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November 10, 2014

Approved By
Hoe Ee Khor (APD)

Prepared By Kum Hwa Oh

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AN ANALYSIS OF FISCAL POLICY

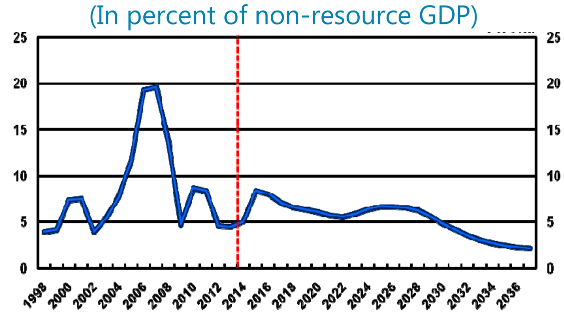
A. Introduction

1. **The government of Papua New Guinea (PNG) sharply relaxed its fiscal policy stance beginning in 2012 on expectation of significant revenue increases from a large scale liquefied natural gas (LNG) project.** Massive increases in expenditure on the key development "enablers"—health, education, infrastructure and law and order—occurred in 2013 and have continued in 2014. With the recent successful completion of the LNG project, the government continues to see expected revenue increases driving expenditure growth in these areas,

2. **This recent fiscal expansion has raised concerns about fiscal sustainability and effective use of resource revenues.** PNG's past record on these two fronts has been mixed, as much of the country's revenues derived from resources during the 1980s and 1990s were exhausted quickly and not used effectively to reduce poverty and support economic development. With the large fiscal expansion of the past two years, PNG's fiscal space has already been reduced significantly. Moreover, as the government rightly recognizes, the upcoming LNG resource revenues are not as large as many had believed (Figure 1).[1] Large increases in expenditure have also stretched PNG's limited capacity, raising questions on whether resource revenue can be used efficiently going forward if expenditure continues to outpace capacity improvement.

Figure 1. Resource Revenue Projection

(In percent of non-resource GDP)



Source: The PNG authorities, 2013 National Budget

3. **This note aims to shed some light on the sustainability of PNG's current and medium-term fiscal policy, and its consistency with government objectives.** The following section provides an overview of the evolution of PNG's fiscal policy over the past decade, followed by a brief review of the methodology used, which is largely based on the permanent income hypothesis. Section D presents the empirical results, and Section E concludes with policy implications.

B. Fiscal Policy Evolution in PNG

4. **After a financial crisis at the turn of the century, the government made a wide range of efforts to stabilize the economy and to undertake structural reforms.** In the fiscal policy area, the government took major steps toward fiscal consolidation, which was guided by two medium-

[1] The 2013 National Budget (p. 161) states that "The challenge in relation to resources is … that the resource boom in PNG previously peaked in the mid 2000s. Resource revenue as a percent of non-resource GDP has now fallen to levels below those experienced over the last 10 years."

term fiscal strategies (MTFS). The 2002–07 MTFS set the target for a balanced budget, which was achieved in 2004, three years ahead of schedule. The 2008–12 MTFS added rules to mitigate the fiscal impact of resource revenue volatility by imposing a ceiling of 8 percent of GDP on the non-resource budget deficit.

5. **The fiscal consolidation efforts proved to be a major success.** Government debt was brought down from 70.4 percent of GDP in 2002 to 22.3 percent of GDP in 2011. The successful fiscal consolidation was underpinned by two factors: (a) strong political commitment to macroeconomic stability, and (b) upward trends in resource prices. While expenditure was kept around 30 percent of GDP during the period, part of the windfall revenues from the resource boom was saved to reduce government debt.

6. **Despite these achievements, PNG continues to face major development challenges.** With the poverty incidence at around 40 percent and a Human Development Index ranking of 157 out of 187 countries (in 2013), PNG remains one of the poorest and least developed countries in the Pacific. Against this background, the government made a major shift in its fiscal policy in 2013, as reflected in the 2013-17 MTFS (Table 1). The operational rules for the non-mineral budget deficit were replaced by a ceiling of government debt set at 30 percent of GDP, except in 2013, 2014 and 2015, when it is capped at 35 percent.

