

SOVEREIGN DEBT RISK MANAGEMENT:
Quantifying
Sovereign Risk in Jamaica

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June 2006

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ABSTRACT

The importance of debt management and risk management has become more apparent given crisis experienced in Latin America, Southern Asia and parts of Europe. This paper seeks to measure the level of exposure to macroeconomic risks faced by Jamaica by applying a cash flow at risk model to calculate the market risk on Jamaica's domestic debt stock over the medium term. A target profile for debt is developed and employed in a redemption-targeting framework. It was found that variable rate debt coupled with the level of short-term debt instruments contribute significantly to the cash flow at risk estimates. The paper seeks to contribute to the development of a risk assessment policy framework for the management of sovereign debt in Jamaica.

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INTRODUCTION

Among emerging market economies, there has been a sharp increase in public debt since the mid 1990's. This increase has been attributed to, in most cases, adverse movements in interest and exchange rates, coupled with a weakening in primary balances among these countries. Countries around the world have increasingly become aware of the importance to risk management in achieving debt targets. Many countries have developed formal methods of risk assessment and management as part of a wider framework for debt management. For most countries, this includes managing market risk, credit risk and operational risk.

Managing risks associated with sovereign debt is particularly challenging in emerging market economies compared to more advanced economies. This difference is due to the volatility in the macro environment in less advanced economies, as well as the complexity of the debt structure and the nascent state of the development of the financial markets, which make it harder to use more advanced risk management tools.

Empirical studies have highlighted short-term debt as a leading indicator of vulnerability to financial crisis¹. When the government issues large stocks of short-term debt, tight monetary policy can trigger fiscal insolvency², as such the central bank might be

¹ Sovereign Debt Structure for Crisis Prevention, IMF July 2004

² Public Debt Management and Macroeconomic Stability: An Overview, Peter Montiel 2005.

constrained in its response in the event of a shock. The same can be said for variable rate debt.

While, the difficulties involved in issuing long-term fixed interest rate debt are recognised, it is important that lengthening the maturity profile and putting limits on the indexation of debt should be viewed as a medium-term strategy.

The Government of Jamaica (specifically, the Debt Management Unit of the Ministry of Finance) does not currently set specific limits on short-term debt, and does not target a specific profile for debt. However, the Government does have targets for proportion of variable rate debt (40%)³ and foreign currency linked debt (10%) in the domestic debt portfolio.

In March 2003, Jamaica experienced a shock to interest rates. The emergence of foreign exchange market pressures fuelled by high Jamaica Dollar liquidity required a strong response. As a result, the Bank of Jamaica increased the rate on the entire spectrum of its open market instruments. In this regard, the interest rate on the 365-day open market instrument was adjusted to 35.95 per cent at 26 March 2003. The rate on Government issues rose above 36 per cent and remained above 20 per cent for most of the fiscal year. At the time, the refinancing and interest rate risk associated with the maturity profile were relatively high, with in excess of 20 per cent of domestic debt maturing within one year and 51.6 per cent of domestic debt held in variable rate instruments. This resulted in

³ As stated in the Government's 2002/03 Debt strategy

significantly higher interest payments with domestic interest payments being \$11.0 billion above target and \$24.5 billion above the previous year.

The Government's 2005/06 Debt Strategy was revised and includes as part of its objective the following:

'Developing and implementing strategies to ensure the long-term sustainability of the public debt and to reduce the Government's exposure to risk'.

This paper seeks to contribute to the development of such strategies by incorporating risk analysis in the assessment of the sustainability of the Government's debt strategy. In the paper, the refinancing and interest rate risk are evaluated because of the high exposure of the Jamaican domestic debt stock to these forms of risk. Section I of this paper examines the cash flow at risk, a method used to quantify the risk associated with debt structure, while section II focuses on targeting a specific redemption profile of debt. The section concludes with a statement on the way forward.

SECTION 1

Cash Flow At Risk

Cash flow at risk (CFaR) is a measure used to manage market risk on domestic debt. It estimates how much higher than the interest payments projection actual interest payments may be over the forecast period. It gives with a 95 per cent probability the worst-case interest cost on debt for a particular period given a specific debt structure. Figure 1 below depicts the probability distribution of costs, where CFaR is the cost in excess of what is expected. Calculations are based on the future cost of the existing debt. The two risk factors for Jamaica are the interest rate and the exchange rate. However, the model can easily be expanded to incorporate inflation-based exposure. The exchange rate used in our estimation is the average exchange rate for the period. The interest rate on Government debt is based on the average 180-day Treasury Bill rate plus a margin of 1.5 per cent, largely because the interest rate on the majority of variable rate debt is repriced at this rate. The model assumes that the risk factors are normally distributed⁴.

⁴ Note that CFaR emphasizes the risk of changes in the financial cost of the debt while VaR (value at risk) considers the risk of changes in the market value of debt.

