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# **VANUATU DEBT SUSTAINABILITY ANALYSIS**

**PAPER PREPARED BY  
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<sup>1</sup> The views and expressions remain of the author and do not necessarily reflect those of the Ministry of Finance and Economic Management. This paper is written by Letlet August, Principal Economist, Department of Finance and Treasury.

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## Executive Summary

Modernizing the framework for fiscal policy and public debt sustainability analysis (DSA) has become necessary, particularly in light of the recent crisis and rising sustainability concerns in some advanced and developing economies. While recognizing the inherently challenging nature of such analysis, this paper highlights greater focus on the realism of baseline assumptions. This has allow close scrutiny of assumptions underlying the baseline scenario (primary fiscal balance, interest rate, and growth rate) particularly if a large fiscal adjustment is required to ensure sustainability. The current analysis should be further developed to allow for cross-country experiences and comparison.

The level of public debt as one of the triggers for further analysis while the projected debt stock is expected to remain below the reference threshold of 40 per cent of the debt-to-GDP ratio, even compared with neighbouring Pacific Island Countries (PICs). The sensitivity analysis is based primarily on Vanuatu-specific risks and vulnerabilities. The assessment of the impact of shocks in Section IV was employed by developing fully-fledged alternative scenarios, allowing for interaction among key variables, and the used of regular fan charts in an attempt to derive possible vulnerabilities.

Overall, the development of fully fledged alternative scenarios in the sensitivity analysis shows that Vanuatu remains at a low risk of debt distress based on the Low Income Country Debt Sustainability Assessment (LIC DSA) usually used by the International Monetary Fund (IMF) and the Work Bank (WB) in assessing country's debt sustainability. The country's overall projected public debt level is low and should remain manageable, provided fiscal balances improved over the projection period. Under the baseline scenario, all external debt sustainability indicators are projected to remain well below their applicable thresholds placing Vanuatu as a medium performer according to the WB Country Policy and Institutional Assessment. Public debt is projected to remain low, consistent with policy makers' conservative and quality borrowing policies over the medium term. Finally, Vanuatu's macroeconomic indicators show that Vanuatu's fundamentals remain sound and strong over the projection period allowing rooms for anticipated external borrowings, to finance public investments with future positive economic and financial rate of returns.

## Background and Objective

The Government of Vanuatu through the Ministry of Finance and Economic Management, responsible for fiscal policy and debt management has been under pressure in providing much needed services and investments to the rural communities. Investing in physical infrastructure had exacerbated recent debate and brings to front the steps required to speeding up implementation of the Decentralisation Act. As in any country, public debt is composed of domestic and external debt. Domestic debt in Vanuatu is been used to finance the deficit gaps of excess expenditures over revenues while all external borrowings have been diverted towards accumulation of physical infrastructures including roads, bridges, wharves, airstrips and ports. It is Vanuatu Government policy that all external borrowings are to be used to finance new capital investment projects which will generate additional capacity and high financial returns to repay the debts bequeathed upon future generations. Indeed, the Government will ensure that all new external borrowing is limited to financing investment projects with a positive net economic return.

The aim of this paper is to discuss the issues relating to how to assess the fiscal sustainability of both external and domestic central government debt. In addition, it outlines the potential impacts of shocks on debt sustainability, which is very pertinent in today's second generation of crisis drawing lessons and experiences from the current global financial crisis which, eventually turn into a global economic crisis (GEC). It makes practical recommendations for improving the tools and criteria used to judge whether the debt is sustainable using variety of standardized stress and sensitivity tests in alternative scenarios. This is very important to allow the Government and international community to include such debts far more systematically and comprehensively in their analysis and policy measures.

### I. Introduction

The creation of debt is a natural consequence of economic activity. Over the past few years in Vanuatu, the private sector and the international lending agencies have income in excess of their consumption and investment requirements, while the government is deficient in this regard. Through the creation of debt, all parties are better able to realize their consumption and output preferences, thus encouraging economic growth. The creation of debt is premised on the assumption that the debtor will meet the requirements of the debt contract. But if the income of the debtor is insufficient or there is lack of sufficient assets to call upon in the event of income proving insufficient, debt problems ensue; the stock of debt will be such that the debtor cannot meet its obligations. In such circumstances, the benefits arising from international financial flows—for both creditors and debtors—may not be fully realized. Hence, the need at the country levels for good risk management procedures as well as the maintenance of external debt at sustainable levels.

In general terms, public debt can be regarded as sustainable when the primary balance needed to at least stabilize debt is economically and politically feasible, such that the level of debt is consistent with an

acceptably low rollover risk and with preserving potential growth at a satisfactory level. Conversely, if no realistic adjustment in the primary balance—i.e., one that is both economically and politically feasible—to bring the debt stock below the recognised level of 40.0 per cent of gross domestic product (GDP), public debt would be considered unsustainable. The higher the level of public debt, the more likely it is that fiscal policy and public debt are unsustainable. This is because—other things being equal—a higher debt requires a higher primary surplus to sustain it. Moreover, higher debt is usually associated with lower growth and higher interest rates, thus requiring an even higher primary balance to service it.

Following theoretical views and analysis, a thorough review of debt analysis and its subsequent literature shows that the weight of evidence indicates that high debt slows growth, but there is no magic threshold above which any country at any time will experience slower growth. This truth has been illustrated in the recent controversy around “Growth in a Time of Debt,”<sup>2</sup> which has been widely cited in the policy world for its conclusion that gross debt above 90.0 per cent of GDP is associated with lower economic growth.

The remainder of the paper is structured as follows: Section II is devoted to an overview of existing literature on the topic of debt sustainability and its relation to existing domestic laws on public debt followed by fiscal sustainability ratios and indicators – which is the subject for Section III. Section IV deal with interpretations and policy implications and Section V concludes.

## **II. Overview of Existing Literature**

Although the global focus to date has been very much on low income countries external debt sustainability, there is a pressing need to analyse domestic and total public debt sustainability in relation to the budget, particularly because domestic debt issuance for fiscal financing and monetary policy implementation has been growing in many Pacific Island Countries (PICs) in recent years. In 2006, the IMF estimated that domestic debt accounts for about 20.0 per cent of total public debt in the typical low-income country. One year later, a global debt sustainability analysis conducted by the Debt Relief Institute (DRI) indicated the proportion was closer to an average of 25.0 per cent for low income countries, 37.0 per cent for Commonwealth low income countries, and 17.0 per cent for the Organisation Internationale de la Francophonie (OIF) low income countries. In recent times following the aftermath of the Global Financial Crisis (GFC) and greater demand to invest in public infrastructure projects, maintaining fiscal sustainability becomes very relevant as Vanuatu find itself having to borrow more, externally and domestically, to cope with falling overseas earnings through exports (in goods) and declining inflows from multilateral donors.