Table 1. Medium-Term Fiscal Strategy

	2008-12 MTFS	2013-17 MTFS
Main objective	• Manage the highly volatile resource revenue • Allow for increases in development expenditure	• Support the Medium Term Development Plan • Maintain macroeconomic stability
Expenditure	• Allocate normal mineral revenue (equal to 4 percent of GDP) to spending (the 4 percent rule) • Allocate 70 percent of additional mineral revenue to public investment	• Allocate two-thirds of budget to key enablers by 2017
Deficit	• Cap the total non-mineral budget deficit at 8 percent of GDP	• Limit deficit to less than or equal to 2.5 percent of GDP from 2015 onward
Debt	• Allocate 30 percent of additional mineral revenue to debt repayment (the 70:30 guideline)	• Maintain a gross government debt to GDP ratio of less than 30 percent, except in 2013, 2014 and 2015, when the ratio is capped at 35 percent • Limit gross government liabilities to less than 60 percent of GDP

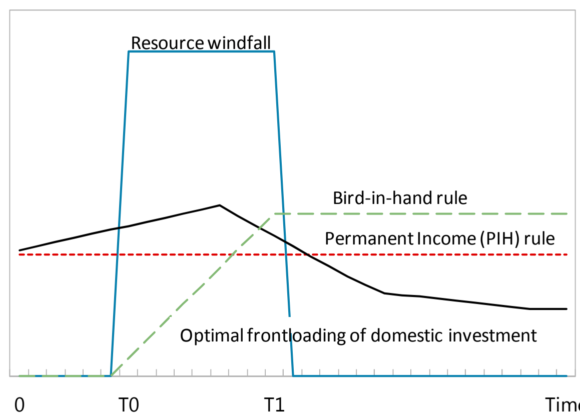
7. **Although the fiscal expansion began in 2012 (an election year), it accelerated significantly in 2013 and 2014**. The overall fiscal deficit amounted to 8.0 percent of GDP in 2013

and is projected to be 7.2 percent of GDP in 2014.[2] Central government debt, which had fallen to about 22 percent of GDP in 2011, rebounded to around 34 percent in 2013 and is expected to reach around 37 percent in 2014, breaching the 35 percent cap. Although the current debt ceiling for PNG appears to be low compared with most other frontier economies in Asia, it seems to be appropriate under current circumstances. Taking into account arrears to a superannuation fund and the financing of the government's share participation in resource projects, the country's debt burdens is much higher, with gross public debt and non-contingent liabilities expected to be about 51 percent of GDP at end 2014.[3] Moreover, resource revenues in PNG are very volatile owing to swings in commodity prices, inefficient tax regime and disruptions to supplies occasionally. The projected sharp increases in overall GDP as a result of the LNG project also do not accurately reflect the country's debt carrying capacity, as much of the resource rents will be used to pay foreign owners (that is, PNG's GNI is considerably lower than its GDP, by about 10 percent over the medium term).

C. Fiscal Frameworks for Resource-Rich Developing Countries

8. **The fundamental challenge for a resource-rich country is intertemporal decisions on how much of its resource wealth should be spent and how much should be saved,** with implications for intergenerational equity and long-term fiscal and external sustainability. What fiscal framework a country should adopt to meet this challenge depends on its circumstances. The most important factors for consideration in this regard are (i) the size and time horizon of resource revenue and (ii) capital scarcity (physical and human) in the country (Figure 2).[4] The country's characteristics can change over time, implying that the primary objectives of the fiscal framework could also change.[5]

Figure 2. Incremental Consumption from a Resource Windfall



[2] This deficit level is a little larger than officially reported, as staff figures include the expenditure from trust accounts, in which budget allocations are pre-assigned for longer-term development expenditure.