PROBABILITY DISTRIBUTION

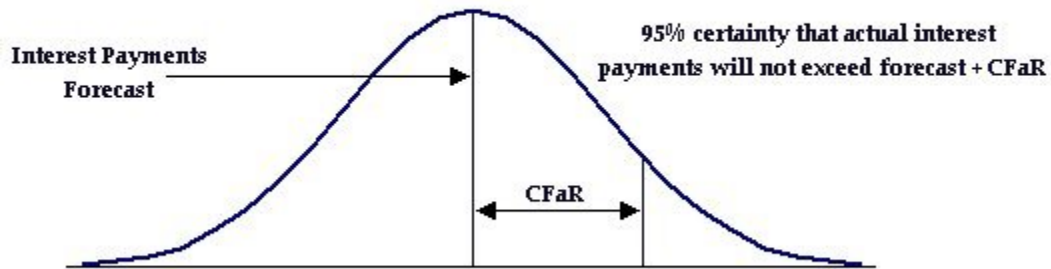


Figure 1: Probability Distribution of Costs

Countries that use this tool include Brazil, England, Canada, Sweden, and Denmark. One of the benefits of this method is that the focus on costs allows for the quantification and assessment of the possible impact on the budget if there is a shock.

Methodology

The CFaR is estimated by first calculating standard deviations of the risk factors over a ten-year period. In calculating the standard deviation in the interest rate on variable rate debt, for simplicity two assumptions are made. The first is that the reset margin is the same on all Government instruments. Secondly, the interest rate on all variable rate debt is linked to the 180-day Treasury Bill rate.

Equation 1

$$VAR(X + A) = VAR(X)$$

Where X = random variable, the 180-day T-Bill
 A = a constant, in this case the margin

Intuitively, a higher than anticipated interest rate in the year implies higher interest cost on debt for which interest rates are re-fixed. As shown in the equation below, this includes not only variable rate debt but also any fixed rate debt maturing in the year, which will have to be replaced at the higher than expected interest rate.

Equation 2

$$\Delta c_r = \Delta r * TD(FR_m + VR)$$

where Δc_r = cost increase in J\$ millions
 Δr = change in interest rate
 TD = total domestic debt
 FR_m = proportion of fixed rate debt maturing
 VR = proportion of variable rate debt

Likewise, the effect of a higher depreciation in the exchange rate than anticipated, can be seen in an increased interest cost on debt valued or linked to a foreign currency. It is given by the following equation.

Equation 3

$$\Delta c_{FX} = \Delta FX * TD(US_{IND} + US_{DEN} + EL) * K$$

where ΔFX = change in exchange rate/ current exchange rate
 K = coupon rate
 US_{IND} = proportion of US\$ indexed debt
 US_{DEN} = proportion of US\$ denominated debt
 EL = proportion of euro loan

The standard deviations for cost increases in the risk factors are then calculated⁵. Equations 4 and 5 give the standard deviation in cost based on the interest rate change and exchange rate change, respectively.

⁵ See appendix 1 for the ten year series used in our calculation of the standard deviation and correlation of risk factors

Equation 4

$$\sigma_c^r = \frac{\Delta C_r}{\Delta r} * \sigma_r$$

Equation 5

$$\sigma_c^{FX} = \frac{\Delta C_{FX}}{\Delta FX} * \sigma_{FX}$$

Also included in the model is an estimation for the increase in interest cost based on a higher than budgeted deficit, for which new debt must be issued. The interest rate on the new loan is given by the average coupon on debt plus 1.96 standard deviations on the interest rate. In this model, the secondary impact of interest costs on the primary balance is ignored. The equation for the unexpected increase in borrowing is as follows:

Equation 6

$$\Delta C_{PSBR} = (K + 1.96\sigma_r)\Delta PSBR$$

where $K + 1.96\sigma_r$ = the interest rate at which new debt is financed
 $\Delta PSBR$ = unexpected increase in the borrowing requirement

The overall risk can then be calculated by the following equation, where Ψ denotes the correlation matrix between the risk factors.

Equation 7

$$\sigma_C = \sigma^T \Psi \sigma + \Delta C_{PSBR}$$

where Ψ = correlation matrix between the risk factors
 σ = column vector with standard deviations for each risk factor

Assumptions for Scenario Based Analysis

In order to estimate Jamaica's CFaR over the medium term, it is necessary to form a baseline projection of the evolution of the debt stock over the period. The following assumptions were made: -

- In all years, one-year debt issue is equivalent to the treasury bills maturing at end fiscal year 2005/06, which was approximately \$4.0 billion.
- Each year the debt stock grows by the passive projection of the Government's deficit and the change in the value of the remaining US\$ linked debt. It is also assumed that half of all US\$ linked debt maturing is rolled. The remaining US\$ linked debt along with the budget deficit are financed in the domestic market with Jamaica Dollar debt, which can be either variable or fixed rate.
- New debt is issued to generate the domestic debt profile shown in Figure 2 below. The profile assumes that the Government will not issue short-term variable rate debt, but will only compensate investors for inflation for long-term issues. Additionally, Government will issue more fixed rate debt than variable rate debt so as to improve the interest rate composition of debt. Fixed rate issues with longer tenors will be issued at higher interest rates to attract investors, as such the Government will only issue fixed rate debt up to the point where the maturity profile will be improved. In this case, this is approximately 7 years.