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<sup>2</sup> Carmen Reinhart and Kenneth Rogoff, “Growth in a Time of Debt,” 2010.

To date there is no international agreement on how to define and assess the fiscal sustainability of debt. One way of looking at it is in terms of the Government's ability to remain solvent with a given set of fiscal and monetary policies, which can be reflected in the government's ability to finance a deficit through debt issuance. In this context the size of the Government budget deficit or the ratio of the budget deficit to GDP provides a proxy of fiscal sustainability. Alternatively, fiscal sustainability can be assessed by looking at the level of government's debt liabilities (domestic and external) that has been accumulated to finance the deficit, and its service costs, in relation to GDP, government revenues and government expenditures.

In practice, assessing debt sustainability for LIC including Vanuatu involves probabilistic judgments about the course of debt and the availability of financing on favourable terms. In making such an assessment there are several important considerations: (i) are debt burden indicators projected, at a minimum, to stabilize at levels consistent with an acceptably low rollover risk and with preserving growth at a satisfactory level, taking into account cyclical considerations, not only in the baseline scenario but also under plausible stressed scenarios? (ii) are the level and trajectory of the debt burden indicators underpinned by realistic projections for primary balance adjustment? (iii) are the assumptions for other key macroeconomic variables (e.g., growth and interest rates) realistic? and (iv) is the debt profile well balanced in terms of maturity, currency composition, and investor based so as to facilitate continued market access?

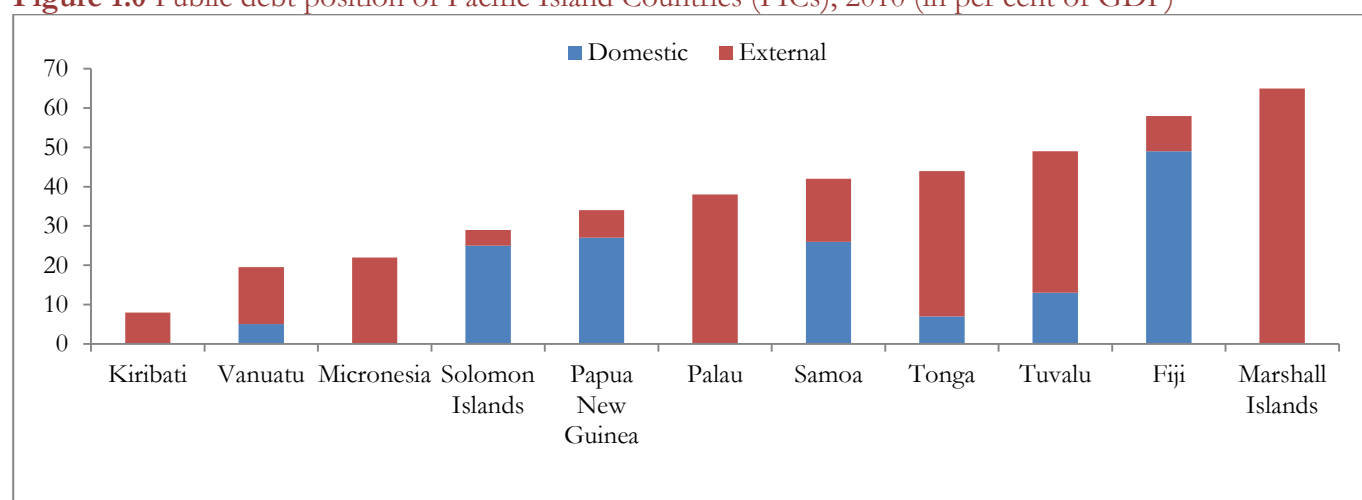
As the budget deficit underlies the concept of fiscal sustainability, one tool that is available to the Government to maintain control over its budget deficit and ensure fiscal sustainability, is the upholding of its public finance and economic management (PFEM) Act 1998. The PFEM Act provides an institutional framework for ensuring responsibility in fiscal management. Importantly, the Government is guided by Section 54 2(b) citing that "Prior to raising a loan the Minister must first ensure it is fiscally responsible in accordance with this Act" and section 54 also states that the Government must ensure investment projects are in the public interest and are consistent with both general government policy and investment policies specifically. While fiscal responsibility is defined under section 22 of the Act as "achieving and maintaining levels of the State net worth that provide a buffer against factors that may impact adversely on the State's net worth in the future". In other words, the Government should only borrow to fund investments that have a positive financial rate of return and that will expand the net worth of the Government. Additionally, the 2014 Budget Policy Statement (BPS) lists a long-term fiscal objective as "debt maintained at prudent levels, so its share to GDP remains below 40.0 per cent".

### **III. Fiscal Sustainability Ratios and Indicators**

Over time there has been different indicators and thresholds used internationally to assess the debt sustainability of low income countries. Prior to the introduction of the High Indebted Poor Countries (HIPC) Initiative in 1996, debt sustainability was usually assessed using the ratios of debt stock to gross

national product (GNP) and/or exports and debt service to exports. However, there were no internationally agreed benchmarks for determining sustainability, although the WB regularly published the ranges it used to classify countries as severely or moderately indebted, on the basis of three-year average ratios of Present Value (PV) of debt to GNP or PV of debt to exports of goods and all services. Across the PICs, the stock of public debt varies, with Kiribati having the lowest stock while Marshall Islands having the highest stock of public debt as per cent of GDP. Of the composition, four countries' current stock of debt is mainly external debt on one hand, and most Melanesian countries debts are mainly domestic on the other hand, whereas Vanuatu having the second lowest stock of public debt (as per cent of GDP) in 2010 – Figure 1.0.

**Figure 1.0** Public debt position of Pacific Island Countries (PICs), 2010 (in per cent of GDP)



Source: International Monetary Fund, 2012

In recent years, policy makers across the globe have been considering how to assess debt sustainability more widely than just within the context of HIPC Initiative so as to provide guidance on new lending to all low income countries, thereby enabling long-term debt sustainability. In developing their new framework, policy makers have linked the debt sustainability thresholds to the quality of a country's policies and institutions. The premise underlying this is that countries with strong or good policies and institutions are more likely to be able to shoulder higher debt burdens and therefore are less likely to fall into debt distress, than countries with weak or poor policies and institutions. Therefore, policy makers have formulated separate thresholds for strong, medium and weak policy and institutional performers as in Table 1.0.