[3] The loans for the government's share participations include a UBS loan of A$1.2 billion contracted in 2014 for a share purchase in Oil Search and a Bank South Pacific loan of US$120 million also contracted in 2014 for participation in the Solwara 1 project.

[4] A common threshold for classifying countries as having a long reserve horizon is 30-35 years, or about one to two generations. A country can be considered resource-dependent when it derives about 20 percent of its revenues from natural resources. In the case of PNG, the resource horizon is highly uncertain but finite. Resource revenue has average 21.8 percent of total revenue over the past decade.

[5] For detailed explanation of relevant fiscal frameworks, see *Macroeconomic Policy Frameworks for Resource-Rich Developing Countries* (2012a, 2012b, 2012c).

9. **The permanent income hypothesis (PIH) approach has long been used to help formulate expenditure rules.** Under this approach, a country sustains a constant consumption flow equal to the (implicit) return on the present value of future natural resource revenue.[6] However, the PIH approach has been criticized for failing to take into account special circumstances in resource-rich developing countries, such as Senegal, Ghana, and Liberia.

10. **The distinctive characteristics of a developing country such PNG are low per capita incomes, limited access to international capital markets, and a scarcity of domestic capital.** This means that standard consumption-savings/investment analytics are not optimal, as they tend to pay too much attention to consumption smoothing rather than capital investment, which is often badly needed in a poor country and can generate high returns. Under these circumstances, some frontloading of domestic investment would therefore normally be part of an optimal development strategy.

11. **To meet PNG's development objectives and promote a stable macroeconomic environment, the fiscal policy framework will need to balance several key policy objectives, notably:** (i) long-term fiscal sustainability with temporary resource revenue flows; (ii) a gradual scaling up of growth-enhancing expenditure, taking account of absorptive and institutional capacity; and (iii) an adequate accumulation of precautionary savings.

D. Evaluating PNG's Fiscal Policy

12. **In this section, we use the frameworks described above to assess the appropriateness of PNG's fiscal stance, both during its recent expansionary period and under its medium-term fiscal strategy.** We begin our assessment using the standard HIP as the starting point and then relax the assumptions. The key fiscal indicator used to gauge the fiscal stance is the Non-Resource Primary Balance (NRPB), which we define as the amount of resource revenue in real terms to be transferred to budget every year permanently.[7]

$$(1)\ \sum_{t=1}^{N} \frac{\text{resource revenue}_t}{(1+\mathrm{i})^{\mathrm{t}}} + net\ wealth_0 = Present\ Value\ (PV) = \sum_{t=1}^{\infty} \frac{NRPB_t}{(1+\mathrm{i})^{\mathrm{t}}}$$

$$(2)\ NRPB_t = (1+\pi)^{\mathrm{t}}\ NRPB_0$$

[6] As a stricter rule, the bird-in-hand approach allows only interest income from already extracted resources to be consumed.

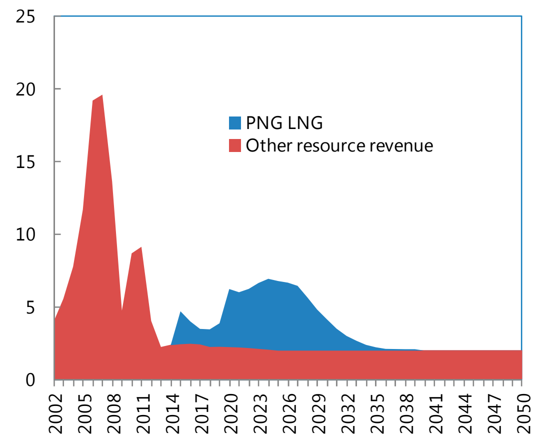
[7] Under the PIH, the NRPB can be calculated using different criteria. If the resource revenue transfer is aimed at ensuring constant real per capita each year, equation (2) is replaced with $(1+n)^t(1+\pi)^t NRPB_0$. Since the results from this calculation are qualitatively similar, we do not report them here.

