June 2003
IMF Country Report No. 03/176

Papua New Guinea: Selected Issues and Statistical Appendix

This Selected Issues paper and Statistical Appendix for **Papua New Guinea** was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on **April 25, 2003**. The views expressed in this document are those of the staff team and do not necessarily reflect the views of the government of **Papua New Guinea** or the Executive Board of the IMF.

The policy of publication of staff reports and other documents by the IMF allows for the deletion of market-sensitive information.

To assist the IMF in evaluating the publication policy, reader comments are invited and may be sent by e-mail to publicationpolicy@imf.org.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
700 19th Street, N.W. • Washington, D.C. 20431
Telephone: (202) 623 7430 • Telefax: (202) 623 7201
E-mail: publications@imf.org • Internet: http://www.imf.org

Price: $15.00 a copy

International Monetary Fund
Washington, D.C.

INTERNATIONAL MONETARY FUND

PAPUA NEW GUINEA

Selected Issues and Statistical Appendix

Prepared by Peter Berezin and David W.H. Orsmond (both APD),
and Arend Kapteyn (PDR)

Approved by the Asia and Pacific Department

April 25, 2003

Contents — Page

Boxes

Figures

Tables

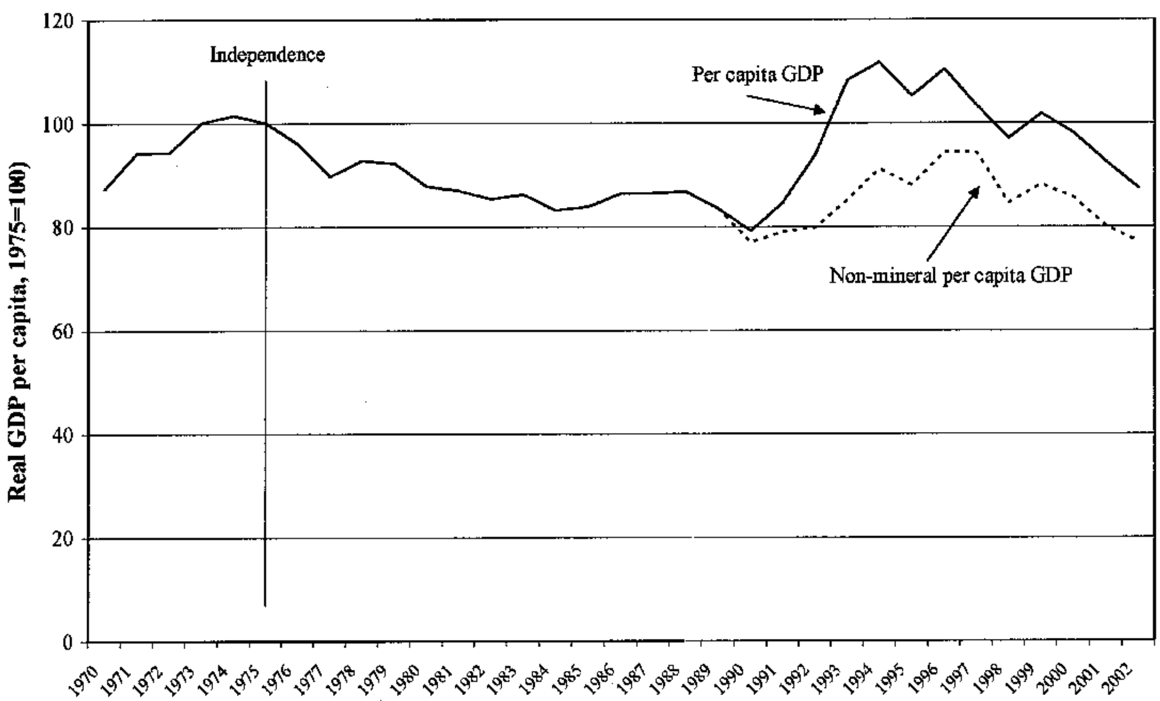
Annex

Statistical Appendix

I. IMPEDIMENTS TO GROWTH[1]

1. Since the end of the mining- and petroleum-induced boom in the mid-1990s, per capita GDP in Papua New Guinea has contracted. The pace of the decline accelerated in 2000–02, when aggregate real GDP decreased by a cumulative 8 percent. At end-2002, per capita real GDP is estimated to be about 10 percent lower than at the time of independence in 1975 (Figure I.1). Furthermore, social and poverty indicators remain poor, with average life expectancy 20 years below, and infant mortality 10 times above, those in Australia.

Figure I.1. Real GDP per Capita, 1970-2002



2. This paper surveys the main reasons for Papua New Guinea's disappointing economic performance, highlighting the key impediments to growth in each of the main sectors of the economy. The paper also outlines the structural reforms that could help reduce these impediments, in order that Papua New Guinea makes progress toward poverty alleviation and the restoration of sustainable development.

[1]Prepared by Peter Berezin (ext. 38169).

A. Sectoral Challenges

Mineral and petroleum sectors

3. Papua New Guinea has substantial deposits of gold, copper, oil, and natural gas. Foreign companies have undertaken nearly all of the mining activity, and there are few downstream linkages since most mines operate as isolated enclaves. Nevertheless, the mineral sector in the past has yielded significant fiscal revenues for the government that have averaged around 5 percent of GDP a year. In the early 1970s, the Bougainville copper mine generated nearly a third of the national income, contributing to the rapid growth experienced prior to independence. In the 1980s, mineral production was bolstered by the opening of the Ok Tedi mine and the discovery of petroleum and natural gas reserves in the Highlands region. The Kutubu oil fields, as well as the Porgera and Misima gold mines, went on-stream in the early 1990s, just in time to replace the revenue that was lost in the aftermath of the violence and consequent collapse of the Bougainville mine in 1989. Since then, however, new exploration activity has largely dried up, and no new major projects are expected to open in the foreseeable future. Consequently, fiscal revenues are expected to decline to just 2 percent of GDP a year by 2008.

4. The geographic isolation of Papua New Guinea's resources implies a high extraction cost in addition to the usual capital intensity of mining activity. Given these significant costs, the level of mining and exploration activity has been particularly sensitive to law and order problems, especially in the Highlands region where most of the deposits are located. The collapse of the Bougainville mine, the withdrawal of the foreign owners of the Ok Tedi mine due to ongoing disputes over land use and alleged environmental pollution, and more recently, the felling of power pylons near the Porgera mine by disgruntled landholders and the disruption to transportation from the Kutubu oil fields, have reinforced Papua New Guinea's image as a relatively high-risk country for large-scale mining investment in the Pacific region.

5. The law and order difficulties faced by the mining and petroleum sectors can be traced to community-based property rights over land, an inefficient court system, and political instability (see Box I.1), all of which have fueled myriad compensation claims from loosely defined landowner groups. The notion of "compensation" has deep historical roots in Melanesian culture. Compensation was traditionally based on gift giving and the asking of forgiveness, often within the context of a feast that brought feuding parties together. In recent generations, however, this traditional system has been replaced by a system in which monetary payments are demanded to redress alleged losses. Since it is typically difficult to precisely assign blame and quantify the loss to the injured party, protracted battles (often legal, but sometimes physical) have ensued over compensation claims.

6. The absence of clear property rights has impeded foreign direct investment in the mining sector. In some cases, the government has been able to assist companies that wish to lease land, but even in these instances, the legitimacy of many lease contracts has been subject to dispute. Mining companies that wish to tap into Papua New Guinea's abundant

resources must negotiate with numerous landowner groups, and it is expensive and time-consuming to reach an agreement with all parties. In addition, negotiations can suffer if some groups hold out for a larger payment. By demanding more compensation, each landowner group imposes a negative externality on the other groups with the result that the viability of the whole project can be threatened.

Box I.1. Governance Issues

Papua New Guinea's struggle to improve governance has been exacerbated by political instability, which has manifested itself in the rapid turnover in Parliament of elected members and political parties. In the 2002 elections, almost 3,000 candidates competed for 109 seats in Parliament. Candidates elected rarely represent a majority of the electorate of their district, and in practice often do not serve more than one term in office. Of the 109 incumbent parliamentarians, 80 lost their seats, including most of the members of Sir Mekere Morauta's cabinet. The 2002 elections were also marred by widespread vote-rigging, intimidation, and other irregularities (in some districts, the number of votes cast exceeded by more than two times the number of people of voting age). The ensuing violence led to the death of over 30 people in the Southern Highlands area, resulting in the cancellation of elections in several districts.

Furthermore, political parties are typically formed on the basis of personal and tribal allegiances (especially to one's *wantok*, or extended family) rather than overriding ideological views, and thus the reshuffling of alliances among political leaders is common. As a consequence, it has been difficult to undertake long-term planning since political parties rarely stay in power long enough to implement, and hence be held accountable for, their election promises.

The previous government passed legislation aimed to stabilize the political system. The Organic Law on the Integrity of Political Parties and Candidates introduced, among other reforms, some proportional representation, registration of political parties, state funding of political parties, and penalties against switching parties during a parliamentary term. The legislation is intended to engender more stability in government policy and planning.

Forestry

7. Papua New Guinea has the second largest rainforest in the world. Logging is a major industry and generates about 1–2 percent of GDP annually in the form of export duties. However, due to ambiguous property rights and poor governance, the forestry sector has been plagued by unsustainable practices. Since logging companies cannot buy communal land, they rely on temporary (and often rescindable) logging rights in defined areas. As a result, they have little incentive to maintain the value of the land by taking measures such as replanting trees and avoiding environmentally damaging practices that would enhance the resale value of the land.

8. The absence of property rights over land would not be an insurmountable problem if a strong regulatory regime existed that could supervise the logging industry to ensure sustainable development (as is the case in Canada, where most forestry land is leased by the government to private operators). However, poor governance and law and order problems in Papua New Guinea have impeded the creation of such a regime, although the present government has affirmed its intent to better regulate this sector.

Tourism

9. Tourism offers much potential for Papua New Guinea. The country has coral reefs that are home to five times as many fish species as in the Caribbean; numerous opportunities for trekking, surfing, white-water rafting, and bird watching; a rich culture that encompasses nearly a third of the world's languages; as well as proximity to the Australian and Japanese markets. Despite all these advantages, only 50,000 tourists visit Papua New Guinea annually (compared with 600,000 tourists each year in Fiji) due to concerns about law and order, inadequate facilities, and sparse infrastructure, particularly in the scenic outlying areas. Furthermore, the lack of property rights over land has made it difficult to build "enclave all-inclusive" resorts that are popular in such regions as the Caribbean. The Papua New Guinea Tourism Promotion Authority (TPA) has been working with the provincial governments to establish Papua New Guinea as a destination for eco-tourism and to enhance the image of the National Capital District as the gateway, although success thus far has been limited.

Agricultural sector

10. More than 85 percent of the population lives in the rural areas, and most are dependent on subsistence activity. Coffee, which grows well in the temperate Highlands regime, is the main cash crop. Development of the formal agriculture sector has been impeded by the deterioration of roads due to an inefficient allocation of development expenditure, especially for feeder roads which fall under the responsibility of the provincial governments, and by roadside bandits (it has been estimated that 20 percent of coffee production is stolen in highway hold-ups). Both of these factors have limited the opportunity for farmers to bring goods to market.

11. Although several large palm oil estates, mainly in New Britain, continue to flourish, large scale coffee plantations have virtually disappeared. The collapse of large-scale farming in Papua New Guinea can be traced back to the country's land tenure system and ongoing security problems, especially in the Highlands region where coffee is grown. Unlike smaller "village" plots, it is expensive to secure plantation land. Although stealing crops from neighboring villages is considered reprehensible, theft from plantations, which are typically run by non-Melanesians, reportedly carries less stigma. As a result, land holdings tend to be very small and do not benefit from scale economies and modern management practices.

Urban sector

12. Although the vast majority of people in Papua New Guinea live in rural areas, urban centers in general, and Port Moresby in particular, have grown rapidly since independence.

However, limited employment opportunities in the formal urban sector have resulted in growing unemployment. According to BPNG's employment index, total private nonmining formal sector employment on average declined by nearly 1 percent annually since 1996, and the rate of decline in private employment has accelerated over the past two years. This deterioration has occurred in all regions of the country, and the construction and transportation sectors have experienced the biggest declines.