A replication of Table 1.0 for Vanuatu is shown in Table 2.0. Depending on how we classify the institutional strength and quality of policies in Vanuatu, in this paper, we adopted the overall assessment released for the Public Expenditure and Financial Accountability (PEFA) report together with the IMF Article IV Staff Mission Report 2013 as proxies of institutional strength and quality of policies. On a scale of 1- 4.5; with 1 = D and 4.5 = A+; we summarise the overall rating for Vanuatu as C+ (or 2.5). In the same sense, the IMF Article IV Mission report identified Vanuatu's debt sustainability as being "at a low risk of debt distress; external and public debt levels are low". Although the stock of debt is forecasted to rise following new borrowing, they remain manageable, and all indicators of vulnerability in Table 2.0 remain well below the applicable thresholds, even under all stress tests.

**Table 1.0: Debt Sustainability Framework Indicators and Thresholds**

DSF indicators and thresholds			
Indicators	Assessment of institutional strength and quality of policies		
	Poor	Medium	Strong
PV debt/GDP	30%	40%	50%
PV debt/exports	100%	150%	200%
Debt services/exports	15%	20%	25%
PV debt/budget revenue	200%	250%	300%
Debt service/budget revenue	25%	30%	35%

Source: Adapted from HIPC capacity building programme page 3

When classifying Vanuatu as ‘Medium country’ as in Table 1.0, the ratios calculated in Table 2.0 reveal that all indicators remain below those of a country with medium institutional strength and qualities of policies. This is a very conservative assumption given that Vanuatu’s overall macroeconomic performances remain *very strong* according to the IMF 2013 country report. In the same sense, if Vanuatu is to be rated with ‘Strong’ institutional strength and strong quality policies following the IMF latest country assessment, then the indicators in Table 2.0 also confirm the IMF statement with Vanuatu having relatively low debt sustainability – implying that Vanuatu has more capacity to engage in further borrowings. On the other hand, if we are to be classified as ‘Poor’, column 2 Table 2.0, the country has capacity to borrow as revealed by the indicators in Table 3.0 following international best practises.

**Table 2.0: Debt Sustainability Indicators for Vanuatu**

Indicators	Years								
	2013B	2014f	2015f	2016f	2017f	2018f	2019f	2020f	2021f
PV debt/GDP (in %)	19.6	19.1	21.2	23.7	22.1	19.9	17.3	17.4	14.8
PV debt/exports (in %)	26.8	26.6	32.6	39.8	40.2	36.7	32.1	33.9	29.0
Debt services/exports (in %)	5.8	5.1	4.0	3.3	3.9	3.6	4.0	3.7	3.4
PV debt/budget revenue (in %)	72.5	74.2	91.6	115.3	114.3	94.5	75.6	69.8	54.8
Debt service/budget revenue (in %)	9.9	9.2	7.9	7.3	8.5	7.1	7.2	6.0	5.1

Sources: Ministry of Finance and Economic Management estimates and projections

#### IV. Interpretation and Policy Implications

The discussions that follow in the next section focus on the indicators of debt sustainability analysis. The role of debt indicators in identifying solvency and liquidity problems is emphasized and provide useful guidance for policy makers.



## Solvency

From Vanuatu's perspective, solvency can be defined as the country's ability to discharge its external obligations on a continuing basis. It is relatively easy, but not very helpful, to define a country's theoretical ability to pay. In practice, debt have been rolled over (renews) at maturity, Vanuatu is solvent if the present value of net interest payments does not exceed the present value of other current account inflows (primary export inflows) net of imports. In practice, countries stop servicing their debt long before this constraint is reached, at the point where servicing the debt is perceived to be too costly in terms of the country's economic and social objectives. Thus, the relevant constraint is generally the willingness to pay, rather than the theoretical macroeconomic ability to pay. To establish that a country is solvent and willing to pay is not easy. Solvency is "very much like honesty: it can never be fully certified, and proofs are slow to materialize".

The *present value of debt-to-exports ratio* in Table 2.0 is used to measure the debt sustainability. This is because an increasing debt-to-exports ratio over time, for a given interest rate, implies that total debt is growing faster than the economy's basic sources of external income. An increasing ratio will indicate that the country may have problems meeting its debt obligations in the future. In Vanuatu's case, the expected debt to export ratio fluctuate around 26.8 per cent in 2013 to 40.2 per cent in 2017 but remain below the 150 standard threshold (Figure 2.0 (c) green dotted series). However, since higher proportion of the expected borrowings will be used for productive investment with long gestation periods are more likely to exhibit high debt-to-exports ratios as evidence from 2014 through to 2019. But as the investments begin to produce goods that can be exported, the country's debt-to-exports ratio may start to decline as indicated in Table 2.0 and Figure 2.0 (c). Apparently, the debt-to-exports ratio may not be too high from an inter-temporal perspective even if it may be perceived as large as in 2017 but still below the standard threshold outlined in Table 1.0 (Figure 2.0 (c)). Therefore, arguably this indicator can be based on exports after the average gestation lag — that is, using projected exports one or several time periods ahead as a denominator. More generally, this also highlights the need to monitor debt indicators over the medium-term scenario to overcome the limitations of a "snapshot" which is further portrayed in Figure 3.0.

