reduced and maintained. As such, having a stricter reference value for the government to abide by will increase the likelihood that a debt-to-GDP ratio of 60% can be achieved during the given timeframe. This is especially important in present times as a culture of fiscal "exuberance" is currently in place.

Another point worth highlighting is about how the FRA defines the target debt-to-GDP ratio. As mentioned before, the FRA states that by the end of 2016, total public and publicly-guaranteed debt should be reduced and maintained so that it does not exceed 60% of GDP of the previous year, that is, $Debt_t/GDP_{t-1} \le 60\%$. This definition of the debt-to-GDP ratio is in contrast to how it is usually computed, as fiscal numbers usually present public debt as a ratio of nominal GDP of the same year. This is not a problem and does not necessarily affect the suitability of the target ratio *per se*, but it does mean that the debt-to-GDP ratio under this definition (85% in 2013) will usually be significantly higher[11] compared to the official number (78% in 2013) published by the Ministry of Finance and Treasury. This would require the government to make more effort in bringing public debt within legally acceptable bounds.

All in all, the level of the target parameters set out by the FRA do seem to be relatively

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11   It can be lower than the official figure in prolonged recessionary periods, that is, if annual nominal GDP decreases compared to the previous period.

well-suited to the domestic economy. In fact, the selection of a relatively modest deficit-to-GDP ratio (that is, the assumption of a lower nominal GDP growth rate compared to the average observed) will oblige the government to make more effort in reducing public expenditure and thus the fiscal deficit. However, whether strict limits on public debt and the government deficit are actually needed for a developing country like the Maldives is a subjective issue up for debate. This is not pursued further in this article.

8. Conclusion

The debt sustainability boundaries presented in this article, based on both observed data and the FRA parameters, suggest that the debt sustainability criteria in the FRA should indeed promote movement towards public debt sustainability. Although the methodology used gives the apparent suggestion that the current situation of debt is sustainable, this is wholly due to the negligence of a large amount of arrears in the deficit numbers. If these arrears are accounted for, the analysis would very likely show that there is still a lot of effort to be done to move into the debt sustainability area depicted in Figures 2 and 3. However, the methodology used should not be used in isolation, and would be best if used in conjunction with other tools of assessing debt sustainability such as the Debt Sustainability Analysis carried out by the International Monetary Fund. This is because factors like the composition and maturity of the stock of public debt are also important in arriving at a more informed conclusion about the state of public debt and the fiscal sector in general.

References

European Union (1992), *Treaty on European Union (92/C 191/01)*, Official Journal of the European Communities, No. C 191/1

Pasinetti, L. L. (1998), *The Myth (or Folly) of the 3% Deficit/GDP Maastricht "Parameter"*, Cambridge Journal of Economics, Vol. 22, Issue 1, Pages 103 - 116