13. The consequent squatter settlements around existing urban areas, especially in Port Moresby, have become associated with criminal activity. Since 1990, serious crimes reported to police have increased substantially although many crimes (especially sexual assaults) go unreported. These law and order problems impose a significant cost on private businesses. While Duncan and Lawson (1997) estimate that the direct costs of security in Papua New Guinea represent about 3 percent of total business costs, "indirect costs" are probably far greater.[2] In particular, estimates of direct security costs understate the actual cost to the economy since they focus only on existing businesses, and not the businesses that would have formed if security costs were lower. High security costs also limit the geographical vicinity in which businesses can operate, the times at which they can operate (when business owners are reluctant to operate after dark), and the scale and capital intensity of operations.

14. In addition to problems with lawlessness, the growth of private employment has been hamstrung by a shortage of available land and high unit labor costs. Although detailed data on commercial and residential real estate prices are not available, prime real estate land in Port Moresby is expensive. Furthermore, to avoid landowner disputes, several businesses have had to establish themselves on reclaimed land in the Port Moresby harbor which has added to the cost of business. Additionally, unit labor costs in Papua New Guinea are higher than those in other Asian countries. Duncan and Lawson estimate that unit labor costs averaged 80–100 percent of those of the United States for the period 1970–94, compared to 40 percent for the Philippines and Malaysia. Although the real depreciation of the kina over the past few years has lowered labor costs while inflation has eroded the real value of the minimum wage so that in most cases, it is no longer binding, sustained decreases in unit labor costs in the future will require stronger productivity growth and greater labor market flexibility.

15. The lack of entrepreneurial experience among the Melanesian population has further impeded the growth of urban industries. Many businesses continue to be owned and managed by ex-patriots, which represent less than 1 percent of the population. The paucity of Melanesian owned businesses reflects the lack of ethnic business networks, which in most countries are important in nurturing small businesses, low levels of education, and the limited experience that much of the population has in dealing with markets. As a result, many of the best workers have been drawn to the public sector and state owned enterprises, thus limiting

---

[2]Duncan, R. and T. Lawson, 1997. "Cost Structures in Papua New Guinea," Institute of National Affairs, Port Moresby.

the pool of skilled workers that are capable of establishing successful private firms. In addition, the *wantok* system, which obliges members of a wantok to share wealth with their extended family, imposes a high *de facto* marginal tax on wealth accumulation, thus limiting the pecuniary incentive to entrepreneurial risk-taking.

B. The Way Forward

16. Reviving growth prospects, generating higher private sector employment, and alleviating poverty are the main policy challenges in Papua New Guinea. The government has two broad roles to play. First, it needs to ensure that a framework is put in place that preserves macroeconomic stability in order to facilitate the development of private sector activity. Against the background of the decline in mineral receipts in the coming years, the authorities' macroeconomic framework envisages a budget deficit of around 1 percent over the medium term in order to keep inflation low, the exchange rate broadly stable, and the debt-to-GDP ratio on a declining path. Second, the government needs to address the deep-seated structural impediments to growth in each sector of the economy. Since these impediments are intertwined and mutually reinforcing, a comprehensive approach to structural reform is necessary, which will require sustained and ambitious actions by the authorities. Nonetheless, given the enormity of the challenge that the present government faces, achieving significant progress in these difficult areas is likely to take considerable time. The main areas for reform are outlined in the remainder of this chapter.

17. While there is still much work to be undertaken, Papua New Guinea has begun to address the *law and order* problems that must be overcome to revive growth and reduce poverty.[3] This will require an active government policy to discourage predatory, or rent-seeking, behavior while augmenting the incentive to engage in productive employment. Tensions in Bougainville have been steadily abated as the government has worked with local leaders to redraft the constitution in order to grant more autonomy to the province. The government has called for fresh elections in those areas of the Highlands in which voting during the 2002 election broke down, while augmenting the police presence there to preclude another breakdown of law and order. Furthermore, with the assistance of AusAID, the Papua New Guinea defense force is being re-organized following several mutinies, and efforts are

[3]Although law and order problems often seem intractable, at a deeper level, they reflect perverse incentives that sometimes make "predation" more rewarding than "wealth creation." Varieties of theoretical models suggest that more than one equilibrium may exist in determining what fraction of a population engages in "wealth creation" and what fraction engages in "predation." The key feature of these models is a feedback mechanism that locks a society in either a "good" or "bad" equilibrium. A "good equilibrium" is one in which most people find it in their best interest to engage in wealth-creating activities. Thus, if most of one's neighbors are wealth creators, a person is unlikely to have their wealth expropriated and is more likely to become a wealth creator themselves. See, for example, Grossman, H., 1998, "Producers and Predators," Pacific Economic Review, 3(3), pp. 169–187.

continuing to improve the constabulary. There has also been discussion of strengthening Papua New Guinea's traditional tribal justice system which is simpler and less expensive to administer, and in many parts of the country carries more legitimacy than the modern system.

18. The introduction of a modern system of *land tenure* has the potential to significantly expand activity in the mining, agriculture, and forestry sectors, as well as boosting tourism. At present, "customary" land, which accounts for 97 percent of all land, can not be bought or sold, which has been a major impediment to growth (Box I.2). Furthermore, with a population growth rate among the highest in the South Pacific, demographic pressures have heightened the need to clarify land ownership. Young people, no longer able to make a living on their ancestral land, have moved to urban centers, and as many as 100,000 people in Port Moresby are now living on untitled land in settlements and surrounding areas.

19. In recognition of the potential benefits of land reform, the government has on several occasions tried to establish a land registry system. It was hoped that creating a database of land claims would facilitate the transfer of communal land into private hands. However, popular opposition to land reform has thwarted the creation of a registry, and the vast majority of customary land remains unmapped. This reflects in large part popular concern that the new registry system could be used to shift communal land into the hands of elite members of society, thus dispossessing the current inhabitants of their land. As a result, achieving a successful land reform will require good governance.

Box I.2. The Benefits of Land Reform

Proponents of land reform note a variety of mechanisms by which customary land tenure retards economic growth:

- In the absence of a formal land title, control of customary land is associated with insecurity since ownership, use, and succession of land is determined not by a formal written record, but by oral tradition and the judgments of tribal elders. This insecurity has the potential to exacerbate law and order problems as different groups compete for control of the land.

- Customary land tenure also reduces the incentive for landholders to improve their land since the cost is largely borne by the individual landholder while the benefits (typically in the form of higher agricultural yields) are shared with the entire community.

- The inability to use land as collateral prevents the development of rural credit markets and new investment, a problem that is especially acute when land is the only potentially marketable asset that rural people hold.

20. While land reform would facilitate an increase in agricultural output, the poor quality of *rural development expenditure*, particularly with respect to rural transportation, has

impeded the ability of farmers to bring their crops to market, which in turn has increased rural poverty. It has also weakened the credibility of government policy and exacerbated the law and order problem as rural inhabitants, who may feel that the fiscal benefits from resource projects in their vicinity are not passed back to them by the national and subnational levels of government in ways that can augment their economic opportunities, pursue compensation claims directly against resource developers.

21. The government has committed itself to significantly increasing rural infrastructure spending as part of its strategy to develop new agricultural exports, as well as enhancing the prospects for the traditional exports of coffee, palm oil, copra, and cocoa. For its part, the World Bank has approved additional funds for highway and feeder road development.[4] The provincial governments, which are responsible for the construction and maintenance of feeder roads, will also need to ensure that outlying communities have better access to the major roads.

22. The lack of *good governance* has weakened efforts to improve the land tenure system, exacerbated problems in the forestry sector, prevented the development and enforcement of an appropriate institutional and legal setting, and impaired the delivery of social services, especially in rural areas.[5] The government has begun to take steps to curtail opportunities for corruption by establishing the Independent Public Business Corporation (IPBC) to manage government assets at an arms length from the political process, pledging to establish an Independent Commission against Corruption (ICAC), and having public hearings into past misdealings in the administration of the National Provident Fund and in the sale of PNG Banking Corporation to Bank South Pacific. Furthermore, the World Bank has recently begun to assist the authorities in modernizing procurement procedures, with the aim of improving transparency, reducing waste, and curbing informal payments in procurement contracts.

23. Finally, *microeconomic reforms* are necessary to support private sector activity, especially in the agricultural sector and among small and medium-sized enterprises in urban areas. Additional progress will be needed to reduce the size of the government bureaucracy

---

[4]Evidence from other developing countries suggests that that the return from shifting infrastructure budgets away from high-profile new projects and focusing more on maintaining existing infrastructure can be large. Hulten (1996), for example, finds that inadequate maintenance of existing infrastructure imposes a large growth penalty on developing countries, and that there is no evidence that countries incur a growth penalty if they decrease spending on new infrastructure projects. See Hulten, C., 1996, "Infrastructure Capital and Economic Growth: How well you use it may be more important than how much you have," NBER Working Paper No. 5847.

[5]See, for example, Institute of National Affairs Institutional, 1999, "Obstacles to Doing Business in Papua New Guinea."

and the amount of red tape. The establishment of an Independent Consumer and Competition Commission (ICCC), which has been granted greater responsibility for adjusting controlled prices (including for utilities) and for implementing new competitive laws that come into force in May 2003 is a welcome development. Further, the expected establishment of a "one-stop shop" to streamline license approval for new investment and to grant work permits and visas more liberally would also be a step forward. Training program to support entrepreneurship as well as expanded use of microfinance projects and greater labor market flexibility could also be useful in fostering private sector growth. Moreover, policies that stimulate the private sector and thereby reduce unemployment will likely lead to substantial improvements in law and order, which will in turn further stimulate private sector activity.

C. Conclusion

24. Papua New Guinea benefits from a democratic heritage, robust civil liberties, a rich culture, a free-press, and an independent judiciary. These elements, combined with large endowments of natural resources, substantial grant flows, and proximity to the Australian and Asian markets, have the potential to serve as a springboard to high levels of sustainable growth. However, to underpin robust rates of growth and make strong inroads towards poverty alleviation, sustained actions will be needed across a wide range of structural reforms while maintaining macroeconomic stability in the face of changing economic circumstances. Although undertaking such actions will not be easy, and achieving significant results is likely to take considerable time, any delay will further undermine the prospects for economic recovery.

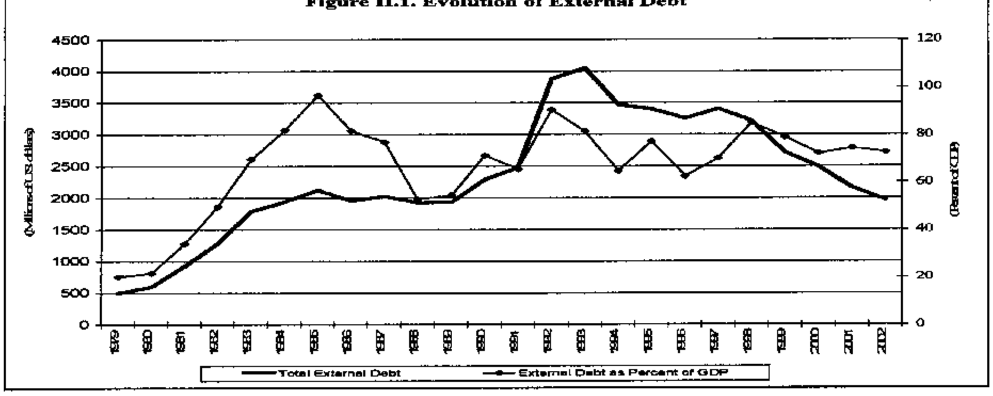
II. External Debt Sustainability Analysis[1]

1. **The evolution of Papua New Guinea's private and public external debt has been closely tied to developments in the mining and public sectors.** Until the 1970s, the economy was almost entirely agriculture based and the limited foreign financing needs were met largely through concessional project financing. This changed markedly with the discovery and exploration of large mineral deposits (gold, copper, and oil) in the 1960s and 1970s. This note describes the evolution of Papua New Guinea's external debt structure, and assesses the sensitivity of debt dynamics to a number of shocks based around the methodology outlined in the recent *Assessing Sustainability* paper (SM/02/166). Additional stress tests are conducted that are particularly pertinent to this economy.