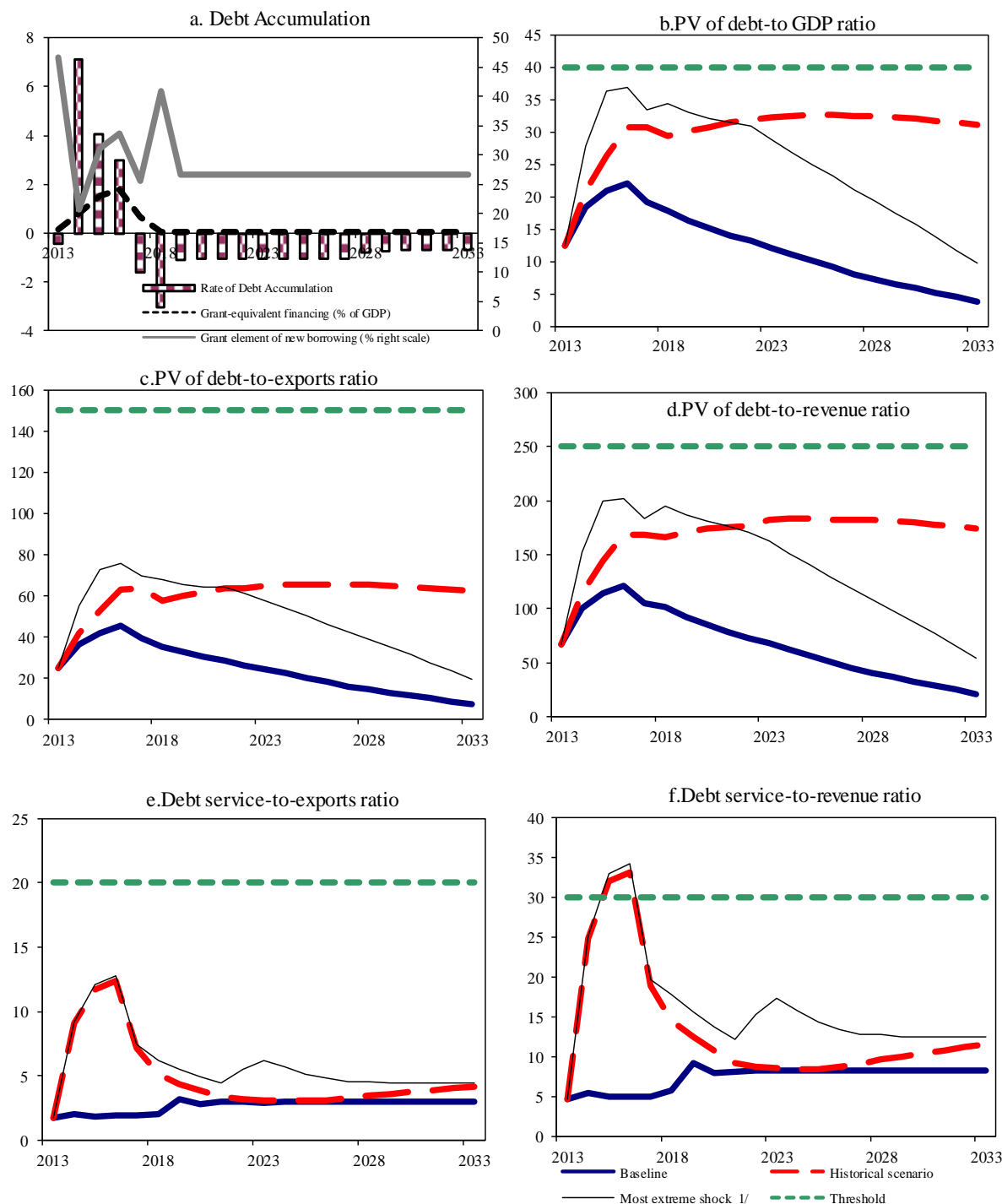
The *present value debt-to-GDP ratio* in Table 2.0 (Figure 2.0 (b)) provides some indication of the potential to service external debt by switching resources from production of domestic goods to the production of exports. Indeed, Vanuatu has a large forecasted debt-to-exports ratio ranging from 32.6 per cent in 2015 to 40.2 per cent in 2017 but a low debt-to-GDP ratio of 23.7 per cent in 2016 to 14.8 per cent in 2021 because Vanuatu's exportable comprises a very small proportion of GDP. While the debt-to-GDP ratio is immune from export-related criticisms that mainly focus on the differing degree of value added in exports and price volatility of exports, it may be less reliable in the presence of over or under valuations of the real exchange rate, which could significantly distort the GDP denominator. Also, as with the debt-to-exports ratio, it is important to take into account Vanuatu's different stages of development and the mix of concessional and

non-concessional debt. Importantly the ratio of debt to GDP ratio in Figure 2.0 (b) rises above 35.0 per cent in 2017 at a most extreme non-debt flow shock to GDP but normalises thereafter. The ratio of stock of debt to GDP rises above 35.0 per cent but remain below the standard threshold of 40.0 per cent for Vanuatu.

The *present value of debt to fiscal revenue* is the ratio of future projected debt-service payments discounted by market-based interest rates to annual fiscal revenue. This ratio is used to measure the sustainability in the country, which is relatively open facing fiscal burden of external debt. In this circumstance, the Government's ability to mobilize domestic revenue is relevant and will not be measured by the debt-to-exports or debt-to-GDP ratios. The rising trend of the indicator in Figure 2.0 (d) below during the projections years of 2014-18 average at 98.0 per cent reflecting the planned new borrowings of the government. Under the most extreme non-debt flow shock, the ratio experiences a steep rise exceeding 150 per cent starting in 2016 before declining to levels seen prior to 2015 from 2013 onwards. The rise in this ratio is expected to remain manageable while in the same sense, expected to be maintained below the standard threshold of 250 per cent for Vanuatu. Ideally, the rise in this ratio could impose budgetary problems for the Government in servicing its debt. Nonetheless, this trend is expected but forecasted to stabilise after 2023 and remain sustainable thereafter.

The *ratio of debt service to exports of goods and services* is a possible indicator of debt sustainability because it indicates how much of Vanuatu's export revenue will be used up in servicing its debt and thus, also, how vulnerable the payment of debt service obligations is to an unexpected fall in export proceeds. This ratio is projected to decline and stabilise at an average 3.9 per cent owing to the forecasted boom in services related activities including tourism, Figure 2.0 (e). Indeed a high ratio would tend to highlight Vanuatu's significant weaknesses forecasted to be from export related earnings in meeting its short-term external debt commitment. The higher this ratio is, the risks is to affect Vanuatu's creditworthiness because this would imply a higher share of short-term credit is on overall debt, the larger and more vulnerable is the annual flow of debt service obligations. The projected rise in this ratio from 2014-17 reflected the higher volumes of maturing debt before normalisation from 2018 onwards as a result of more sustainable level of debt obligations. In the case of Vanuatu, the standard threshold is 20 per cent which is well higher than all alternatives scenarios generated in Figure 2.0 ((e) green dotted series). This is possible, even with the most extreme non-debt flow shocks to GDP from 2014-17, the effects of such shocks has minimal lasting impacts and dies out after 2018.

**Figure 2.0** Vanuatu: Indicators of public debt under alternatives scenarios, 2013 – 2033 1/



Sources: Ministry of Finance and Economic Management estimates and projections

The preceding analysis allows us to conduct medium-term scenarios using sensitivity analysis. These scenarios are numerical evaluations that take account of expectations of the behaviour of economic variables and other factors to determine the conditions under which debt and other indicators would stabilize at reasonable levels, the major risks to the economy, and the need and scope for policy adjustment. Macroeconomic uncertainties, such as the outlook for the current account, and policy uncertainties, such as for fiscal policy, tend to dominate the medium-term outlook and feature prominently in the scenarios

prepared by the IMF in the context of Article IV Consultations and the design of IMF-supported adjustment programs.