Debt Profile at End Period	2005/06	2006/07	2007/08	2008/09	2009/10
FR Instruments	226,800.35	239,471.16	253,897.87	266,787.52	282,726.49
VR Instruments	255,836.58	266,700.63	279,817.95	290,928.90	305,341.01
Total	482,712.53	506,247.40	533,791.42	557,792.01	588,143.11
VR Proportion	0.5300	0.5268	0.5242	0.5216	0.5192

Figure 2: Domestic Debt Profile

Results

Figure 3 below shows the relationship between the CFaR in each year and the proportion of debt for which the interest rate is refixed for the fiscal years 2004/05 to 2006/07. For each year for a given maturity profile, CFaR has been higher than in previous years. The shift upwards is reflective of the increase in the debt stock over the period. However, it is obvious by the difference in the slopes of the lines, that the higher the debt stock the higher the impact of an increase in proportion of debt refixed in the year on CFaR. This implies that when the debt stock is increasing the Government can control this measure of risk by altering its debt structure e.g. net redeeming variable rate bonds. The graph also illustrates CFaR increases linearly with the share of debt that is refixed in each fiscal year.

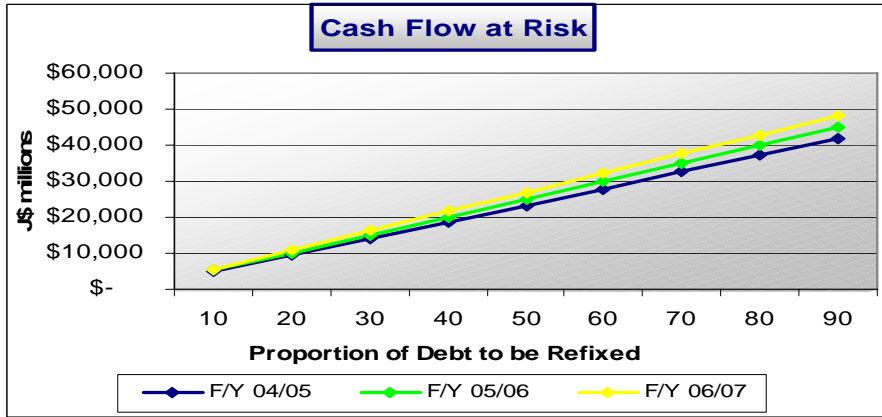


Figure 3: Cash Flow at Risk 2004/05 2005/06

The CFaR, as a three dimensional function for 2006/07, shows that for every 1 per cent increase in either the amount of debt maturing in the year or the variable rate debt, the CFaR will increase by approximately \$5.3 billion. Intuitively, if both these functions affect CFaR equally, it is not enough to set limits on only variable rate debt in the domestic debt stock with no limitations on its maturity profile or vice versa.

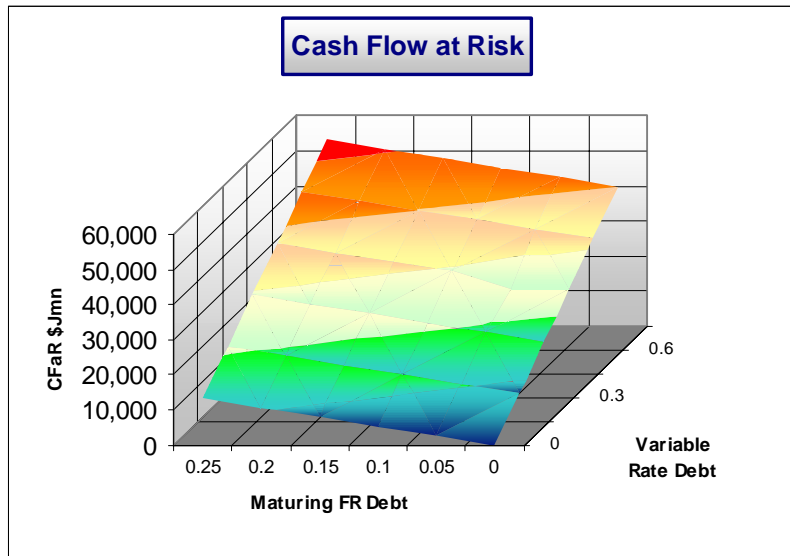


Figure 4: Cash Flow at Risk 2006/07 (3 Dimensional)

The results show that for fiscal year 2006/07 there is a 95 per cent probability that interest payments will be no more that \$34.6 billion higher than expected⁶. This includes the assumption of a primary deficit that is \$1.0 billion higher than budget. The estimated cash flow at risk reflects the fact that the interest rate on approximately 64 per cent of the domestic debt stock will be re-fixed in this fiscal year.