A. Evolution of External Debt

2. **Over the last two decades, Papua New Guinea has evolved from a country with low levels of external debt to one where debt dynamics are a source of concern.** At the end of the 1970s, external debt levels hovered around $500 million dollars, or around 20 percent of GDP. By the end of 2002, total external debt is estimated to have quadrupled to almost $2 billion, or 72½ percent of GDP. The underlying trends for private and public debt have been quite different. Private external debt—virtually nonexistent at the beginning of the 1980s—increased to a peak of 63 percent of GDP in 1992, but has since declined sharply along with the life-cycle of mineral projects (to around 18 percent of GDP at end-2002). Public external debt (defined as central government plus central bank debt, excluding contingent liabilities), in contrast, has been rising steadily (in U.S. dollar terms) since the early 1980s although the debt-to-GDP ratio has risen more sharply since the mid-1990s as the effect on GDP of price, exchange rate, and economic growth changes has not been offset by debt amortization payments. These trends are discussed in more detail below.

Figure II.1. Evolution of External Debt



[1]Prepared by Arend Kapteyn (ext. 39809).

3. **The construction and subsequent production at new mines (or oil fields) has major implications for the composition of balance of payments as well as the debt stock.** Projects are operated and financed largely by foreign investors, with the government often participating as an equity shareholder. Because the operation is financed mainly by foreign capital, capital inflows increase in the project's construction phase to finance the importation of material and equipment and domestic expenditures on goods and services (with the main impact on the construction, transportation, and manufacturing subsectors). These large-scale inflows are mirrored by a large current account deterioration, leaving the overall balance of payments largely unaffected. As the production phase commences, capital inflows decline as does expenditure on imports and domestic goods and services. At the same time, production boosts export volumes, but factor income payments also increase, reflecting the payment of interest on loans used to finance the project and dividends on foreign-owned equity.

4. **Large-scale capital inflows for the construction phase of projects have tended to be accompanied by substantial foreign direct investment, although it is difficult to discern a clear pattern.** For instance, during Ok Tedi's construction, debt-creating flows outpaced foreign direct investment, but this pattern was less clear for projects constructed during in the 1990s. Data limitations hinder a fuller examination of these financing flows. Inconsistencies between balance of payments data on projected amortization flows during 2003–08 (received directly from mining companies) and estimates of the current level of private debt stocks indicate that a substantial proportion of past private capital flows may have been misclassified as nondebt creating flows, and/or that a proportion of private flows has by-passed balance of payments statistics altogether.[2]

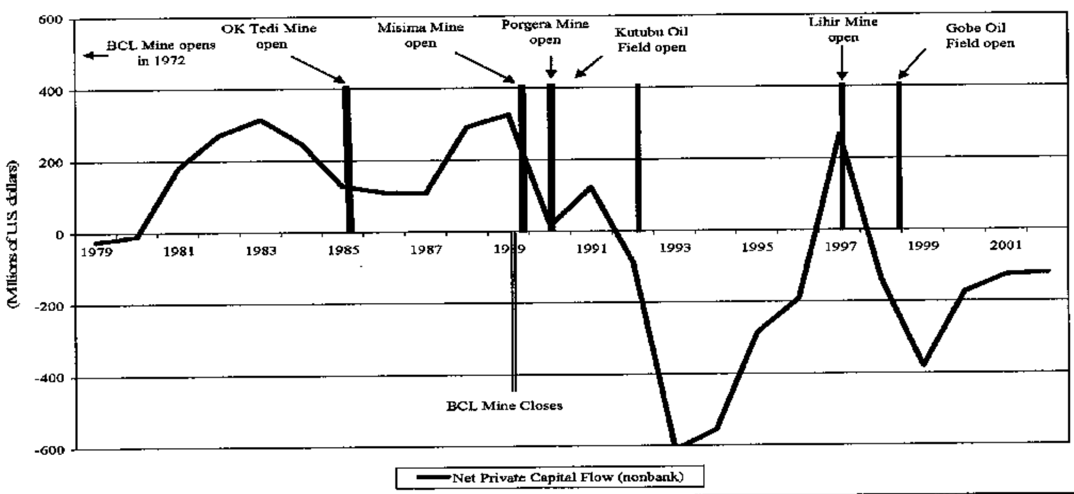
5. **Five phases can be distinguished in the period reviewed here**: (i) the initial sharp increase in private and public external debt (1979–85) associated, respectively, with large-scale investment needs of the Ok Tedi mine and a sharp increase in fiscal deficits in the early 1980s; (ii) a rapid decline of external debt levels (1986–88) as fiscal consolidation coincided with large Ok Tedi debt repayments; (iii) a renewed increase in both private and public debt (1989–92) related to investments in the Misima and Porgera mine and the Kutubu oil field, as well as multilateral and bilateral assistance to deal with the economic fallout of the Bougainville crisis; (iv) a decline in private external debt (1993–97) as loan repayments for completed mineral projects outweighed new investments and; (v) a renewed increase in public debt ratios as a share in GDP (1998–2002) largely driven by the effect on economic growth from the Asia crisis, and adverse debt dynamics due to the exchange rate depreciation. These trends are described in more detail below.

[2]Data on private debt are weak. The attached annex describes the assumptions behind the estimates of the unrecorded private debt stock in this chapter.

Private external debt

6. **Private external debt levels increased sharply in the period 1979–85, primarily due to construction work for the Ok Tedi mining project.**[3] Large imports, together with deteriorating terms of trade, led to a sharp increase in the current account deficit from around 11 percent of GDP in 1980 to 21 percent of GDP in 1981, and the current account deficit ratio stayed in double digits until Ok Tedi was completed in 1984. The private loans needed to finance these imports led to a tenfold increase in U.S. dollar debt by end-1985 (from $93 million in 1979 to $1.02 billion in 1985). Eighty percent of this increase is estimated to have been related to the mine.

Figure II.2. Mining Activities as Determinants of Private Capital Flow



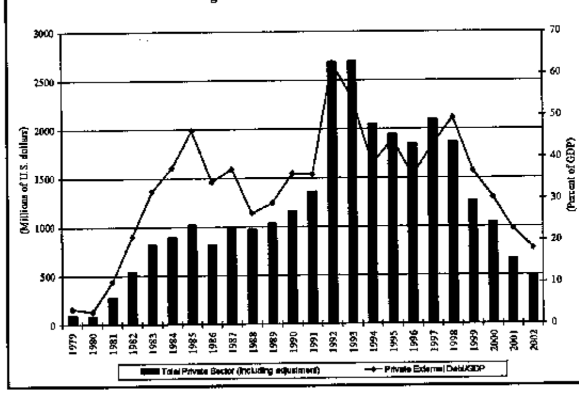
7. **After Ok-Tedi commenced operations, external debt levels stabilized as private loan repayments broadly offset investments for new mineral projects**. In addition, owing largely to the conversion of $286 million of private debt to equity in the Ok Tedi mine, the ratio of private external debt to GDP declined from its 1985 peak of 46 percent of GDP to 27 percent of GDP in 1988. This development was, however, short-lived. Capital inflows associated with new mineral projects, in particular the Misima gold mine that opened in 1989, the much larger Porgera gold mine that opened in 1990, and the Kutubu oil field in 1992, put private debt levels back on an upward trajectory. At the same time, the external

[3]Construction on Ok Tedi began in 1981. This included building a permanent dam to contain the mine's tailings and the construction of a hydroelectric plant to satisfy the much greater power requirements of the second and final stages of copper production. The mineral sector also has a significant impact on the nonmineral sector through the purchase of domestic goods and services, royalties and compensation payments to landowners, tax and dividend payments to the government, and infrastructure development in the area where the mine is located.

position weakened after the closure of the Panguna copper mine (BCL) in 1998 due to a secessionist rebellion on the island of Bougainville. A devaluation of the kina in 1990 increased the value of the debt stock further in relation to GDP, and reached 63 percent of GDP in 1992.

8. **The opening of the Kutubu oil field in 1992 completed a period of heavy private external borrowing.** The large export proceeds generated by the mineral and petroleum projects were used to repay loan obligations. Economic activity accelerated sharply with the development of the Porgera gold mine (1990) and the Kutubu oil field (1992) and current account surpluses ranged between 11-16 percent of GDP. By 1996, the level of external private debt declined to 35 percent of GDP. The trend decline in private sector debt was temporarily reversed in 1997 as high capital inflows resumed to construct the Lihir gold project – one of the largest gold mines outside of South Africa - and for the development of the Gobe oil project. However, in the absence of major new mineral projects and limited private foreign borrowing by the rest of the economy, private sector debt soon fell again reaching 18 percent of GDP by end-2002, its lowest level since the early 1980s.

Figure II.3. Private External Debt



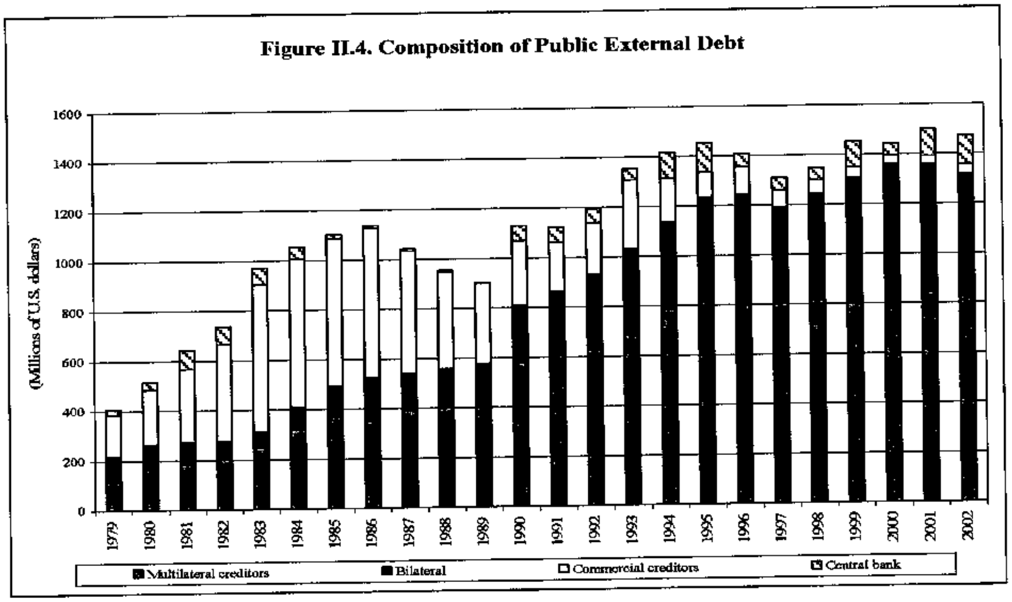
Public external debt

9. **Fiscal deficits in the early 1980s led to a sharp increase in public debt levels.** A rapid increase in expenditure coupled with lower proceeds from the Panguna mine (Bougainville Copper Limited), at that stage the only operative mine in Papua New Guinea, led to a quadrupling of the fiscal deficit to levels around 6 percent of GDP between 1981-83.[4] Total public debt increased from 19 percent in 1980 to 50 percent of GDP in 1985, notwithstanding efforts to curtail expenditure. Moreover, the public debt service ratio (as a percent of exports of goods and services) doubled from 4 percent of exports of goods and services in 1980 to 8 percent in 1985, due largely to the increasing reliance on foreign commercial loans. Bilateral official debt during this period was relatively limited as most financial assistance extended by governments was provided in the form of grants.