The current account balance is important because, if deficits persist, the country's external position may eventually become unsustainable (as reflected by a rising ratio of external debt to GDP). In other words, financing of continually large current account deficits by the issuance of debt instruments will lead to an increasing debt burden, perhaps undermining solvency and leading to external vulnerability from a liquidity perspective, owing to the need to repay large amounts of debt.

Medium term scenario analyses are commonly used in debt analysis. One advantage of medium-term scenarios is that borrowing is viewed within the overall macroeconomic framework. However, such an approach can be very sensitive to projections for variables such as economic growth, interest and exchange rates, and, in particular, to the continuation of financial flows, which are potentially subject to sudden reversal. Consequently, a range of various alternative scenarios may be prepared. Also, stress tests—“what if” scenarios that assume a major change in one or more variable—can be helpful in analysing major risks stemming from fluctuations of these variables or from changes in other assumptions including, for example, changes in duty rates, stronger economic growth and improved revenue compliance. Stress tests are useful for liquidity analysis and provide the basis for developing strategies to mitigate the identified risks, such as enhancing the liquidity buffer by increasing international reserves, by establishing contingent credit lines with foreign lenders, or both. Figure 3.0 below demonstrates these discussions.

Looking at Figure 3.0 under the baseline scenario, Vanuatu's external debt remains sustainable. Total public debt (brown dotted series) is projected to remain sustainable with a declining trend over the projection period when assume no major external borrowings under current policy scenarios. Under the program scenario when the economy is projected to increase over the business cycle growing by an average 6.9 per cent following the expected scaling up of fiscal expenditures related to publicly funded investments; with average real interest rate (the market cost of borrowing) growing by 7.0 per cent, and overall revenue growing over time therefore closing the deficit gap as a result of rebounding economic activity. Meanwhile the ratio of debt to GDP rises to over 22.0 per cent in 2014 until the end of 2019 when it is expected to normalises thereafter when all major projects have been completed paving ways for increased economic production.

While the expected increase is notable, it is well below the 40.0 per cent standard threshold for a medium type country like Vanuatu. A stress test perform under ‘Own Scenario’ assumes (i) strong economic growth (ii) rising growth in revenue without actually raising tax rates and (iii) increases in fiscal expenditures to finance huge public investment projects. Under these conditions, the stock of debt to GDP is expected to rise gradually in 2014, particularly if the terms of these expected borrowings were to be less favourable than the baseline borrowing mix. The level of public debt will remain high above 18.0 per cent until end of 2018

**Figure 3.0** Vanuatu: Indicators of Public Debt under Alternative Scenarios, 2013 – 2033 1/



Sources: Ministry of Finance and Economic Management estimations and projections

1/ Total Revenue is inclusive of grants

(blue dotted series), after which the ratio is forecasted to decline below the levels seen prior to 2014. The ‘Own Scenario’ stress test shows that economic growth will be recovering following favourable and anticipated macroeconomic developments, improvement in production and ease in supply conditions. Also the expectation that revenue picking-up is manifested here following continued strengthening of compliance and implementation of new revenue measures<sup>3</sup> and increased grants related to infrastructure projects boosting the primary balance to higher levels averaging at 0.9 per cent reducing the need for further domestic borrowing. This contrast somewhat with the baseline and program scenarios; where the fiscal balance is relatively below 0.5 per cent of GDP. In this scenario, (blue dotted series), there are no risks to public debt sustainability over the longer term. However, as with the program scenario, with the expectation of the Government financing large infrastructure projects, the public debt level would rise accordingly to commensurate these new borrowings. Meanwhile, the expected rise in public debt is to be offset by stronger economic growth and higher collection in government revenues.

Unlike the present value of debt to GDP ratio, the debt service to total revenue ratio (bottom Chart of Figure 3.0) display future projected debt-service payments discounted by market-based interest rates to annual fiscal revenue. As a medium country, Vanuatu’s standard threshold indicator is 30.0 per cent by international best practices. Performing a stress test under alternative scenarios with baseline policy conditions unchanged, the projected ratio remain below 10.0 per cent over the projection period, which is 20.0 percentage points lower compared to best standard practices and decreases over the business cycle. Under the program scenario when macroeconomic fundamentals are sound and strong, the ratio decline to negative territory after 2021 and remain below 0 per cent thereafter. Similarly, when fundamental conditions are mixed (own scenario), the ratio is projected to rise to 9.9 per cent in 2014 and remain above 6.0 per cent until 2018 before started declining in 2019 on the back of expected strong growth in revenue and low volumes of short term debts maturing over the medium term.

## Liquidity

Liquidity problems—that is, when a shortage of liquid assets affects the ability of an economy to discharge its immediate external obligations—almost always emerge in circumstances that give rise to insolvency or unwillingness to pay. But it is also possible for a liquidity problem to arise independently of a solvency problem, following a self-fulfilling “run” on a country’s liquidity as creditors lose confidence and undertake transactions that lead to pressures on the international reserves of the economy. Liquidity problems can be triggered, for example, by a sharp drop in export earnings, or an increase in interest rates (foreign and/or domestic), or prices for imports. The currency and interest rate composition of debt, the maturity structure

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<sup>3</sup> The Government’s new revenue measures are documented in the Vanuatu Revenue Matrix report, compiled by the Ministry of Finance and Economic Management.

of debt, and the availability of assets to pay debts are all important determinants of the vulnerability of an economy to external liquidity crises.

The most common indicator of liquidity is the *ratio of international reserves to short-term debt*. This is a pure liquidity indicator ratio defined as the stock of international reserves available at the Reserve Bank of Vanuatu (RBV) to the short-term debt stock on a remaining-maturity basis. For the purpose of this analysis, we identify the short term debt as total debts maturing in the year over the next eight years<sup>4</sup> as shown in Figure 4.0 (red dotted series). This is a particularly useful indicator of reserve adequacy, especially for Vanuatu with significant, but not fully certain, access to international capital markets. The projected rise starting in 2014 and lasted until 2016 reflected the expected inflow of grants associated to the implementation of public infrastructure projects, but then started declining in 2017 before rising again from 2023 and over the projection period. The evidence of the declining trend in 2017 reveals the end of expected drawdown in grant funded components of major projects particularly those related to the Urban Sanitation and Inter-Island Shipping Projects, the Convention Centre and the Vila Central Hospital. This is a very strong result rising to over 2,000 per cent in 2014 and remain above 3,000 per cent in 2016 before stabilises in 2018. Indeed, the ratio indicates that Vanuatu's gross international reserves exceeded its scheduled amortization of short-, medium-, and long-term external debt during the projection years.