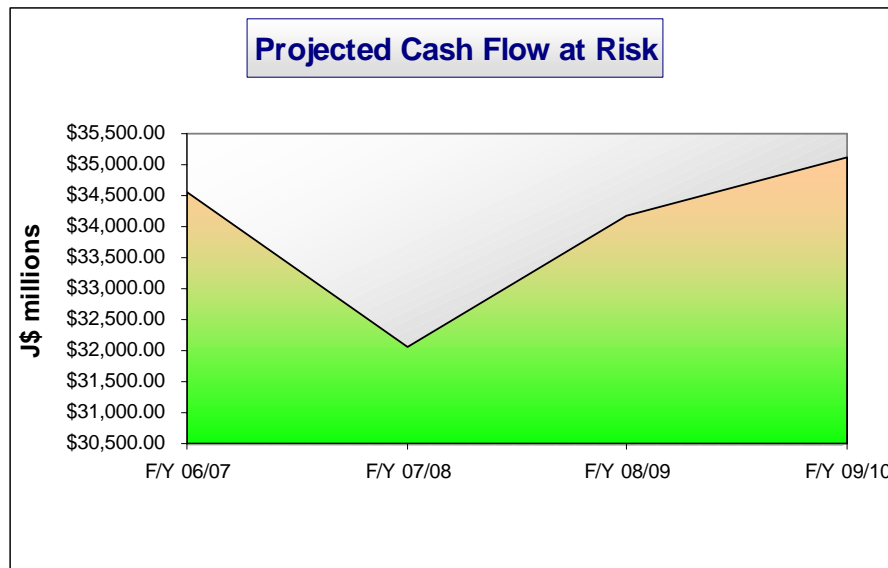


Figure 5: Projected Cash Flow at Risk 2006/07

Domestic Debt Maturity Profile								
<i>J\$ millions</i>								
	2006/07	%	2007/08	%	2008/09	%	2009/10	%
Inputs								
Domestic Debt	449,247.60	1.000	482,712.53	1.000	506,247.40	1.000	533,955.34	1.000
J\$ Debt	405,667.75	0.840	436,849.80	0.863	468,634.77	0.878	493,186.24	0.883
US\$ Linked Debt	77,044.78	0.160	69,397.60	0.137	65,320.57	0.122	65,033.15	0.117
J\$ Debt to be Re-fixed	310,615.65	0.643	288,066.76	0.569	307,316.74	0.576	316,076.81	0.566
VR J\$ Outstanding	255,837.64	0.530	266,700.63	0.527	279,817.95	0.524	290,928.90	0.521
Maturing J\$ FR	54,778.01	0.113	21,366.12	0.042	27,498.79	0.052	25,147.92	0.045

Figure 6: Domestic Debt Maturity Profile

⁶ See appendix 2 for a detailed description of CFaR for fiscal year 2006/07 at various proportion of variable rate debt and fixed rate debt maturing

The decline in the estimated CFaR for fiscal year 2007/08 reflects that there is a smaller amount of fixed rate instruments maturing in the year, which has more than offset the impact of the increase in variable rate instruments. The subsequent increase in 2008/09 shows that the debt stock maturing in that year is already higher than in the previous year.

Incremental CFaR				
Risk Source	2006/07	2007/08	2008/09	2009/10
J\$ millions				
Foreign Currency	5.86	2.86	0.85	4.25
Deficit	259.31	245.68	236.56	225.26
Maturity Profile	9,103.94	5,840.51	6,052.69	5,014.90
Variable Rate Debt	25,453.08	26,208.80	28,109.73	30,097.95
Total	34,562.88	32,052.18	34,163.27	35,117.10
Contribution				
Foreign Currency	0.017%	0.009%	0.002%	0.012%
Deficit	0.75%	0.77%	0.69%	0.64%
Maturity Profile	26.34%	18.22%	17.72%	14.28%
Variable Rate Debt	73.64%	81.77%	82.28%	85.71%

Figure 7: Incremental Cash Flow at Risk 2006/07 thru 2009/10

Further, analysis of the concentration of risk allows a to break down of CFaR into incremental CFaR (I-CFaR), which indicates the contribution of each risk factor, enabling analysis of the concentration of risk. This measure indicates that the variable rate debt contributes significantly to the CFaR in all years. The fact that this source of risk contributes increasingly to CFaR, suggests that although it is assumed that the Government will improve its maturity profile, the assumptions did not imply a decline in variable rate debt in dollar terms. This so because the deficit and US\$ debt that is not rolled must be financed with a mix of variable and fixed rate debt. This indicates that there is a need to also control the deficit and the resultant growth in the debt stock.

SECTION II

Redemption Profile Targeting

The redemption profile of debt shows the distribution of government instruments maturing over time. In managing risks associated with its redemption profile, a country ought to distribute the financing requirement across the individual years so that it is not particularly burdensome in any one year. As shown earlier, improper distribution of maturities can significantly increase CFaR, especially at high levels of debt. The main advantage of redemption profile targeting is that the effects of a shock to interest rates, which will affect the Government's refinancing terms in a given year, can be minimised.

Approach to Redemption Profile Targeting

A target is chosen in line with what is perceived as acceptable levels of refinancing risk⁷. In this paper, a step target is applied that will see Jamaica gradually moving to a profile where debt is distributed over thirty years, as presented in the Figure 8⁸. In order to move towards this profile, the existing maturity profile is assessed. This can be done with the use of a graph showing the level of maturities for each year. The actual profile is compared to the target profile (TRP) and the decision is taken whether to issue debt that will mature in a particular year based on the comparison.