13. **The following assumptions are made in calculating the NRPB indicators:**

- NRGDP growth rate (g) = 4.5 percent;
- Inflation rate (π) = 5.0 percent; and
- Real interest rate (r) = 5 percent.

Meanwhile, projections of resource revenue up to 2019 are based on commodity price projections in the October 2014 WEO baseline and export volumes projections in PNG's 2014 Budget. From 2020 onward, LNG revenue is assumed to be the same as projected in the 2013 Budget. The other resource revenue is assumed to be 2 percent of non-resource GDP until 2050. [8]

Figure 3. Resource Revenue Projection
(In percent of NRGDP)



The 2013-14 Fiscal Expansion

14. **It is estimated that the present value (PV) of PNG's total resource revenue amounts to 95 percent of its NRGDP at end 2012.** If government debt (35 percent of NRGDP at end 2012) is subtracted from the PV, the net PV was equivalent to 60 percent of NRGDP at end 2012. If the value of net wealth at end 2012 is allocated under the PIH approach, the sustainable NRPB deficit in 2013-14 averages 1.1 billion kina a year (3.5 percent of NRGDP). Under these conditions, PNG's net financial wealth stabilizes at about 25 percent of NRGDP in 2050.

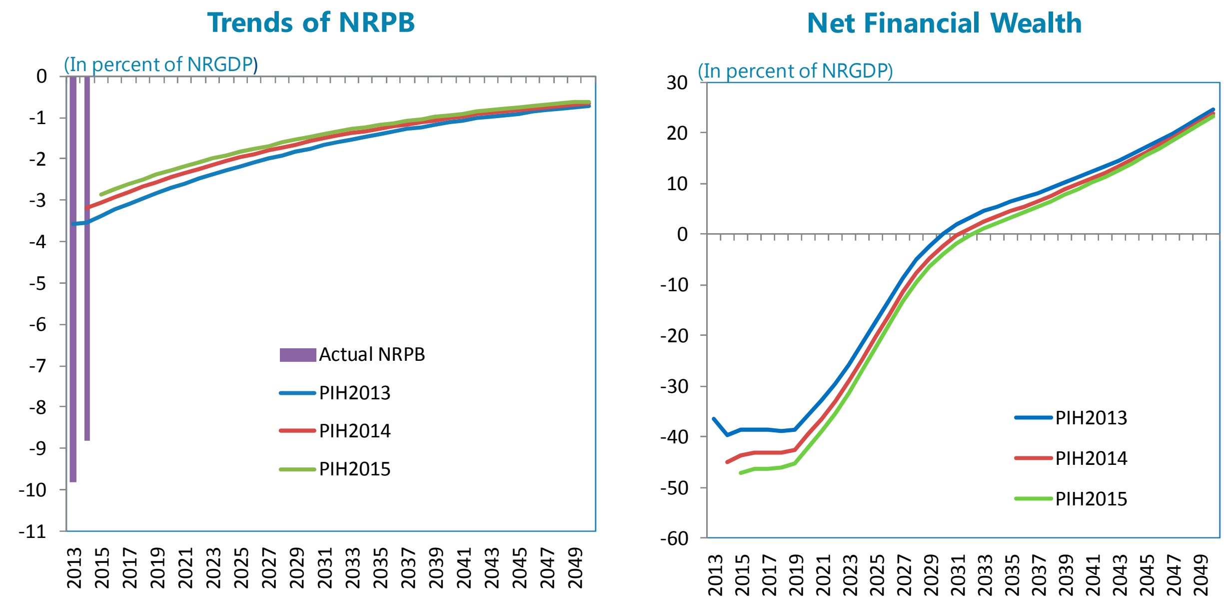
15. **Based on these PIH results, the 2013-14 fiscal stance appears to be overly expansionary.** The 2013 budget deficit was more than twice the PIH NRPB level. If the government keeps spending in line with its 2014 Budget, the deficit will be about twice the sustainable NRPB deficit (Figure 4). As a result, the net PV of the resource revenue would fall to 48 percent of NRGDP at end 2014. The remaining net PV could only support an NRPB deficit of 2.8 percent of NRGDP in 2015—0.5 percentages points of NRGDP less than under the end-2012 wealth.