**Box 1:** Interestingly, in most theoretical models the maturity structure of public debt is irrelevant because it is assumed that markets are complete. But markets are rarely complete, even in developed countries. And, as several currency crises in developing and emerging market countries in the mid-to-late 1990s have shown, the risk associated with an excessive build-up of the stock of short-term debt relative to international reserves can be quite severe, even in countries that were generally regarded as solvent. One conclusion drawn has been that countries with excessively large short-term debt in relation to international reserves are more susceptible to liquidity crisis.

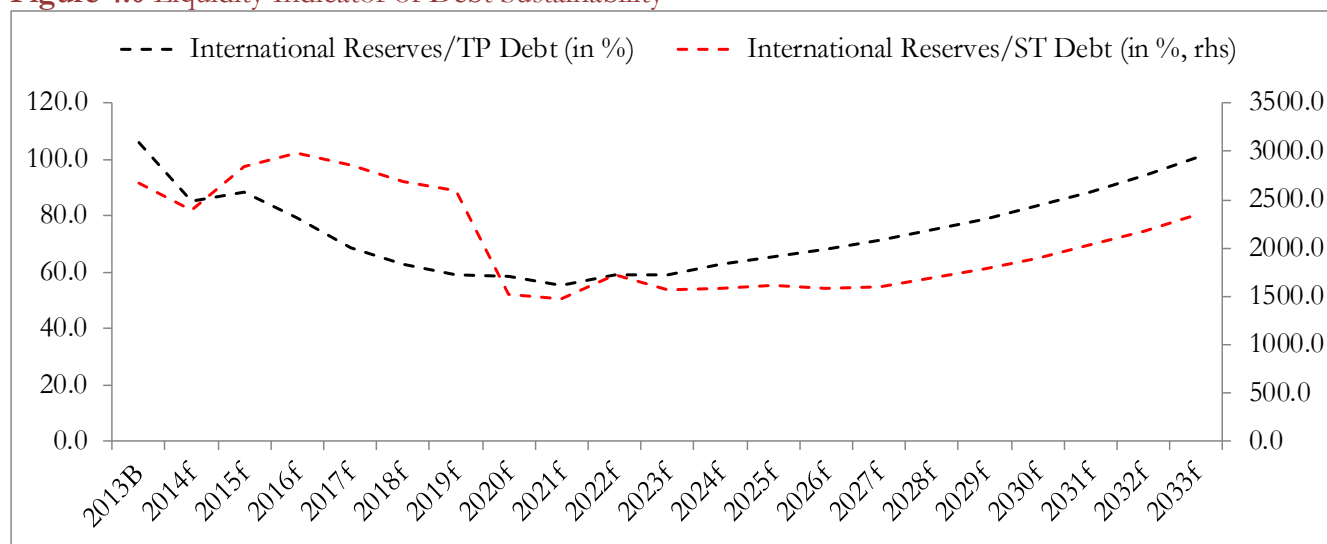
*Source: IMF External Debt Statistics Guide 2000*

These strong ratios indicate the extent to which the local economy has the ability to meet all its scheduled amortizations to non-residents for the coming years using its own international reserves. Nevertheless, it is not really clear how much of Vanuatu's gross international reserves to be generated exclude official transfers inflows that are projects related, which would have significant impact on the repayment capacity. Ignoring this uncertainty, the current indicator provides a measure of how quickly Vanuatu would be forced to adjust if it were to cut off from external borrowing—for example, because of adverse developments in international capital markets. All scheduled debt amortization payments on both private and public debt to non-residents over the coming years are covered in such a ratio under short-term debt, regardless of the instrument or currency denomination.

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<sup>4</sup> Short-term in this analysis is define as 8 years

**Figure 4.0** Liquidity Indicator of Debt Sustainability



Sources: Ministry of Finance and Economic Management estimates and projections

However, whenever interpreting the ratio of international reserves to short-term debt, various factors need to be taken into account. First, a large stock of short-term debt relative to international reserves does not necessarily lead to a crisis. During the last couple of years, the total stock of global debt belongs to many advanced economies; of which the compositions include higher ratios of short-term debt to reserves than many emerging economies. This has been one of the major vulnerability to financial crisis. Macroeconomic fundamentals, in particular the current account deficit and the real exchange rate, play an important role in the ratio of international reserves to short term debt. This includes careful management of the exchange rate regime by RBV. For example, a flexible regime can reduce the likelihood and costs of a crisis. Finally, the ratio postulated in Figure 4.0 assumes that the measure of international reserves will be indeed available and can be used to meet external obligations.

## V. Conclusion

To date Vanuatu has not had established debt indicators except the debt to GDP ratio of 40.0 per cent and that the level of debt has to remain manageable over the long run. This indicator has been continuously reserve following its conservative approaches to public debt borrowings. The paper on debt sustainability has drawn support to international reports (including the IMF Article IV reports) that Vanuatu's macroeconomic fundamentals and borrowing capacity remain relatively sound and strong. The calculated ratios, in Table 2.0, Figure 2.0, 3.0 and 4.0 further confirm earlier findings that Vanuatu's level of public debt, excluding government guaranteed debt is comparatively low in contrast to other neighbouring PICs, Figure 1.0. Arguably, there is no international agreement on how to define and assess the fiscal sustainability of debt and over what ratio seem to be the likely threshold. For policy makers, there are several important considerations when deciding on new borrowings: (i) are current debt burden indicators projected likely to be *solvent*, taking into account cyclical considerations, not only in the baseline scenario but also under plausible stressed scenarios? (ii) are the *liquidity* indicators likely to be sustainable over time? (iii) are the assumptions for other



key macroeconomic variables (e.g., economic growth and interest rates) realistic? and (iv) is the debt profile well balanced in terms of maturity, currency composition, and investor based so as to facilitate continued market access?

Indeed, the simulation and sensitivity tests conducted indicate that Vanuatu's current macroeconomic and prudential buffers are strong. Net international reserves are high, and public and external debt low. The risk of debt distress is low, and expected to remain so. The hypothetical scenarios established under the 'Own scenario' clearly shows that maintaining strong fiscal and external buffers should be a macroeconomic policy priority of the government in light of the economy's exposure to shocks. That includes the need to raise economic growth in order to generate higher revenue in order to maintain a sustainable level of debt in times to come. Overall all Vanuatu's macroeconomic indicators show that Vanuatu's fundamentals remain sound and strong over the projection period allowing rooms for anticipated expansionary fiscal policy, through further external borrowings to finance public investments with future positive economic and financial rate of returns.