⁷ There are an infinite number of profiles that can be targeted.

⁸ The table also shows the actual profile at end March 2006

The targeted profile serves as a guideline and in practice a country may deviate from its target profile from year to year depending on market conditions. It is however important to have a target profile to serve as a platform to judge performance. This method can also be applied on a monthly basis to monitor the cash requirement in each month of a given fiscal year to ensure that the pressure in a given month is manageable.

Actual vs Targeted Redemption Profile <i>Percent</i>		
<i>Period</i>	<i>Actual</i>	<i>Target</i>
2006-2010	66	50
2011-2015	20	25
2016-2020	6	10
2021-2025	5	8
2026-2030	2	4
2031-2035	1	3
Total	100	100
NB: Actual is at March 2006		

Figure 8: Actual vs. Targeted Redemption Profile

Implementation of Strategy

A planned issuance strategy has been identified, which takes into account not only maturing debt but also passive projections for the Government's fiscal outturn. It is assumed that both the deficit and the domestic debt maturing are financed in the domestic market and that the Government rolls all maturing external debt internationally. Additionally, the existing foreign currency debt at the end of every fiscal year is re-valued at the new exchange rate.

Here, the TRP is strictly adhered to in all years and debt is only issued to mature in years where the benchmark has not already been breached. Figure 9 below illustrates the proposed issuance strategy for 2006/07 under the targeted redemption profile. The green area of the bar represents existing debt at the start of the year while the yellow area represents planned issues in line with the target redemption profile (TRP).

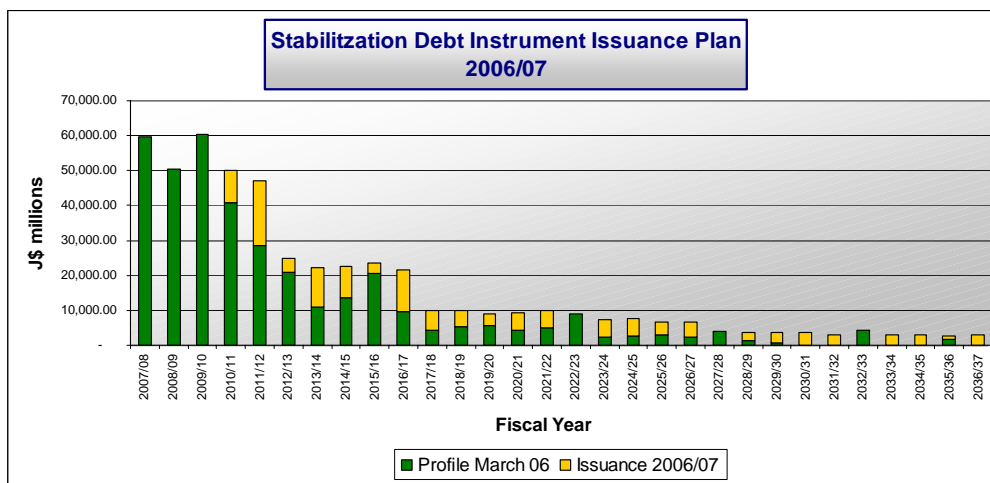


Figure 9: Stabilization Debt Instrument Issuance Plan 2006/07

The resulting redemption profile at March 2007 is shown in Figure 10. The profile does not exactly fit the target and indicates higher than acceptable refinancing risk in the first three years, as well as in some later years.

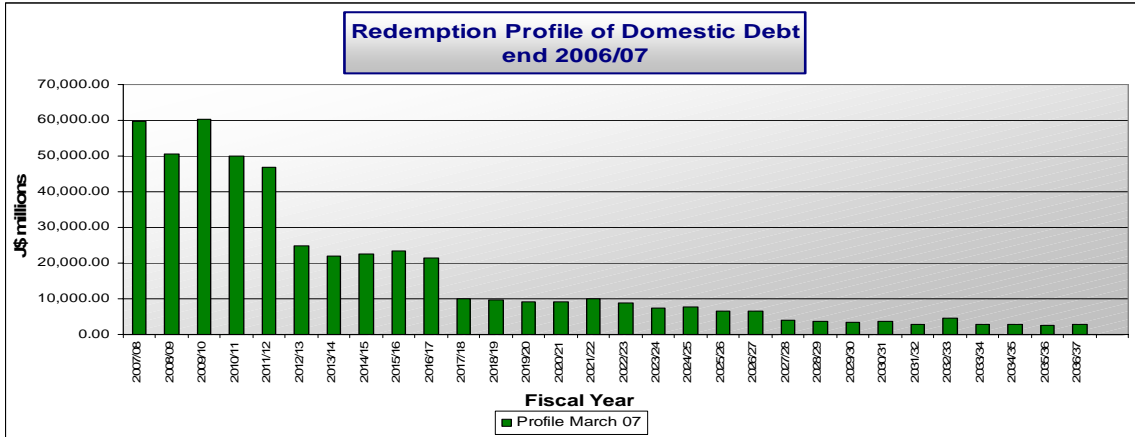


Figure 10: Redemption Profile of Domestic Debt end 2006/07

The debt issuance plan for 2007/08, in Figure 11 shows that it is possible to issue debt in fiscal year 2008/09, while the projected redemption profile for 2006/07 implied that there was already too much debt issued in that year. This highlights the fact that the benchmark for each year will change not only as it moves into a new step but also as the debt stock increases. In this case the debt stock is increasing because of the inclusion of passive fiscal deficit projections and the exchange loss on the value of foreign currency linked debt.