10. **In the mid-1980s, with the fiscal deficit under control, the government was able to sharply reduce its external commercial debt**. By 1990, public external debt had declined to 25 percent of GDP and about three quarters of the public debt outstanding was

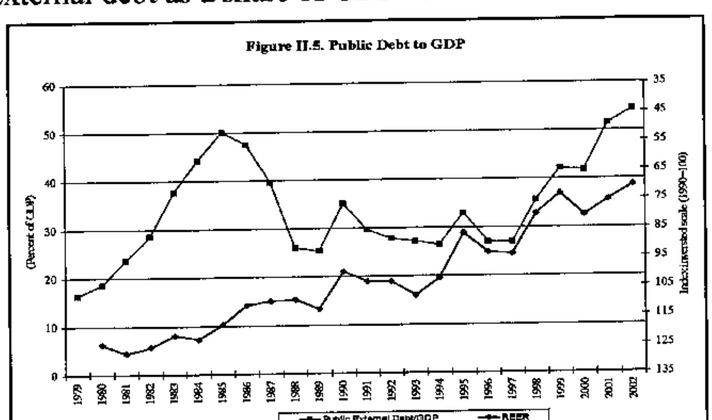
[4]In addition, the government borrowed externally to finance its equity share in the Ok Tedi mining project and to sustain foreign exchange reserves.

either from official bilateral or multilateral sources, compared to less than half in at the end of 1985.



11. **Net inflows from bilateral and multilateral concessional sources increased sharply in 1990, following the economic deterioration following the closure of the Bougainville copper mine, and a sustained decline in world prices for the country's major agricultural products.** Public debt levels increased by 10 percent of GDP in 1990 (to 35 percent of GDP), but declined thereafter to around 25 percent of GDP, as real GDP increased or new mines came on line.

12. **Since 1997, public sector external debt has increased steadily in U.S. dollar terms, in line with net foreign financing for the budget, from around \$1.3 billion to \$1.45 billion.** However, public sector external debt as a share of GDP has increased much more sharply from 27 percent in 1997 to 54 percent by end-2002. The rapid increase is largely attributable to the 30 percent real depreciation of the exchange rate since 1997 and the contraction in real GDP during this period. In particular, after 1997 Papua New Guinea's economy was adversely affected by a severe drought, reduced agricultural output while the low river levels temporarily halted exports from the country's largest gold and copper mine. These supply problems were exacerbated by the Asia crisis, which reduced demand for Papua New Guinea's exports and led to a sharp decline in commodity prices. The decline in activity and exports led to an increase in the fiscal deficit



that was financed mainly by borrowing from the central bank. This led to substantial losses of international reserves (falling to two weeks of imports), a sharp acceleration in inflation, and a protracted nominal effective depreciation of the kina.

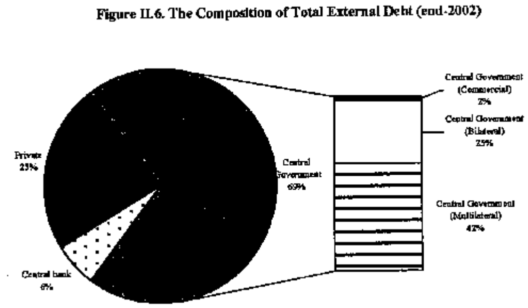
13. The deficit was constrained during a Fund-supported reform program in 2000 and 2001 and the BPNG entered into an $80 million (nonconcessional) swap arrangement with Australia (equivalent to 2.3 percent of GDP) that was later converted into a government-to-government bilateral loan. However, in December 2001, after the expiry of the arrangement with the Fund, the deficit increased again in part due to unbudgeted domestic expenditures, and the government contracted a $55 million loan on nonconcessional terms to fund a nontransparent public sector Yumi-Yet bridges project that had not been included in the 2002 budget. At 54 percent of GDP, the level of public sector external debt is now a significant concern.

B. Present Structure of External Debt

14. **At end-2002, total external debt consisted predominantly of central government debt, as the private debt share has progressively declined since the early 1990s.** Central government external debt accounts for 69 percent of total external debt; central bank external debt amounts to 6 percent of the total (consisting almost entirely of liabilities to the Fund) and the remainder, 25 percent, is taken up by the private sector.

15. **The share of private borrowing in the total external debt stock has been in almost continuous decline since its peak of 69 percent in 1992, and at 25 percent now takes up roughly the same share in total external debt as in the early 1980s**. Barring major new mineral projects, the trend decline in private external debt is projected to fall to 5½ percent of GDP by 2008, compared with 18 percent of GDP at end-2002, at which stage it would comprise 10 percent of the total external debt stock.

Figure II.6. The Composition of Total External Debt (end-2002)



Sources: Data provided by Papua New Guinea authorities; and Fund staff estimates

16. **The bulk (97 percent) of Papua New Guinea's public external debt consists of borrowing from official sources, both bilateral and multilateral.** The main creditors are the Asian Development Bank, the World Bank and Japan, in roughly even proportions.[5]

[5]Other official creditors include mainly the EU, Australia, and the Fund. The bulk of Australian assistance, roughly A$ 300 million per annum, is provided in the form of grants. Most official borrowing is classified as non-concessional, largely due to the recent large decrease in LIBOR.

Following the government's policy since the mid-1980s of avoiding further commercial borrowing, commercial debt declined from a peak of 39 percent of total public debt in the early 1980s. This share of commercial debt is projected to increase to 5 percent in 2008, because of the Yumi-Yet bridges project which was contracted at end-2001 on nonconcessional terms. Roughly half of Papua New Guinea's external public debt is denominated in U.S. dollars, a third in Japanese yen, and the remainder in other foreign currencies.

Figure II.7. Debt-Service Ratios

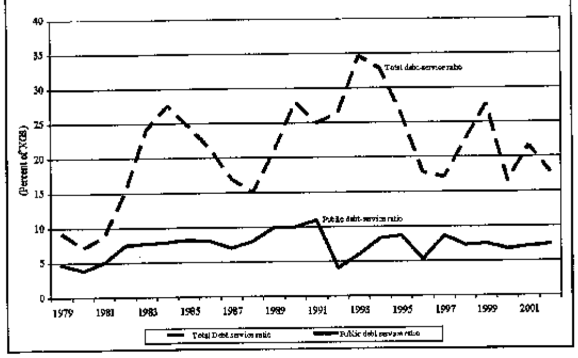
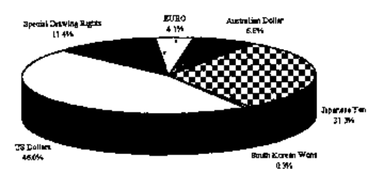


Figure II.8. The Currency Composition of External Public Debt (In percent of total)



17. **The public debt-service ratio has fallen somewhat from its peak of 11 percent in the early 1990s, and now hovers at around 7–8 percent of exports of goods and services.** Total (public and private) debt service has come down from its peak of 35 percent of exports of goods and services in 1993 to 18 percent of at end-2002. As explained above, this ratio is an imperfect indicator of Papua New Guinea's ability to meet debt service payments due to the self-financing nature of mineral and petroleum projects. In any event, Papua New Guinea's economy is extremely open (exports amount to roughly 65 percent of GDP), enhancing its ability to generate foreign exchange earnings for debt-service.

C. External Debt Projections

18. **The staff has prepared an external debt scenario assuming the pursuit of prudent macroeconomic policies and wide-ranging structural reforms to boost nonmineral economic growth rates.** Achieving the macroeconomic objectives under this scenario will require significant efforts, especially with respect to nominal GDP growth and containing the fiscal deficit.[6] The main assumptions are as follows:

- A gradually rising nonmineral GDP growth rate from roughly 2½ percent in 2003 to 3½ percent of GDP by 2008. Total GDP growth is, however, volatile due to the contraction in mineral output in the medium term.

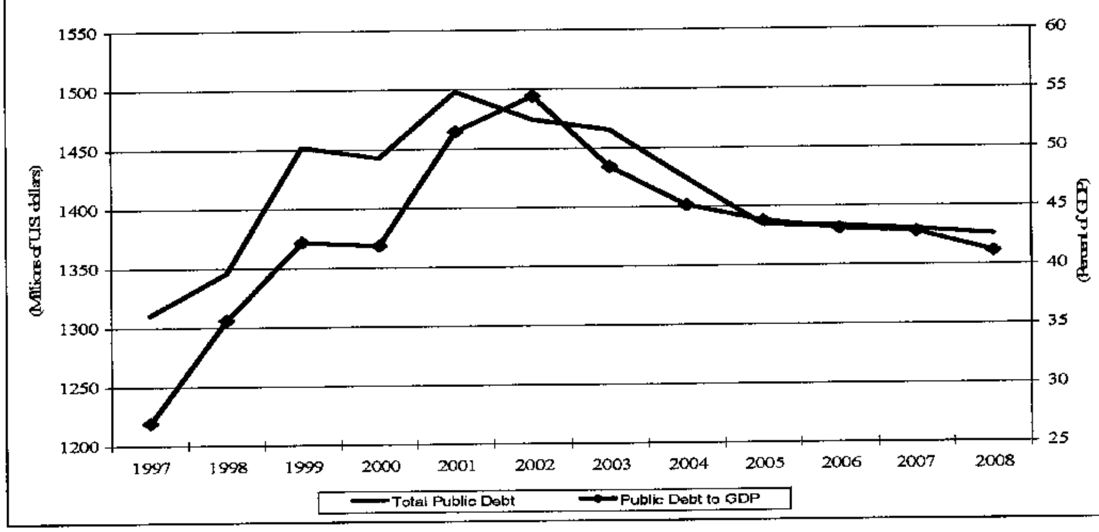
---

[6]A description of current fiscal rigidity and vulnerability is provided in the accompanying chapter of this *Selected Issues* paper.

- A decline in the central government deficit to 2 percent of GDP in 2003 and an average of 1 percent of GDP thereafter.

- A nominal external interest rate of between 4½ –5½ percent (around its current average level), and a constant real exchange rate.

Figure II.9. Public External Debt, 1997-2008



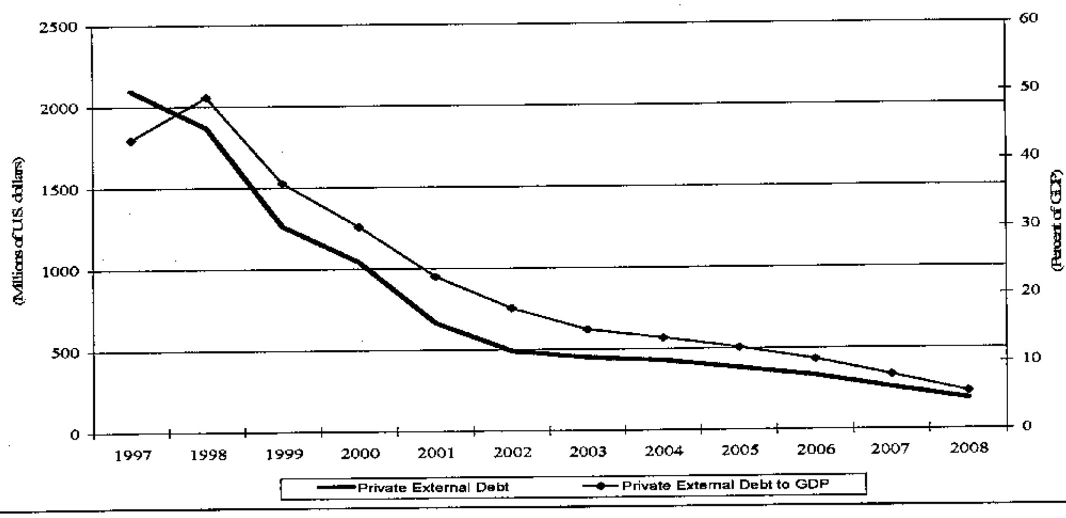
19. **Under this scenario, external public debt declines from 54 percent of GDP in 2002 to around 40 percent of GDP by the end of 2008, primarily due to net repayments and positive GDP growth.** The decline in private debt levels is, however, somewhat of a mixed blessing as it signals lack of foreign interest in pursuing new mineral projects at this time.[7] While there are some smaller projects on the horizon (e.g., the Napa Napa oil refinery and, possibly, Ramu Nickel) no major mineral projects are currently anticipated that would reverse the downward trend in the stock of private external debt. The main possible exception to this is the Queensland Gas Pipeline which in scope would rival, if not surpass, previous major mining projects but achieving the requisite number of buyer contracts has so far proven an elusive task. The stock of total external debt declines from around 72½ percent of GDP at end-2002 to 51 percent of GDP in 2008. Public debt service increases somewhat in the short term, from 7½ percent of exports of goods and nonfactor services (GNFS) in 2002 to 10 percent of GNFS in 2005, but declines thereafter to an estimated 6½ percent of GNFS. The projections do not include new IDA or PRGF loans from the Bank and the Fund.