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Table 3. Vanuatu: Sensitivity Analysis for Key Indicators of Public Debt, 2013 -2033

	Projections							
	2013	2014	2015	2016	2017	2018	2023	2033
<b><u>PV of Debt to GDP Ratio</u></b>								
<b>SCENARIO 1: BASELINE IN 2012 AND HISTORICAL SCENARIO</b>								
Growth (baseline scenario for 2012, and closing the output gap by 2016)	3.6	4.0	4.3	4.0	4.1	4.1	4.3	5.3
Real interest rate (baseline scenario 2012)	6.0	4.3	2.7	4.7	4.5	4.5	6.6	10.9
Primary balance, in per cent to GDP (baseline scenario 2012)	3.4	2.3	2.2	2.1	2.0	1.9	1.4	0.4
Debt to GDP	19.5	17.4	15.0	13.1	11.3	9.5	2.3	-6.2
<b>SCENARIO 2: PROGRAM SCENARIO</b>								
Growth (baseline scenario for 2012, and closing the output gap by 2016)	4.5	4.6	4.8	4.9	6.7	6.7	6.7	6.7
Real interest rate (baseline scenario 2012)	6.4	6.3	5.6	5.6	5.6	5.6	7.6	7.9
Primary balance, in per cent to GDP (baseline scenario 2012)	-0.2	-0.1	0.1	0.1	0.0	0.1	0.8	0.7
Debt to GDP	21.8	22.1	22.1	22.3	21.9	21.5	17.3	13.0
<b>SCENARIO 3: OWN SCENARIO</b>								
Growth	4.5	4.6	6.0	6.0	5.4	5.3	5.4	5.5
Real interest rate	6.4	6.3	5.6	5.6	5.6	6.3	6.3	6.3
Primary balance, in per cent to GDP	-0.3	0.3	0.5	0.5	0.9	1.2	1.1	1.1
Debt to GDP	22.0	22.1	21.5	20.9	20.1	19.0	14.1	3.8
Sources: Ministry of Finance and Economic Management Estimates and Projections								

Table 4. Vanuatu: Sensitivity Analysis for Key Indicators of Public Debt, 2013 -2033

	Projections							
	2013	2014	2015	2016	2017	2018	2023	2033
<b><u>PV of Debt to Total Revenue ratio</u></b>								
<b>SCENARIO 1: BASELINE IN 2012 AND HISTORICAL SCENARIO</b>								
Growth (baseline scenario for 2012, and closing the output gap by 2016)	3.6	4.0	4.3	4.0	4.1	4.1	4.3	5.3
Real interest rate (baseline scenario 2012)	6.0	4.3	2.7	4.7	4.5	4.5	6.6	5.7
Primary balance, in per cent to GDP (baseline scenario 2012)	-0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Debt to GDP	101.9	101.8	99.9	100.3	100.3	100.3	103.6	108.1
<b>SCENARIO 2: PROGRAM SCENARIO</b>								
Growth (baseline scenario for 2012, and closing the output gap by 2016)	4.5	4.6	4.8	4.9	6.7	6.7	6.7	6.7
Real interest rate (baseline scenario 2012)	6.4	6.3	5.6	5.6	5.6	5.6	7.6	6.9
Primary balance, in per cent to GDP (baseline scenario 2012)	3.5	3.6	3.2	1.2	1.4	1.3	0.3	0.5
Debt to GDP	98.1	96.6	96.1	95.3	93.0	91.1	83.6	80.8
<b>SCENARIO 3: OWN SCENARIO</b>								
Growth	4.5	4.6	4.8	4.9	6.7	6.7	6.7	6.7
Real interest rate	6.4	6.3	5.6	5.6	5.6	5.6	5.6	5.6
Primary balance, in per cent to GDP	3.5	3.6	3.2	1.2	1.4	1.3	0.3	0.5
Debt to GDP	98.2	96.2	93.8	93.2	90.8	88.6	79.0	66.0
Sources: Ministry of Finance and Economic Management Estimates and Projections								

**Table 5. Vanuatu: Sensitivity Analysis for Key Indicators of Public Debt, 2013 -2033**

	Projections							
	2013	2014	2015	2016	2017	2018	2023	2033
<b><u>Debt Service to Total Revenue Ratio</u></b>								
<b>SCENARIO 1: BASELINE IN 2012 AND HISTORICAL SCENARIO</b>								
Growth (baseline scenario for 2012, and closing the output gap by 2016)	3.6	4.0	4.3	4.0	4.1	4.1	4.3	5.3
Real interest rate (baseline scenario 2012)	6.0	4.3	2.7	4.7	4.5	4.5	6.6	10.9
Primary balance, in per cent to GDP (baseline scenario 2012)	-0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Debt to GDP	8.7	8.4	7.9	7.6	7.3	6.9	5.4	4.6
<b>SCENARIO 2: PROGRAM SCENARIO</b>								
Growth (baseline scenario for 2012, and closing the output gap by 2016)	4.5	4.6	4.8	4.9	6.7	6.7	6.7	6.7
Real interest rate (baseline scenario 2012)	6.4	6.3	5.6	5.6	5.6	5.6	7.6	7.9
Primary balance, in per cent to GDP (baseline scenario 2012)	-0.4	0.2	0.1	1.3	1.4	1.3	0.3	0.5
Debt to GDP	8.8	8.9	7.7	6.3	4.9	3.9	-1.6	-6.4
<b>SCENARIO 3: OWN SCENARIO</b>								
Growth	4.5	4.6	4.8	4.9	6.7	6.7	6.7	6.7
Real interest rate	6.4	6.3	5.6	5.6	5.6	5.6	5.6	5.6
Primary balance, in per cent to GDP	-0.5	-0.2	0.4	0.8	1.0	1.3	0.3	0.5
Debt to GDP	9.5	9.9	9.6	8.8	7.7	6.4	0.9	-4.4
Sources: Ministry of Finance and Economic Management Estimates and Projections								