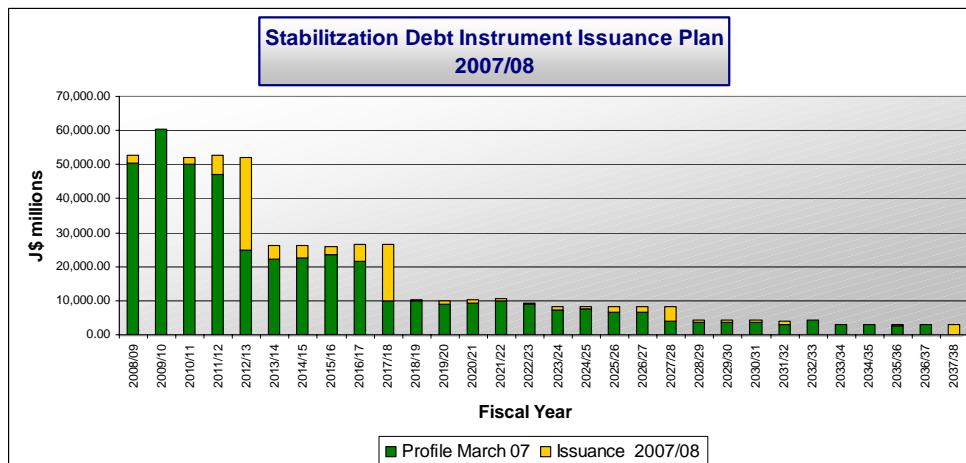


Figure 11: Stabilization Debt Instrument Issuance Plan 2007/08

On this track, the TRP will be achieved by the end of fiscal year 2009/10, as shown in Figure 12.

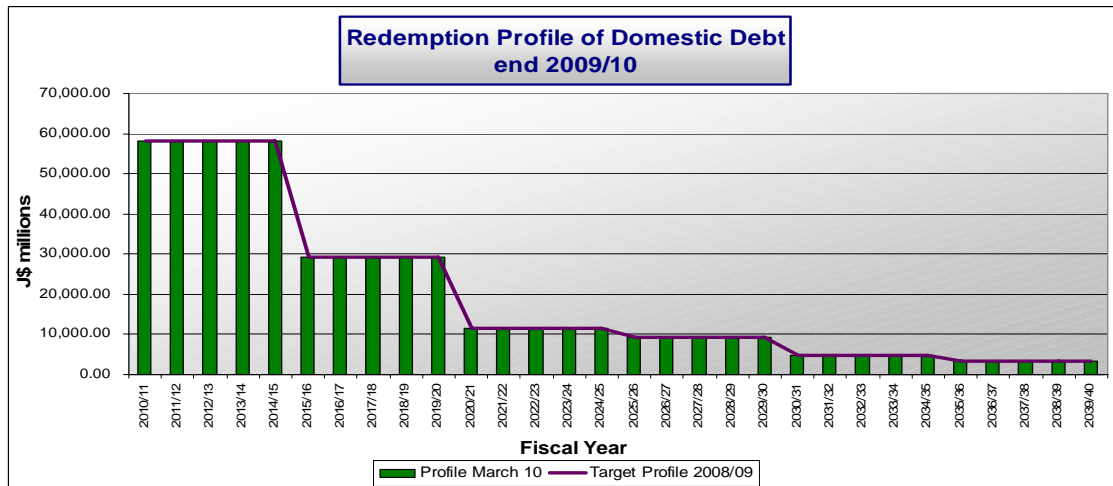


Figure 12: Redemption Profile of Domestic Debt end 2009/10

The chosen TRP is particularly challenging in the first year of implementation. In moving towards the benchmark, approximately 49 per cent of new debt issued in 2006/07 must have maturities of 10 years and over (See Figure 13). This reflects the fact that at end March 2006 maturing debt is higher than the benchmark in a number of the early years and as such there is little room to issue short-term debt. However, in subsequent years the country is able to issue more short-term debt as the profile improves⁹.