---

[7]The Mining Department estimates that only approximately 30 percent of presently known resources have been mined. However, high capital costs, difficulties with land ownership rights, law and order problems and weak infrastructure (among other things) currently serve as a deterrent to substantial new developments.

To the extent such loans are forthcoming, and start to replace the existing higher cost multilateral portion of the public debt stock, the net present value of public debt will decline further.

Figure II.10. Private External Debt, 1997-2008



D. Sensitivity Analysis

20. **Stress tests suggest that, even with policies along the lines described above, Papua New Guinea's external debt remains highly vulnerable to shocks, and a number of stress tests would push the debt ratios to precarious levels.** Detailed results are summarized in Table II.1, at the end of this chapter.[8]

- Under the **first stress test, external nominal interest rates** are assumed to be two standard deviations above their historical levels during 2003 and 2004, after which they return to baseline levels. This has virtually no impact on the debt ratio relative to the baseline path, as the low standard deviation associated with relatively stable levels of annual external interest payments in the past roughly matches the slight projected increase in interest payments under the baseline.

[8]The sensitivity analysis presented here does not include a scenario using 10-year historical averages (as described in SM/02/166) since, in contrast to the 1990s, the depletion of existing mineral projects will lead to trend declines in mineral GDP growth and the noninterest current account.

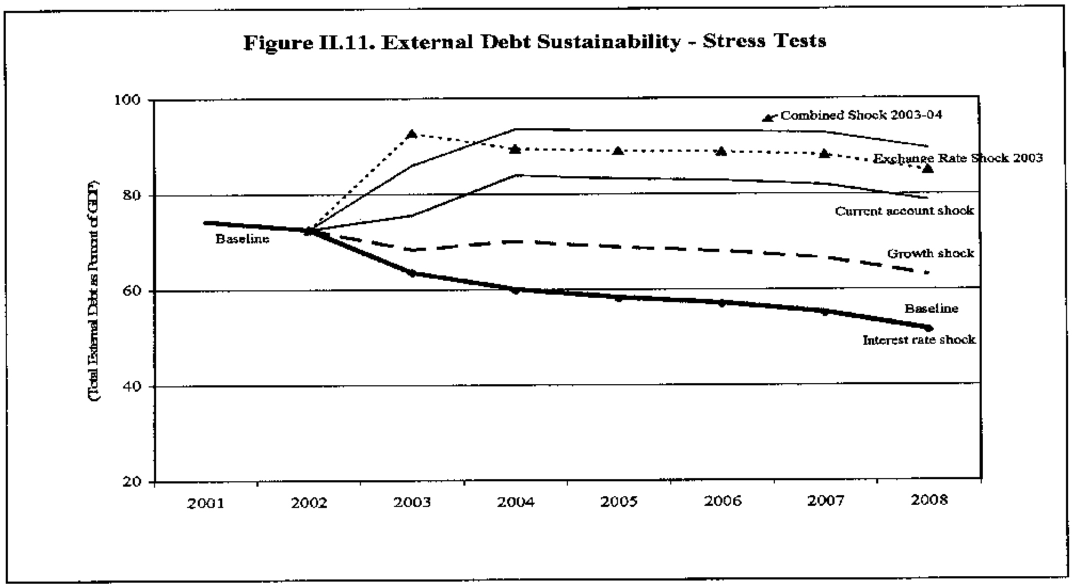


Figure II.11. External Debt Sustainability - Stress Tests

- The **second stress test** scenario is one where **real GDP growth** is assumed to deteriorate by 5 percent annually in both 2003 and 2004. This has a substantial impact on the debt ratio increasing it by 10 percent of GDP over the baseline by 2004. The higher debt stock at the end of 2004 increases interest payments, resulting in a more modest decline in the debt ratio in the period 2005–08 relative to the baseline.

- The **third stress test** assumes that the **noninterest current account deficit** is more deleterious by two standard deviations in 2003 and 2004. This would have the effect of raising the external debt ratio to roughly 84 percent by the end of 2004—almost 24 percentage points above the baseline—although a gradual decline in the debt path would subsequently set in. The debt-to-GDP ratio would decline to 79 percent of GDP in 2008, still somewhat above the level in the first year in which the shock was applied. It should be noted, however, that these results are driven by the mechanics of the exercise and likely overstate the effects of a current account shock. In particular, absent new mineral projects there are no obvious sources of financing for higher nonmineral current account deficits, implying that any shocks would likely be met with a combination of import compression and relative price changes, and only in part by new debt creating flows.

- The **fourth stress test** entails a **combination of shocks**, to account for the possibility that when shocks do occur, economic variables can deteriorate in tandem. In particular, a simultaneous one standard deviation shock (applied in both 2003 and 2004) to the nominal interest rate, the GDP growth rate, and the noninterest current account, coupled with a 15 percent

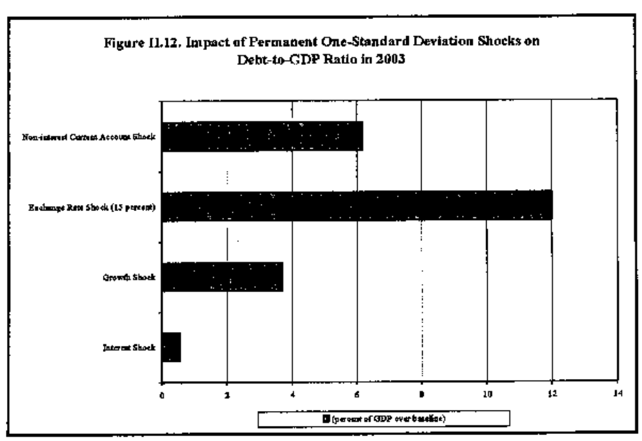


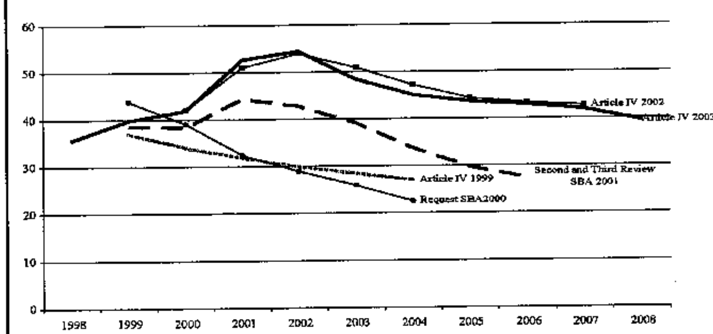
Figure II.12. Impact of Permanent One-Standard Deviation Shocks on Debt-to-GDP Ratio in 2003

depreciation of the real exchange rate, would raise the debt ratio to 86 percent of GDP in 2003 and further to 94 percent of GDP in 2004 where it remains for the balance of the projection period. The relative size of the shocks is shown in Figure II.12.

- The **final standardized stress test** consists of a one-off **depreciation** in the real exchange rate of 30 percent in 2003 (similar to the exchange rate shock in 1998). This shock demonstrates the extreme vulnerability of the debt-to-GDP ratio to exchange rate movements, raising the debt ratio to 93 percent in 2003, although the debt ratio declined thereafter.

21. **The pertinence of the stress tests is underlined by what have turned out to be overly optimistic projections in Article IV reports during 1999-2001**. Both the 1999 Article IV report and the request for a Stand-By Arrangement in 2000 projected that the public external debt ratio would fall to under 30 percent of GDP by 2002. In the latter document, this was predicated on economic growth of 4½ percent in 2000, a fiscal deficit target of 1½ percent, inflation of around 5 percent and a recovery in gross reserves to 3½ months of imports. In the event, real GDP contracted in both 2000 and 2001, the budget deficit target in 2001 was overshot and inflation was twice as high as projected. Most importantly, however, the exchange rate declined substantially, leading to a declining value of GDP in U.S. dollar terms (price and exchange rate changes add a combined 20 percent of GDP to the public external debt ratio). As a result, the public external debt ratio rose to 54 percent of GDP by 2002.

Figure II.13. Public Debt-to-GDP Projections in Fund Staff Reports



Source: IMF Staff Reports

E. Additional Stress Tests

22. **Two additional stress tests were conducted to assess the vulnerability of Papua New Guinea's external debt**. The first simulates various oil price shocks. Oil exports in recent years comprised roughly 28 percent of total exports and the volatility of oil prices thus has a significant impact on the balance of payments.[9] At current levels (the WEO baseline of \$26½ per barrel in 2003 and thereafter declining to \$21 per barrel), the staff is not projecting

[9]These stress tests assume that financing gaps created as a result of a shortfall in oil export receipts would be filled with new private or public foreign borrowing (in practice these current account shocks may be partly accommodated through import compression and relative price changes), whereas an excess of oil export receipts would be used to retire external debt. The standard deviation for the oil price measured over the last ten years is \$4.7 dollars per barrel.

any financing gaps for 2003. However, a decline in the oil price to $20 per barrel in 2003 and the period thereafter would increase the total external debt ratio by 6½ percent of GDP in 2003, by 3 percent of GDP in 2003 and by smaller magnitudes thereafter. Conversely, a higher oil price would benefit Papua New Guinea. With an oil price of $35 per barrel throughout the projection period, the external debt ratio could fall to just 16 percent of GDP by 2008. The chart below illustrates the vulnerability to different oil price scenarios.

Figure II.14. Oil Price Scenarios - Impact on Total External Debt

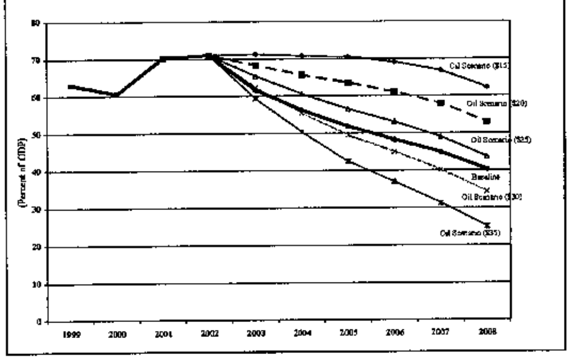
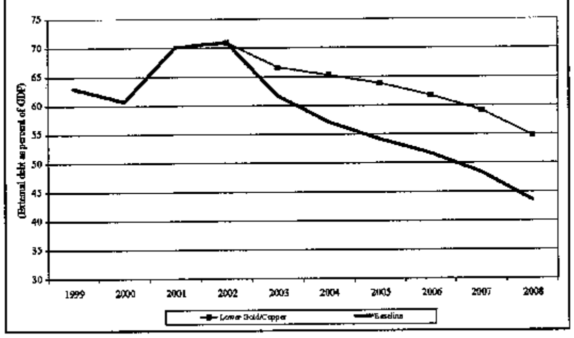


Figure II.15. Effect of a One-Standard Deviation Shock to Copper and Gold Prices in 2003 and 2004



23. **The second additional stress test consists of a simultaneous shock to gold and copper prices**. Oil, gold and copper jointly comprise three-fourths of Papua New Guinea's total exports. Applying a one-standard deviation shock to both gold and copper prices (implying a copper price that is 20 cents per pound lower, and a gold price that is $37.3 per oz lower than WEO projections in 2003) increases the debt-to-GDP by 5 percent of GDP by the end of 2004 and by 11 percent of GDP by 2008 (the debt ratio reaches a level of 55 percent of GDP compared to 44 percent of GDP in the baseline). Both the oil price stress tests and the shock to copper and gold prices imply that these price shocks are unlikely to create an unsustainable debt dynamic.

F. Conclusions

24. **The sensitivity analysis undertaken in this chapter illustrates that the main threat to Papua New Guinea's debt dynamics derives from changes in macroeconomic variables, not from exogenous shocks to the prices of its main export products**. This underscores the importance of pursuing the government's medium-term objectives with a fiscal deficit that averages 1 percent of GDP and stable inflation in the low single digits that contribute to the stability of the kina and of continued access to concessional financing. Indeed, the sharp rise in public external debt levels in recent years is testimony to the impact on the external debt stock of exchange rate, GDP deflator changes, and growth shocks. Avoiding these types of shocks will require not only sound macroeconomic policies but also sustained structural reforms to enhance competitiveness and improve the business climate. Finally, the private external debt stock, while high at times, has not posed particular difficulties in the past, primarily because it has been largely self-financed by the mineral companies whose balance sheets are not vulnerable to exchange rate fluctuations since both their assets and liabilities are denominated in foreign currency. It is expected to trend down over the medium term in the absence of new projects in the mining and petroleum sectors.