**Table 6. Vanuatu: Public Sector Debt Sustainability Framework, Baseline Scenario, 2011 -2013**

	Actual			Estimate	Projections								Average projection	
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022-27	2028-33	
Fiscal Indicators														
Change in public debt	1.5	0.7	-0.2	-1.8	-0.3	3.3	3.4	-1.0	-2.0	-2.6	-2.9	-2.2	-1.9	
Primary Deficit	-0.1	-0.7	3.5	3.6	3.2	2.6	2.4	2.8	3.2	3.6	4.1	2.4	1.2	
Total Revenue	22.4	21.3	27.0	25.7	23.1	20.5	19.3	21.0	22.9	24.9	27.1	26.8	26.4	
Total Expenses	21.9	21.4	22.9	21.8	19.7	17.4	16.4	17.9	19.4	21.2	23.0	20.5	19.9	
Other Sustainability Indicators														
PV of Debt to GDP	...	21.3	19.6	19.2	22.5	26.0	24.9	22.9	20.3	17.4	14.8	19.5	19.1	
PV of Debt to Exports	...	29.2	26.8	27.0	35.5	44.9	46.8	43.8	39.4	33.9	29.0	37.3	36.7	
Debt Services to Exports	...	4.0	5.8	5.1	4.0	3.5	4.1	3.8	4.3	3.8	3.4	3.8	3.8	
PV of Debt to Budget Revenue	...	99.9	72.5	74.9	97.3	126.4	128.7	108.6	88.6	69.8	54.8	85.6	82.9	
Debt Services to Budget Revenue	...	8.9	9.9	9.2	8.0	7.6	9.0	7.6	7.7	6.2	5.1	6.9	6.7	
Key macroeconomic and fiscal assumptions														
Real GDP growth (in per cent)	1.4	3.3	4.5	4.6	4.8	4.9	6.7	6.7	6.7	6.7	6.7	6.7	6.7	
Average nominal interest rate on foreign debt (in per cent)	1.6	1.4	1.5	1.5	1.6	1.6	1.5	1.5	1.5	1.6	1.6	1.6	1.6	
Average real interest rate on domestic debt (in per cent)	5.4	6.2	6.0	4.3	2.7	4.7	4.5	4.5	4.6	4.6	4.6	4.5	4.6	
Real effective exchange rate (in per cent change, + indicates appreciate, - indicates depreciate)	-2.8	-0.2	-1.4	-0.9	0.1	0.3	0.8	...	...	...	...	...	...	
Inflation rate (GDP Deflator, in per cent)	2.1	1.4	1.4	1.9	2.3	2.8	3.0	3.0	2.9	2.9	2.9	2.9	2.9	
Projected gross official reserves (in per cent)	23.1	22.6	16.7	16.8	16.8	16.3	13.9	11.8	10.1	9.6	8.7	9.5	9.5	
Sources: Ministry of Finance and Economic Management Estimates and Projections														

**Table 7. Vanuatu: Selected Economic Indicators, 2011 - 2016**

Real GDP (2011): US\$ 619.5 million	GDP per capita (2011): US\$ 2,526					
Population (2011): 245,245	Main export: Tourism (78% of total exports of G&S)					
	Projections					
	2011	2012e	2013	2014	2015	2016
Output and prices (per cent change)						
Output gap (in per cent of potential GDP)	(1.5)	(1.6)	(1.0)	(0.5)	0.0	0.6
Real GDP (at constant factor cost)	1.4	3.3	4.5	4.6	4.9	4.9
Consumer prices (average)	1.2	1.4	0.8	1.5	2.0	2.3
Consumer prices (end of period)	1.4	0.9	1.2	1.8	2.3	2.3
S-I balance, private (per cent of GDP)	(8.5)	(6.1)	1.6	(2.2)	(6.1)	(9.7)
S-I balance, public (per cent of GDP)	0.4	(0.0)	4.0	3.9	2.5	1.9
Central government budget (per cent of GDP)						
Revenue and grants	22.4	21.3	27.0	25.7	23.1	20.5
Total expenditure	21.9	21.4	22.9	21.8	20.7	18.7
<i>Of which:</i> Capital	2.7	1.5	0.5	1.6	3.2	3.2
Overall balance	(2.2)	(1.6)	3.5	2.3	(0.7)	(1.3)
Total debt outstanding	16.2	15.6	16.1	16.5	16.3	15.7
Money and credit (per cent change)						
Real private Sector credit	7.6	5.9	7.7	5.4	5.0	5.5
Domestic credit	11.1	6.6	(1.4)	1.8	8.0	12.6
Government (net)	(39.8)	68.5	442.9	48.4	3.2	(18.6)
Broad money (M2)	7.1	(1.1)	8.3	8.7	9.9	10.0
Reserve money	6.5	9.4	10.2	10.6	11.9	11.9
Commercial bank lending rate	(3.2)	...	...	...	...	...
External sector						
Exports volume, (per cent change)	15.3	(10.2)	(8.0)	(6.6)	(3.3)	(3.0)
Imports volume, (per cent change)	(7.7)	(2.9)	3.9	4.8	5.8	6.4
Terms of trade, (per cent change)	13.3	(13.8)	(4.6)	(2.3)	(0.7)	(1.5)
Trade balance (in per cent of GDP)	(24.6)	(24.9)	(24.5)	(25.1)	(25.9)	(25.7)
Exports, f.o.b. (in per cent of GDP)	8.6	6.9	5.5	4.7	4.2	3.7
Imports, f.o.b. (in per cent of GDP)	(33.1)	(31.8)	(30.1)	(29.8)	(30.1)	(29.3)
Balance on services (in per cent of GDP)	17.9	21.6	22.9	23.9	24.0	24.0
Net income and transfers (in per cent of GDP)	1.6	2.2	12.2	8.3	3.7	(0.6)
Current account balance (in per cent of GDP)	(8.1)	(6.1)	5.6	1.7	(3.7)	(7.8)
Capital account balance (in per cent of GDP)	3.0	3.0	(3.3)	(0.6)	1.5	3.2
Financial account balance (in per cent of GDP)	(8.0)	(4.7)	(6.5)	(5.1)	(5.0)	(3.1)
Errors and omissions (in per cent of GDP)	1.3	0.9	0.0	0.0	0.0	0.0
Overall balance (in per cent of GDP)	1.6	0.7	8.8	6.2	2.8	(1.5)
Gross official reserves (in millions of U.S. dollars)	173.8	182.3	257.9	314.0	341.4	325.7
(In months of retained imports)	7.2	7.5	10.4	12.2	12.3	11.2
External central government debt (millions of U.S. dolla	156.9	171.4	169.6	175.3	219.0	270.0
(In per cent of GDP)	20.9	21.3	19.6	19.2	22.5	26.0
Miscellaneous						
Real effective exchange rate (average)	106.6	106.4	104.9	103.9	104.0	104.3
Nominal effective Exchange rate (average)	105.7	106.2	106.0	105.7	105.9	106.0
Exchange rate (Vatu per U.S. dollar; end of period)	93.6	91.7	91.0	92.5	93.5	94.4
GDP at market prices (in millions of Vatu)	70349.0	73696.2	78565.1	84023.3	90847.4	98205.1
Oil price (U.S. dollars per barrel)	193.0	194.4	184.9	180.2	175.9	171.7

Sources: Country Authorities, IMF and Macroeconomic Committee Estimates and Projections