Maturity Profile of New Debt Issued				
	2006/07	2007/08	2008/09	2009/10
First 10 Years	51.45%	78.24%	78.58%	74.84%
Second 10 Years	31.59%	14.92%	13.74%	16.80%
Final 10 Years	16.95%	6.83%	7.68%	8.36%

Figure 13: Maturity Profile of New Debt Issued

⁹ Appendix 3 shows a complete description of our issuance strategy

SECTION III

Cash Flow at Risk under TRP

In this section the TRP is compared to a portfolio (GOV) that assumes the Government objective with respect to the proportions of variable rate (40%) and foreign currency linked debt (10%) in the domestic debt portfolio are met. In the GOV profile, keeping the variable rate debt proportion constant at 40 per cent means that the value of the stock in these instruments is currently much lower than under TRP. This results in a significantly lower cash flow at risk. As discussed previously, moving towards this profile the Government will be able to control cash flow at risk even as the debt stock increases (See figure 14).

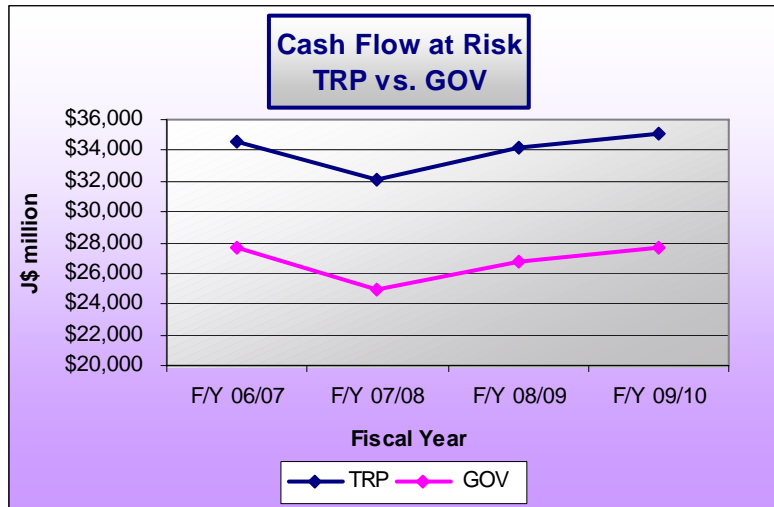


Figure 14: Cash Flow at Risk TRP vs. GOV

RECOMMENDATIONS AND CONCLUSION

It is important that the government monitors refinancing and interest rate risk more closely over the medium term, given Jamaica's debt structure and its vulnerability to market risk. The CFaR method allows a government to quantify risk. The method also shows that a Government can control risk by reducing the proportion of short-term debt and variable rate debt even as the debt stock increases. In Jamaica's case, there is a stated objective of smoothing and lengthening the maturity profile of debt. However there is also a need for a set target, which can be monitored. Short-term and variable rate issues may be less costly, however the combined risk on these issues can be significant as illustrated by our own experience. Managing refinancing and interest rate risk is an important aspect of managing the year-to-year variation in interest rate exposure, the volatility of interest payments and the absolute size of debt. This is even more critical in Jamaica's case as interest payments are a significant part of the Government's expenditure budget. Proper management of these risks will also place less pressure on the Government to roll debt and reduce the pressure on the Central Bank in its liquidity management.

The CFaR methodology will enable the Government to base its decisions regarding portfolio targets on analysis within a risk management framework. Additionally, analysis of I-CFaR will allow the government to quantify the risk associated with each risk factor, and take the necessary action.

APPENDIX 1

Risk Factors						
	180-Day FX Rate		180-Day Inflation		FX Rate Inflation	
1997	18.13	-\$12.22	18.13	9.52	-\$12.22	9.52
1998	27.99	\$3.68	27.99	8.82	\$3.68	8.82
1999	21.85	\$5.14	21.85	5.97	\$5.14	5.97
2000	17.96	\$10.25	17.96	8.39	\$10.25	8.39
2001	16.88	\$8.42	16.88	6.50	\$8.42	6.50
2002	14.30	\$4.25	14.30	7.58	\$4.25	7.58
2003	33.47	\$14.99	33.47	6.20	\$14.99	6.20
2004	15.57	\$11.39	15.57	16.75	\$11.39	16.75
2005	13.46	\$1.08	13.46	13.22	\$1.08	13.22
2006	13.18	\$4.56	13.18	11.43	\$4.56	11.43
STD. DEV	6.69	\$7.41	6.69	3.46	\$7.41	3.46
Covariance		14.08		-10.40		-1.65
Correlation		0.28		-0.45		-0.06

APPENDIX 2

Cash Flow at Risk Results F/Y 2006/07 at Various Levels of Variable Rate and Fixed Rate Maturing Debt J\$ millions						
Maturing Debt	Variable Rate Debt					
	0.00	0.15	0.30	0.45	0.60	0.75
0.00	0.0	8,287.6	16,274.1	24,260.9	32,247.8	40,234.7
0.05	2,965.2	10,949.7	18,936.3	26,923.2	34,910.1	42,897.0
0.10	5,625.9	13,611.8	21,598.6	29,585.5	37,572.4	45,559.3
0.15	8,287.6	16,274.1	24,260.9	32,247.8	40,234.7	48,221.6
0.20	10,949.7	18,936.3	26,923.2	34,910.1	42,897.0	50,884.0
0.25	13,611.8	21,598.6	29,585.5	37,572.4	45,559.3	53,546.3