16. **While part of the recent fiscal expansion could be regarded as desirable frontloading, data weaknesses make it difficult to assess the optimal level of expansion.** This assessment would require estimates of the impact of frontloaded investment on income growth and government revenue. Anecdotal evidence suggests that the massive increases in expenditure over

[8] Since 2013, the metal prices have declined by about 5 percent, but fuel prices have been broadly stable. Given this, the long-term LNG revenue projections in 2013 remain appropriate. The assumption of the other resource revenue reflects the government projections (Figure 1) and the recent share (2.2 percent of GDP in 2013). With a heavy discount, resource revenue is assumed to be negligible after 2050.

the past two years have led to major delays and cost overruns in project implementation, including at the sub-national levels. This casts doubt on the effectiveness of increased investment even though the potential rate of return on public investment is high.

Figure 4. NRPB and Net Financial Wealth by PIH



Note: PIH2013, PIH2014, and PIH2015 respectively stand for locus of the NRPB and the government cumulative saving which are calculated with the net present value at the beginning of each year. The difference between lines shows the impact of the excess deficit over NRPB.
Source: IMF staff estimations.

Medium Term (2015-19)

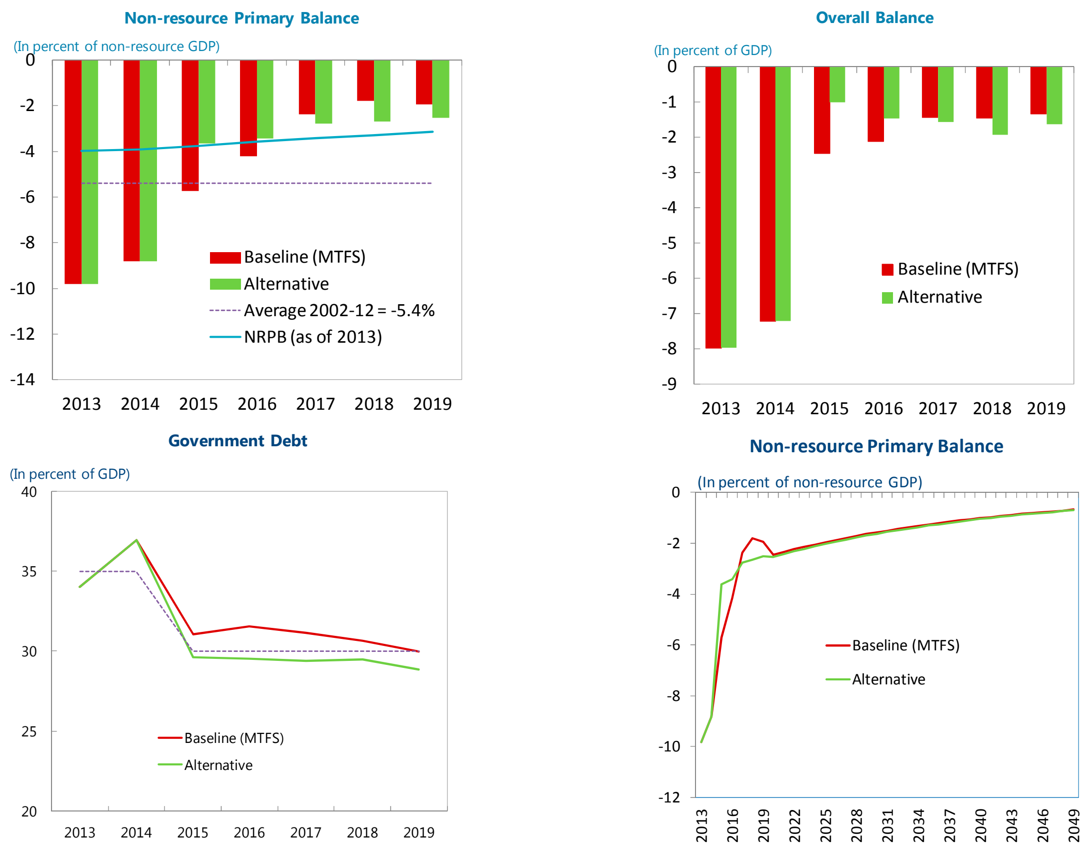
17. **The same analytical framework is used here to analyze PNG's fiscal policy in the medium term.** Our starting point is the government's medium-term fiscal projection outlined in 2014 Budget. In making this assessment, we have updated revenue projections based on the latest WEO commodity price forecasts, recent mining sector tax collection, and our growth outlook. Under the government's medium-term projections, the overall fiscal deficit is projected to decline over time from 8.0 percent of GDP in 2013 to 1.5 percent of GDP in 2018.