Private External Debt Projections—Estimation of Underreported Debt

1. As noted in the statistical appendix to the staff report, data on private external debt are particularly weak. Large errors and omissions started to emerge during the 1980s and 1990s, likely reflecting, in part, unrecorded overseas financing of imports, including by those companies involved in mineral and oil exploration. Lenders in many cases disburse funds directly to contractors, effectively bypassing the exchange record system.

2. Official data on private debt stocks are inconsistent with projected amortization flows reported by the mineral sector. Previous private debt estimates indicated a private debt stock of close to zero in 2001, but balance of payments data indicate forthcoming gross amortization flows of close to $1 billion in the period 2001–08 alone (on a *net* basis the private sector is expected to repay between $550–600 million). These balance of payments estimates for future debt amortization are taken directly from the private mineral companies.

3. For the purposes of the debt sustainability analysis in this chapter, official data on private external debt has been augmented with an estimate of this underreported private debt. The estimate is based on the assumption that the private sector amortization from 2003–08 is derived from loans with a maturity of ten years, and annual loan repayments following a grace period of five years—roughly consistent with a pattern seen for past mineral loan projects—leading to an implied historical disbursement path. In addition, it is assumed that beyond 2003 no further underreporting of private debt takes place, consistent with the practice of not forecasting errors and omissions. The projections thus generated raise the debt stock during the period 1992–2002 by amounts varying from $0.6–1.3 billion, as illustrated in the chart below.

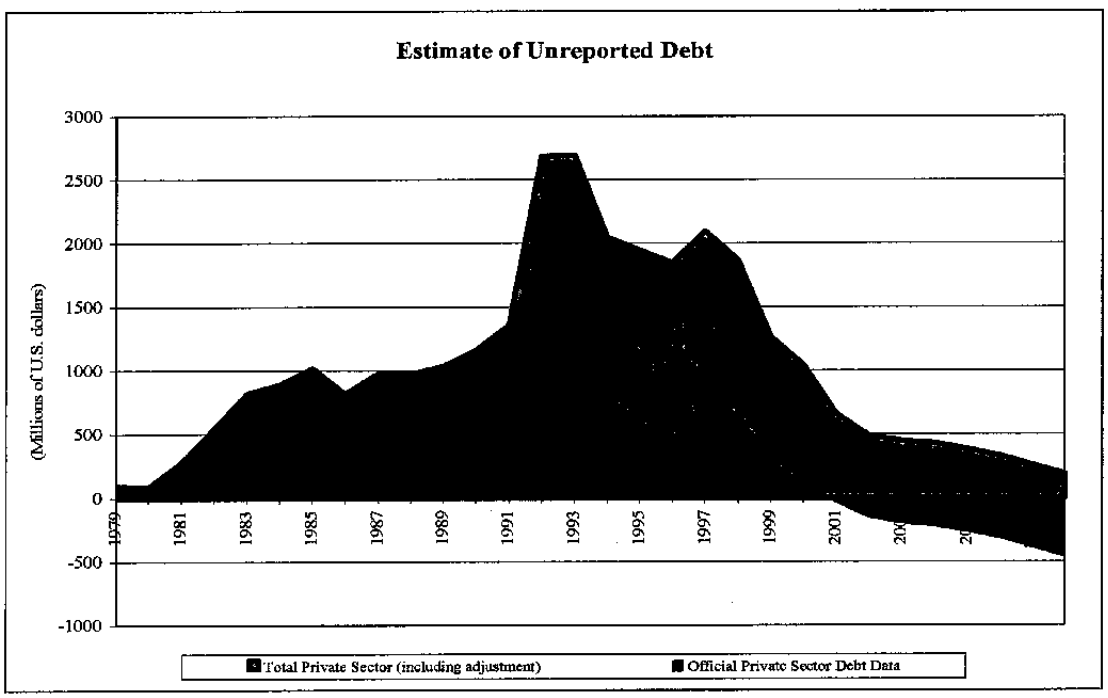


Table II.1. Papua New Guinea: External Debt Sustainability Framework, 1992-2008

(In percent of GDP, unless otherwise indicated)

	Actual										Projections						
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
I. Baseline Medium-Term Projections																	
1 **External debt**	90.4	81.3	64.7	77.1	62.4	70.0	85.0	78.8	72.0	74.2	72.5	63.5	60.1	58.4	57.2	55.3	51.7
2 Change in external debt	24.9	-9.1	-16.7	12.4	-14.7	7.6	15.0	-6.2	-6.8	2.2	-1.7	-8.9	-3.5	-1.7	-1.2	-1.9	-3.6
3 Identified external debt-creating flows (4+8+11)	-14.1	-25.0	-18.2	-13.2	-21.8	8.6	17.4	-2.1	-10.1	4.7	7.6	-13.2	-7.4	-3.8	-2.8	-0.3	-0.9
4 Current account deficit, excluding interest payments	-5.8	-16.9	-14.3	-18.7	-7.8	3.0	-3.4	-4.8	-9.6	-8.7	-0.6	-5.9	-5.5	-4.0	-2.2	-0.7	0.4
5 Deficit in balance of goods and services	-8.2	-21.7	-18.8	-22.7	-12.6	1.9	-2.9	-6.1	-10.8	-11.6	-4.0	-8.1	-7.7	-5.7	-4.3	-2.5	-1.6
6 Exports	55.6	58.2	54.5	67.5	56.7	52.6	55.9	65.8	71.4	71.3	68.9	70.7	67.4	65.3	62.5	58.0	56.4
7 Imports	47.4	36.5	35.8	44.8	44.1	54.5	53.0	59.7	60.7	59.7	65.0	62.6	59.8	59.6	58.2	55.5	54.8
8 Net nondebt creating capital inflows (negative)	-3.4	-1.6	-1.4	-10.8	-4.3	-0.5	-3.2	-8.9	-3.3	-2.5	-0.7	-3.0	-2.3	-2.3	-2.5	-1.9	-1.9
9 Net foreign direct investment, equity	3.4	1.6	1.4	10.8	4.3	0.5	3.2	8.9	3.3	2.5	0.7	3.0	2.3	2.3	2.5	1.9	1.9
10 Net portfolio investment,equity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11 Automatic debt dynamics 1/	-5.0	-6.4	-2.5	16.2	-9.7	6.1	24.0	11.6	2.8	15.9	8.9	-4.3	0.4	2.5	1.9	2.4	0.6
12 Denominator: 1+g+p+gp	1.2	1.1	1.1	0.8	1.2	0.9	0.8	0.9	1.0	0.8	0.9	1.1	1.0	1.0	1.0	1.0	1.0
12 Contribution from nominal interest rate	3.9	4.4	3.2	2.3	2.3	2.4	2.9	3.2	2.9	2.7	3.3	3.0	2.9	2.9	2.7	2.6	2.6
13 Contribution from real GDP growth	-7.8	-14.5	-4.5	2.6	-5.0	2.6	3.4	-7.1	1.0	2.9	2.5	-1.2	-1.4	-0.8	-1.0	-0.4	-1.6
14 Contribution from price and exchange rate changes 2/	-1.0	3.6	-1.3	11.3	-7.0	1.1	17.7	15.4	-1.1	10.3	3.1	-6.2	-1.2	0.4	0.1	0.1	-0.4
14 Residual, incl. change in gross foreign assets (2-3)	39.1	15.9	1.6	25.6	7.2	-1.1	-2.4	-4.1	3.4	-2.5	-9.3	4.2	3.9	2.2	1.6	-1.7	-2.7
External debt-to-exports ratio (in percent)	162.6	139.8	118.6	114.2	110.1	133.0	152.1	119.7	100.9	104.1	105.2	89.9	89.1	89.4	91.6	95.3	91.7
Gross external financing need (in billions of U.S. dollars) 3/	0.4	0.1	0.2	-0.1	0.1	0.6	0.3	0.4	0.1	0.2	0.3	0.1	0.1	0.2	0.2	0.2	0.3
(In percent of GDP)	8.8	2.9	3.0	-1.3	2.3	12.0	9.1	12.8	1.6	6.7	11.7	4.4	3.4	5.3	6.4	7.5	8.5
Key macroeconomic and external assumptions																	
Real GDP growth (in percent)	13.8	18.2	5.9	-3.3	7.7	-3.9	-3.8	7.6	-1.3	-3.4	-3.1	1.8	2.3	1.3	1.7	0.6	3.1
Exchange rate appreciation (U.S. dollar value of local currency, change in percent)	-1.3	-1.4	-2.7	-24.8	1.3	-8.0	-30.4	-19.2	-7.6	-18.2	-16.0	0.0	-2.5	-4.1	-2.2	-1.2	-1.0
GDP deflator in U.S. dollars (change in percent)	1.6	-3.9	1.6	-14.9	9.9	-1.8	-20.2	-15.3	1.4	-12.6	-4.0	9.3	1.8	-0.6	-0.3	-0.2	0.6
Nominal external interest rate (in percent)	6.8	5.5	4.3	2.9	3.5	3.6	3.1	3.5	3.6	3.1	4.2	4.6	4.8	4.9	4.7	4.6	4.9
Growth of exports (U.S. dollar terms, in percent)	25.4	21.3	0.9	1.8	-0.6	-13.4	-17.5	7.3	8.6	-15.7	-10.1	14.0	-0.6	-2.5	-2.9	-6.7	0.8
Growth of imports (U.S. dollar terms, in percent)	-1.3	-10.8	5.5	3.1	16.5	15.3	-24.4	2.6	1.7	-16.9	1.2	7.1	-0.5	0.4	-0.9	-4.2	2.5
II. Stress Tests for External Debt Ratio																	
1. Real GDP growth, nominal interest rate, dollar deflator, noninterest current account, and nondebt inflows are at historical average in 2003-08											72.5	72.9	73.0	71.3	69.0	63.1	55.6
2. Nominal interest rate is at historical average plus two standard deviations in 2003 and 2004											72.5	63.5	59.8	58.1	56.9	54.9	51.4
3. Real GDP growth is at minus 5 percent in 2003 and 2004											72.5	68.3	70.1	68.8	68.0	66.5	63.0
4. Noninterest current account is at historical average minus two standard deviations in 2003 and 2004											72.5	75.6	83.9	83.2	82.8	81.9	78.6
5. Combination using one standard deviation shocks (and 15 percent depreciation)											72.5	86.0	93.5	93.2	93.2	92.7	89.6
6. One time 30 percent nominal depreciation in 2003											72.5	92.7	89.4	88.9	88.7	88.1	84.9

Historical statistics for key variables (past 10 years)	Historical Average	Standard Deviation	Average 2002-08
Current account deficit, excluding interest payments	-7.2	6.7	-3.0
Net nondebt creating capital inflows	4.0	3.6	2.3
Nominal external interest rate (in percent)	3.5	0.5	4.7
Real GDP growth (in percent)	0.3	5.2	1.8
GDP deflator in U.S. dollars (change in percent)	-6.2	10.0	1.8

1/ Derived as $[r - g - \rho(1+g) + \varepsilon\alpha(1+r)]/(1+g+\rho+g\rho)$ times previous period debt stock, with r = nominal effective interest rate on external debt; ρ = change in domestic GDP deflator in U.S. dollar terms, g = real GDP growth rate, e = nominal appreciation (increase in dollar value of domestic currency), and a = share of domestic-currency denominated debt in total external debt.

2/ The contribution from price and exchange rate changes is defined as $[-\rho(1+g) + \varepsilon\alpha(1+r)]/(1+g+\rho+g\rho)$ times previous period debt stock. ρ increases with an appreciating domestic currency ($\varepsilon > 0$) and rising inflation (based on GDP deflator).

3/ Defined as current account deficit, plus amortization on medium- and long-term debt, plus short-term debt at end of previous period.