APPENDIX 3

Medium-Term Redemption Profile of Domestic Debt									
Fiscal Year	Profile March 06	Issuance 2006/07	Profile March 07	Issuance 2007/08	Profile March 08	Issuance 2008/09	Profile March 09	Issuance 2009/10	Profile March 10
2006/07	98,305.73								
2007/08	59,681.68	-	59,681.68						
2008/09	50,494.41	-	50,494.41	2,291.74	52,786.15				
2009/10	60,390.78	-	60,390.78	-	60,390.78	-	60,390.78		
2010/11	40,655.87	9,450.00	50,105.87	2,000.00	52,105.87	3,000.00	55,105.87	3,158.47	58,264.34
2011/12	28,411.56	18,534.32	46,945.88	5,900.00	52,845.88	3,000.00	55,845.88	2,418.46	58,264.34
2012/13	20,958.65	4,000.00	24,958.65	27,000.00	51,958.65	3,000.00	54,958.65	3,305.69	58,264.34
2013/14	11,083.14	11,000.00	22,083.14	4,001.07	26,084.21	29,000.00	55,084.21	3,180.13	58,264.34
2014/15	13,620.63	9,000.00	22,620.63	3,500.00	26,120.63	1,000.00	27,120.63	31,143.72	58,264.34
2015/16	20,665.14	2,861.00	23,526.14	2,500.00	26,026.14	1,300.00	27,326.14	1,806.04	29,132.17
2016/17	9,497.78	11,922.20	21,419.98	5,000.00	26,419.98	1,400.00	27,819.98	1,312.19	29,132.17
2017/18	4,431.20	5,500.00	9,931.20	16,500.00	26,431.20	1,800.00	28,231.20	900.97	29,132.17
2018/19	5,287.91	4,500.00	9,787.91	600.00	10,387.91	16,865.20	27,253.11	1,879.06	29,132.17
2019/20	5,562.37	3,500.00	9,062.37	1,000.00	10,062.37	1,000.00	11,062.37	18,069.80	29,132.17
2020/21	4,175.37	5,000.00	9,175.37	1,000.00	10,175.37	500.00	10,675.37	977.50	11,652.87
2021/22	4,980.66	5,000.00	9,980.66	500.00	10,480.66	458.22	10,938.88	713.99	11,652.87
2022/23	8,901.14	-	8,901.14	500.00	9,401.14	1,000.00	10,401.14	1,251.73	11,652.87
2023/24	2,335.46	5,000.00	7,335.46	1,000.00	8,335.46	2,500.00	10,835.46	817.40	11,652.87
2024/25	2,670.36	5,000.00	7,670.36	700.00	8,370.36	100.00	8,470.36	3,182.50	11,652.87
2025/26	3,040.94	3,500.00	6,540.94	1,800.00	8,340.94	500.00	8,840.94	481.35	9,322.30
2026/27	2,485.46	4,000.00	6,485.46	1,800.00	8,285.46	500.00	8,785.46	536.83	9,322.30
2027/28	4,142.47	-	4,142.47	4,200.00	8,342.47	-	8,342.47	979.82	9,322.30
2028/29	1,254.22	2,500.00	3,754.22	400.00	4,154.22	4,000.00	8,154.22	1,168.07	9,322.30
2029/30	550.00	3,000.00	3,550.00	600.00	4,150.00	200.00	4,350.00	4,972.30	9,322.30
2030/31	150.00	3,500.00	3,650.00	500.00	4,150.00	200.00	4,350.00	311.15	4,661.15
2031/32	-	3,000.00	3,000.00	1,000.00	4,000.00	200.00	4,200.00	461.15	4,661.15
2032/33	4,429.45	-	4,429.45	-	4,429.45	-	4,429.45	231.70	4,661.15
2033/34	-	3,000.00	3,000.00	100.00	3,100.00	1,200.00	4,300.00	361.15	4,661.15
2034/35	-	3,000.00	3,000.00	-	3,000.00	200.00	3,200.00	1,461.15	4,661.15
2035/36	1,500.00	1,000.00	2,500.00	400.00	2,900.00	300.00	3,200.00	295.86	3,495.86
2036/37	-	3,000.00	3,000.00	-	3,000.00	200.00	3,200.00	295.86	3,495.86
2037/38	-	-	-	3,000.00	3,000.00	200.00	3,200.00	295.86	3,495.86
2038/39	-	-	-	-	-	3,200.00	3,200.00	295.86	3,495.86
2039/40	-	-	-	-	-	-	-	3,495.86	3,495.86
	469,662.41	129,767.52	501,124.20	87,792.81	529,235.33	76,823.42	553,272.60	89,761.63	582,643.45
	2006/07		2007/08		2008/09		2009/10		
Maturing	98,305.73		59,681.68		52,394.41		60,390.78		
Fiscal Deficit	28,555.27		25,719.39		22,370.79		28,782.38		
Financing need	126,861.00		85,401.07		74,765.20		89,173.16		
Exchange Rate	66.59		70.20		73.13		75.39		
Debt Stock	501,124.20		529,235.33		553,272.60		582,643.45		

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