18. **In addition to the MTFS projections (the baseline), we also simulate an alternative scenario**, which aims to (a) keep the debt to GDP ratio below the government-set ceiling, (b) maintain net wealth above 20 percent of NRGDP, and (c) ensure a smooth transition to a sustainable NRPB beyond the medium term. Under this scenario, expenditure is assumed to increase by 18 percent in 2014, in line with past development budget execution ratios. This means that any resources allocated under the budget that cannot be spent properly should be saved for future use. From 2015 onwards, expenditure is assumed to increases by about 4 percent annually.

19. **Simulation results show that under the MTFS scenario the government deficit does not decline fast enough for the debt-to-GDP ratio to stay below the debt ceiling over the medium**

term. Moreover, based on the estimated ratio of NRPB to NRGDP under the PIH, fiscal policy during 2015 under the MTFS remains expansionary (Figure 5). In contrast, the alternative scenario would allow the government to stay below its debt ceiling over the medium term and smoothly transition to a sustainable fiscal path over the longer run under the PIH.

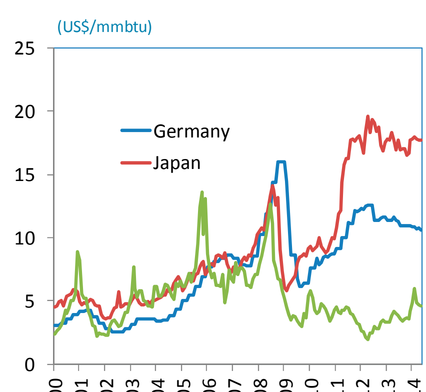
Figure 5. Government Balance Projections



Source: IMF staff calculations.

20. **These results are quite sensitive to some key assumptions, one of which is commodity prices.** Current developments in the global LNG markets present considerable downside risks to LNG prices. PNG supplies LNG exclusively to Asian markets. At present, prices in these markets are considerable higher than those in North America and Europe (Figure 6). With the U.S. poised to export more shale gas in the coming years and Australia developing large gas fields, it is likely that LNG prices in Asia will decline relative to other regions.