III. RECENT TRENDS AND FISCAL SUSTAINABILITY[1]

1. After averaging around 1 percent of GDP during most of the 1980s, the budget deficit in Papua New Guinea increased and fluctuated widely during the 1990s.[2] As a result, the deficit and central government debt as a share in GDP have steadily increased to levels that have raised questions concerning the sustainability of the medium-term fiscal outlook. In this chapter, the fiscal and debt trends during 1990-2002 are reviewed, and the current fiscal rigidities and vulnerabilities are discussed. The magnitude of the adjustment required to return to a sustainable fiscal outlook is also assessed. The main conclusions are as follows:

- The fluctuation in the fiscal deficit as a share in GDP has mainly reflected variations in revenue, especially revenue from the mineral and petroleum sector. As a share in GDP, and abstracting from non-cash development spending provided directly by donors, domestic expenditure since the mid 1990s has been relatively stable despite the revenue fluctuations. Civil service wage expenditure has consistently been between 9-10 percent of GDP, despite frequent efforts to reduce such expenditures.

- The debt-to-GDP ratio increased rapidly during the last five years. While the external debt stock measured in U.S. dollar terms has been fairly stable, as a share in GDP the deficit has increased sharply due to the real depreciation of the exchange rate and the prolonged contraction in real GDP. Domestic debt has been fairly constant as share in GDP during the last five years, although its maturity profile has progressively shortened.

- On current policies, the budget deficit over the medium-term would increase from an estimated 3½ percent of GDP in 2003 to over 5 percent of GDP by 2008, mainly due to the expected trend decline in mineral and petroleum revenue that, in turn, reflects the absence of new exploration activity during the 1990s. The authorities have indicated their intention to offset these potential adverse developments.

- The fiscal outlook is also vulnerable given the gross borrowing requirement that will approach 25 percent of GDP in 2003 and 2004, mainly due to the short maturity of domestic debt, and due to the high sensitivity of the debt-to-GDP ratio to potential domestic and external shocks.

---

[1] Prepared by David W.H. Orsmond (ext. 36420).

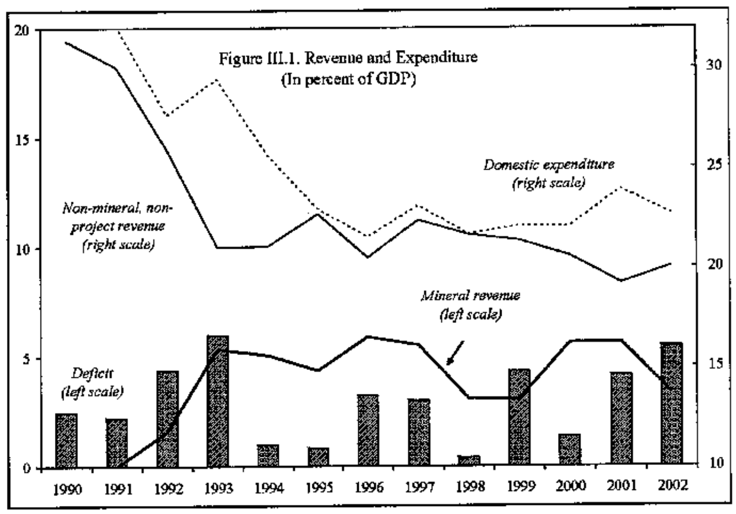
[2] The public sector in Papua New Guinea comprises the central, provincial, district, and local governments, statutory authorities, and public enterprises. However, coverage of the public financial statistics is limited to the central government budget (as are the data in this chapter); sub-national budgets are largely financed by transfers from the central budget and sub-national government budgets are not allowed to run a deficit.

- An average fiscal deficit of around 1 percent of GDP over the medium-term would be necessary to bring the level of central government debt back to a more sustainable level. This would require a fiscal adjustment in the order of 3 percent of GDP over the medium term.

- Achieving the required degree of adjustment will be challenging given, on the one hand, the need to increase social and productive expenditure and, on the other hand, the inflexibility of civil service expenditure and of provincial transfers.

- The recently established Public Expenditure Rationalization Review can assist in identifying the appropriate medium-term expenditure priorities and choices to reach this medium-term deficit target, although revenue adjustments could also be considered.

A. Fiscal Trends During 1990-2002



2. During 1990-2002, the central government budget deficit fluctuated between 1 percent of GDP and 6 percent of GDP (Table III.1). These fluctuations largely reflected developments in the mineral and petroleum sector, and their effect on budgetary receipts, as existing mines closed and new ones opened. Excluding the post-Bougainville years in 1990-91, when mineral revenue fell to zero, revenue from the mineral and petroleum sector has fluctuated by 4½ percent of GDP (between 5-20 percent of total revenue). In contrast, during the last 10 years, all other non-grant revenue has varied by just 3 percent of GDP (Table III.2). However, abstracting from interest payments and from non-cash development projects directly provided by donors, since the mid 1990s domestic expenditure has remained within a narrow range of between 22-25 percent of GDP (Table III.3). The relative stability of domestic expenditure occurred despite frequent efforts to tighten expenditure controls and to reduce outlays, notably for the civil service. Consequently, given the rigidity in domestic expenditure in the face of changing revenue collections, the budget deficit has varied over a wide range.

3. Assessing historical budgetary trends in Papua New Guinea confronts several difficulties. First, there have been significant recording difficulties in the fiscal sector, especially before the 2000-01 program with the annual budget deficits based on above-the-line recorded revenue and expenditure diverging from the below-the-line financing data by

over 1 percent of GDP (in both a positive and negative direction). These discrepancies point to the significant accounting and possibly governance issues that even today still need to be resolved. This chapter refers to the deficit as measured from the below-the-line financing data that are viewed as more reliable. Second, in 1995, the expenditure classification was changed to separate the development and recurrent budgets, the central-provincial government revenue transfers and expenditure responsibilities were changed, and in 1997, project grants from Australia were brought on-budget contributing to the sharp increase in on-budget development expenditure thereafter. Given these expenditure reclassifications, the analysis of fiscal trends during the 1990s needs to be interpreted with some caution.

4. Nonetheless, at the start of the 1990s, the budget deficit increased rapidly to reach 6 percent of GDP in 1993. Revenue declined by 5 percent of GDP (to 27 percent) due to the closure of the copper mine in Bougainville in 1989, the decline in commodity prices, the reduction in nonmineral tax rates, and the halving of foreign grants as a share in GDP (to around 4 percent). In response, total expenditure was reduced but not by enough to match the decline in revenue. While the civil service wage bill fell by 1½ percent of GDP to 9¼ percent of GDP, and goods and services expenditure as well as provincial transfers also declined, transfers to statutory agencies (including to state-owned enterprises) increased by 4 percent of GDP, which prevented the needed degree of expenditure containment.

5. During 1994-97, the budget deficit declined to 3 percent of GDP, a level still far about the average deficit of 1 percent of GDP that was achieved in the 1980s. The revenue ratio increased by 4 percent of GDP (to 31 percent) as revenue from the mineral and petroleum sectors accelerated after the opening of the Misima gold mine, Porgera gold mine, and Kutubu oil field. Non-interest domestic expenditure was also reduced, with the bulk of the cuts falling on goods and services expenditure at the national level and on transfers to statutory authorities. To some extent, this reflected new and tighter controls over non-wage expenditure authorizations, but much of the adjustment was also achieved through an increase in arrears (which peaked at 4 percent of GDP at end-1994). Repeated efforts to reduce civil service employment were not followed through due to the required high retrenchment payments, and the civil service wage bill declined by just ½ percent of GDP (to 8¾ percent by 1996, its lowest point during the decade under review). These expenditure reductions proved temporary as spending on wages and goods and services at the national and provincial levels increased sharply ahead of the 1997 election.

6. During 1998-99, the budget deficit increased to 4½ percent of GDP despite a supplementary budget in August 1999. Mineral receipts fell to around 3 percent of GDP, reflecting the decline in commodity prices during the Asian crisis, a drought that prevented river-based transportation of Ok Tedi production, and a decline in production from established mines that more than offset production increases from the opening of the Lihir mine and the Gobe oil field. The tax structure was significantly changed in the second half of 1999 after the introduction of a VAT and associated reductions in import tax rates, and at the same time domestic indirect tax rates were increased in an effort to rein in the fiscal deficit. Total expenditures during 1998-99, however, again did not adequately adjust to the lower level of mineral receipts reflecting a lack of real commitment to contain expenditure.

Frequent recourse was made to the manual writing of checks and use of trust accounts to circumvent newly established expenditure controls, arrears and unbudgeted salaries increased, as did expenditure under the Rural Development Program that placed resources directly under the control of national parliamentarians.

7. During March 2000-September 2001, a reform program backed by resources from the Fund and from other donors was implemented, and the fiscal deficit was held to just 1½ percent of GDP during this period. A recovery in mineral receipts increased total revenue by 2 percent of GDP (to 31 percent). At end 2000, the tax system was again reformed to adjust income tax bands for inflation, simplify the excise tax regime, and provide more incentives for mineral sector activities. Total expenditure remained largely unchanged as a sharp decrease in outlays under the Rural Development Project was offset by an increase in structural adjustment outlays. Yet, after the program period ended, expenditure increased sharply ahead of the mid-2002 election, with large overruns in wages and goods and services expenditure, and civil service expenditure reached almost 10 percent of GDP. Consequently, the deficit had increased to 4 percent of GDP by end-2001.

8. The budget deficit increased to 5½ percent of GDP in 2002. Mineral receipts declined again by 2 percent of GDP (to 3½ percent of GDP) due to the drought and the start of an anticipated medium-term decline in mineral receipts as all existing projects exhaust their known reserves. Expenditure on salaries and goods and services increased, as did inefficient development expenditures, including for the unbudgeted Yumi-Yet bridges project. Further, after minimal differences during the program period in 2000-01, the divergence between the below-the-line financing data and the above-the-line recorded deficit widened again to over 1 percent of GDP.

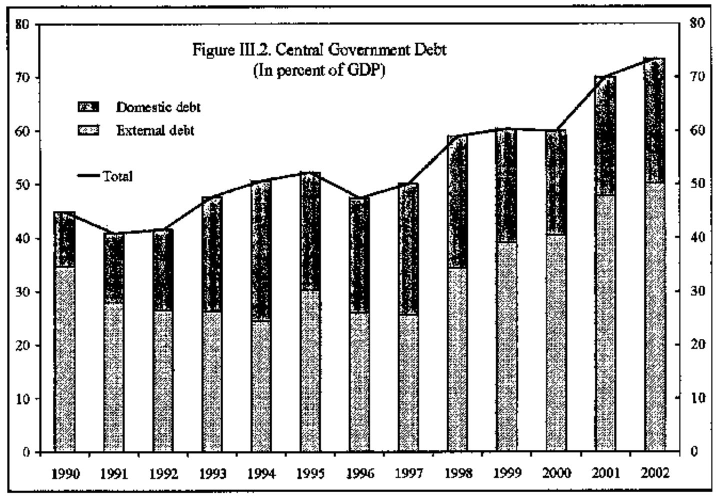
B. Central Government Debt Trends in the 1990s

9. During the last decade, the central government debt burden has increased sharply, rising from 45 percent of GDP in 1990 to a high of 74 percent of GDP in 2002 (Table III.4).[3] This increase reflected in part the deteriorating fiscal trends noted earlier but also the increasing sensitivity of the debt ratio to adverse macroeconomic trends in Papua New Guinea. In particular, the stock of both external and domestic debt increased rapidly during the first half of the 1990s, yet the debt-to-GDP ratio remained relatively constant due to the rapid rate of mineral sector growth and the real appreciation of the kina, both of which sharply reduced the external debt-to-GDP ratio. In contrast, after 1995, the debt-to-GDP share, especially for external debt, increased by 20 percentage points due to the rapid real depreciation of the kina and the contraction in real GDP.

---

[3] Due to data deficiencies, the debt data in this chapter do not include central government contingent liabilities (including guaranteed debt and potential liabilities to strengthen the banking sector) which are understood to be fairly small, or debt of the public enterprises. The authorities are preparing a comprehensive registry that will be completed by end-2003.