Figure 6. Natural Gas Prices

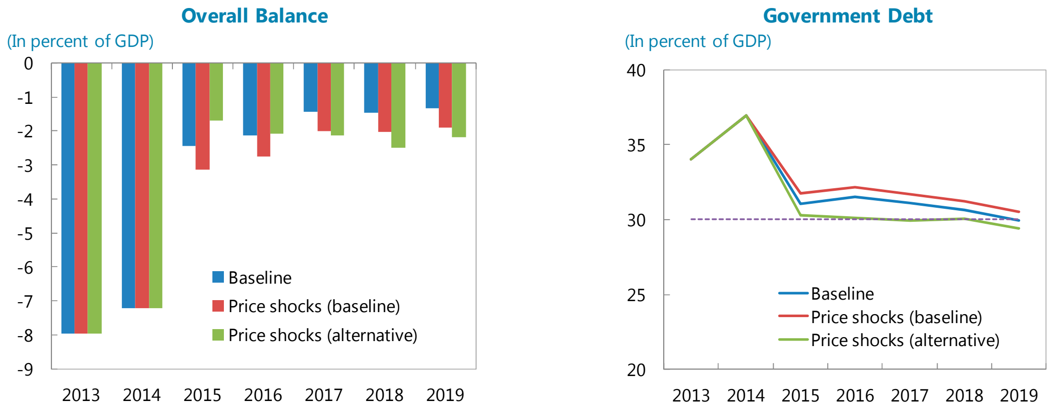


Source: IMF, Commodity Market Monthly

21. **To gauge the impact of price declines on PNG's future fiscal stance, we conduct sensitivity analysis, assuming a 10 percent drop in resource prices.** Of course,

declines in resource prices would affect other economic activities and thus have second-round effects on the fiscal balance. However, for simplicity, we consider only the direct effects from resource revenues. The results of this sensitivity analysis indicate that for each 10 percent decline in commodity prices, the fiscal deficit and debt-to-GDP ratios would deteriorate by 0.6-0.7 percentage points of GDP (Figure 7). Under the baseline scenario, the debt-to-GDP ratio breaches the 30 percent ceiling and stay above 30 percent in 2019. In contrast, under the alternative scenario, the ratio stays within the ceiling at 29.4 percent in 2019.

Figure 7. Government Deficit and Debt under Commodity Price Shocks



Source: IMF staff calculations.

E. Summary and Policy Implications

22. **The PNG government faces major challenges in shaping a fiscal policy that promotes stability, meets development needs, and adheres to its debt ceilings over the medium term.** It could decide to continue with its current fiscal stance, which would see its resource wealth exhausted quickly through large development spending. In the event, this approach would likely require continued borrowing and leave little savings for future generations. The government's MTFS indicates that a balance must be struck between current and future development needs. However, even with a seemingly rapid fiscal consolidation over the medium term, the implicit underlying fiscal stance appears to be expansionary given the resources already used in 2012-14, with remaining resource wealth being able to support only lower fiscal deficits going forward than specified in the MTFS. If the main consideration of this MTFS is to meet the immediate needs of the current generations and build up the country's capital stock to the benefit of current and future generations, then this strategy must ensure that frontloaded expenditure is effectively used to accumulate human and physical capital in support of higher growth. However, acute capacity constraints, as noted earlier, call for a gradual scaling up of spending rather than a continuation of the sharp increases witnessed during 2013-14.

23. **If the government decides to leave a significant portion of the country's resource wealth to future generations and adhere to its debt ceiling, it will need to further reduce deficit targets set in the MTFS 2013-17.** This change is necessary not only because the 2013-14

fiscal expansion has used up a significant portion of resource wealth, but also because there is the risk that future commodity prices—especially LNG prices—may come under further downward pressure, which might reduce the value of PNG's resource wealth. With this risk and intergenerational considerations in mind, the government should focus its attention on making efficient use of resource revenues coming on stream and ensuring sufficient savings for future generations.

References

Baunsgaard, Thomas, Mauricio Villafuerte, Marcos Poplawski-Ribeiro, and Christine Richmond, 2012, "Fiscal Frameworks for Resource Rich Developing Countries," IMF Staff Discussion Note, SDN/12/04.

International Monetary Fund, 2012a, "Macroeconomic Policy Frameworks for Resource-Rich Developing Countries"

_______, 2012b, "Macroeconomic Policy Frameworks for Resource-Rich Developing Countries-Background Paper 1-Supplement 2"

_______, 2012c, "Macroeconomic Policy Frameworks for Resource-Rich Developing Countries-Analytic Frameworks and Applications-Supplement 2."

Ossowski, Rolando, Mauricio Villafuerte, Paulo A. Medas, and Theo Thomas, 2008, "Managing the Oil Revenue Boom: The Role of Fiscal Institutions," International Monetary Fund Occasional Paper 260.

Papua New Guinea Department of Treasury, 2012, 2013 National Budget.

_______, 2013, 2014 National Budget.