10. Central government domestic debt was just 10 percent of GDP in 1990, but had increased to 26 percent of GDP by 1994 to finance the large budget deficits, primarily from the central bank. Thereafter, domestic borrowing was contained due to the suspension of central bank financing once its holdings of government debt reached the legal limit,[4] the growing sovereign credit risk and consequent high real yield on treasury bills (over 5 percentage points),[5] and significant privatization receipts that averaged around 1-1½ percent of GDP a year in 1994-96. The level of domestic debt stood at 24 percent of GDP at end-2002, most held by the commercial banks, although an increasing share is held by the non-bank public reflecting the growth of pension and savings funds.



11. Central government external debt increased from $1.1 billion at end-1990 to $1.3 billion by end-1993. Since then, external debt levels have been fairly constant in U.S. dollar terms, as drawdowns largely matched scheduled amortization payments. However, as a share in GDP, central government external debt increased from 26 percent at end-1993 to 50 percent by end-2002 (two-thirds of total central government debt). This adverse trend was mainly attributable to the 30 percent decline in the real exchange rate since 1997 and the 5 percent decline in the level of real GDP over the same period. New debt has been more concessional, with the average nominal interest rate declining to around 3½ percent (from 5½ percent).

C. Fiscal Vulnerabilities

12. Against this background, with the budget deficit over 5 percent of GDP and a debt-to-GDP ratio at 74 percent at end-2002, fiscal policy in Papua New Guinea faces several challenges. In addition to ensuring policies are in place to achieve strong rates of economic

---

[4] At the time, the stock of net credit to government could not exceed 25 percent of ordinary budget revenue and the flow in any one year could not exceed 12.5 percent of such revenue. Under the Central Bank Act passed in 2000, the central bank can provide a temporary advance not exceeding K 100 million (adjustable for inflation) to the government, although it can also purchase treasury bills provided they are strictly for monetary policy purposes.

[5] However, after 1994 the average interest rate was usually negative due to arbitrary changes by the central government to the interest rate paid on its debt that is held by the central bank.

growth, reducing the high debt level will require a substantial reduction in the size of the budget deficit over the medium term. However, efforts to rein in the deficit will be complicated by the anticipated trend decline in receipts from the mineral and petroleum sectors, the need for an increase in social and productive expenditure to boost growth and reduce poverty, weak expenditure controls, and the lack of expenditure flexibility. Adding to these constraints, the budget's gross borrowing requirement during the next few years is large, and the central government debt-to-GDP ratio is highly sensitive to potential external and internal shocks. These vulnerabilities are discussed in more detail below.

A deteriorating fiscal outlook

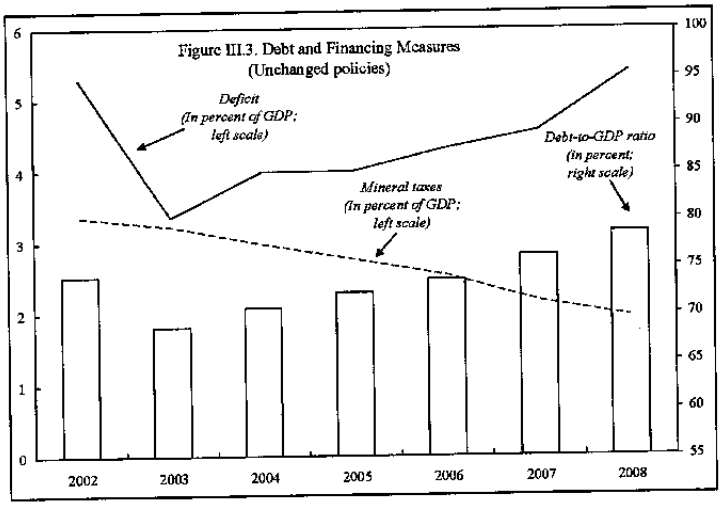


Figure III.3. Debt and Financing Measures
(Unchanged policies)

13. As noted above, receipts from the mineral and petroleum sectors have fluctuated during the 1990s, with an initial increase in receipts once a new oil field or mine starts production, and then a decline once the known reserves at the field or mine start to be exhausted. During the 1990s, new fields and mines opened at a time that was close to that when existing fields and mines were in decline. However, the decline in receipts that began in 2002 reflects the start of a significant medium-term downward trend in mineral and petroleum production, and hence in the fiscal receipts from this sector, given the minimal levels of new exploration activity that have been undertaken during the past decade.[6] Apart from a small well in the Moran oil field that will come on line in 2004, a proposed natural gas pipeline to Queensland is the only new resource project in prospect, but even if initiated in 2003, it would not come on stream until 2007.[7] As a consequence, receipts from the mineral and petroleum sectors are forecast to decline by a further 1½ percent of GDP by 2008 (to reach just 2 percent of GDP).

14. In these circumstances, assuming unchanged policies, the staff projects that the budget deficit would increase from 3½ percent of GDP in 2003 to a level over 5 percent of

---

[6] For a description of the impediments to mining activity, see the accompanying chapter in this *Selected Issues* paper.

[7] If constructed, the Queensland gas pipeline could generate income equivalent to 3-4 percent of GDP a year according to a recent private-sector study. To date, firm sales contracts for PNG-produced natural gas have been small and considerably below the minimum level required for viability of the pipeline project.

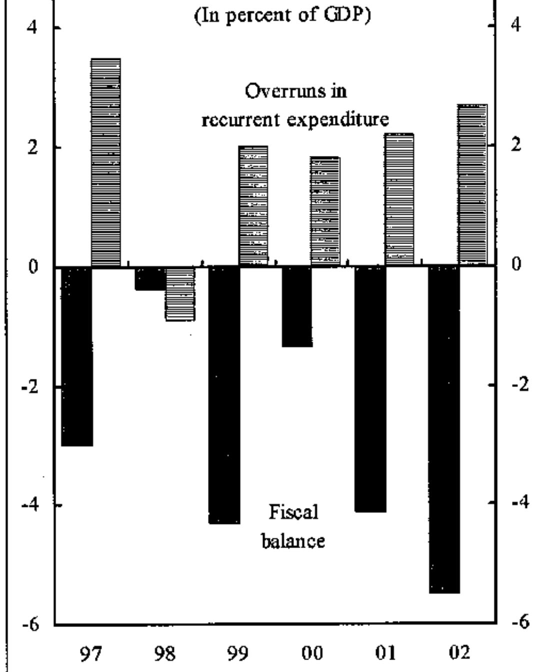
GDP by 2008 (Table III.5). The revenue ratio would decline by at least 1 percent of GDP (to 27½ percent). The projected decline in mineral and petroleum receipts, dividends from state-owned enterprises as more assets are privatized, and grants will at best only partially offset an increase in other (mainly indirect) tax receipts due to the ongoing improvements in tax administration. Expenditure would increase by around 1 percent of GDP (to 33 percent of GDP), with increases projected in wages and salaries as well as most other expenditures. In these circumstances, central government debt would increase further from 74 percent of GDP in 2002 to around 80 percent of GDP by 2008.

Ongoing expenditure pressures

15. Given current poverty levels in Papua New Guinea, there is a clear need for an increase in education, health, and road expenditures over the medium-term. Poverty levels have doubled during the last 10 years (to 40 percent of the population), and infant mortality and life expectancy levels are unfavorable. Further, access by the rural population to markets is hampered by the poor state of the highways, as well as the feeder roads. Yet increasing expenditure on social and infrastructure projects, while also achieving a large fiscal consolidation, will require a sharp decrease in less productive expenditure.

16. However, as seen during the last 10 years, achieving lasting reductions in less productive expenditure in Papua New Guinea has been problematic. Despite frequent plans to reduce domestic recurrent expenditure in the annual budget document, pressures for higher budgetary expenditure during the year have interacted with weak expenditure control mechanisms, and overruns in recurrent expenditure relative to the original budget appropriations have averaged 2-2½ percent of GDP.[8] These overruns have been attributable to both on-budget (mainly wages) expenditures as well as off-budget expenditures that are often authorized only after they have already taken place. Further, to the extent that lasting cuts have been achieved, these have fallen most heavily on goods and services expenditure, including for operations and maintenance. Consequently, the share of civil service wages and interest expenditure in total recurrent expenditure has

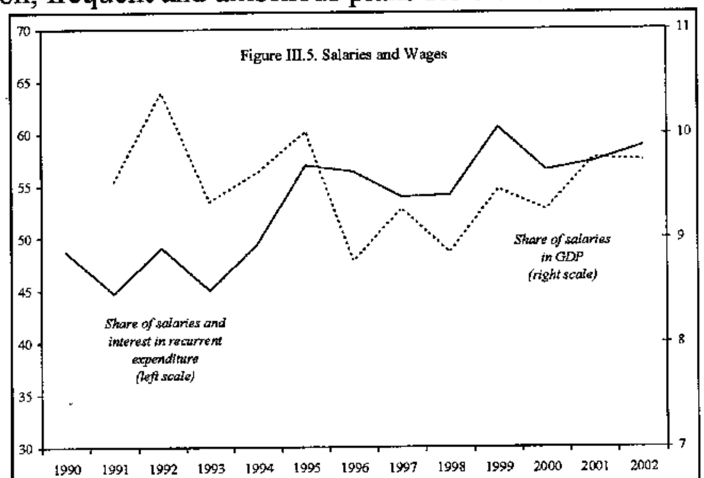
Figure III.4. Fiscal Expenditure and Balance (In percent of GDP)



[8] This does not include the deviation between the below-the-line and the above-the-line fiscal deficit that has averaged a net expenditure of over 1½ percent of GDP a year since 1996, which would add to the deviations from the original budget appropriations.

increased over time, rising from 45 percent at the start of the 1990s to almost 60 percent by 2002 (Table III.3).[9] This increase in the share of non-discretionary expenditure has over time reduced the degree of fiscal flexibility to adjust to better meet the priorities and changing circumstances

17. This expenditure rigidity has arisen from several channels. First, with regard to wages and salaries, achieving lasting savings has been problematic due to a decentralized system in the management of public sector human resources (between the Department of Personnel Management, the Department of Treasury and Finance, and the individual spending departments and agencies) coupled with the weak systems that exist to share information among the agencies involved.[10] In addition, frequent and ambitious plans for civil service retrenchments, which are often announced during times of fiscal stress, have traditionally been shelved soon thereafter due to the high separation costs involved (approximately one-month salary per year worked), leaving recourse to periodic wage freezes as the typical way that reductions in overall wage costs are achieved. However, throughout the 1990s, the civil service wage bill has averaged around 9½ percent of GDP, with just ¾ percent of GDP deviation on either side, indicating the temporary nature of any savings achieved in this manner (Table III.3).



18. Second, about one-fourth of central government recurrent expenditure is for transfers to sub-national governments. Several of these transfers (which together with revenue earmarking from the VAT finance around three-fourths of sub-national government expenditure) are computed on a per capita basis, and hence are intended to be fixed. The balance is mainly for development purposes and a strong political constituency supports

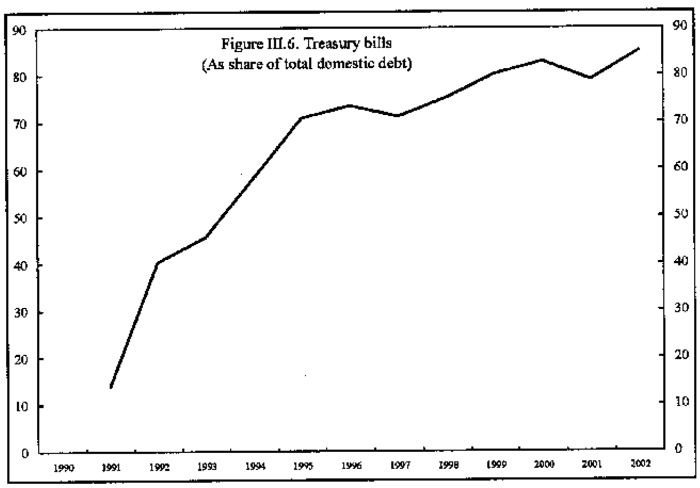
[9] This trend is one of the factors behind the switch of AusAID grants from general budgetary support to targeted projects that tend to focus on purchases of goods and non-wage services. While this to some extend frees up the need for domestic expenditure on these items, some of the funds under the AusAID grants are spent on administering the projects and for the hiring of local ex-patriot staff.

[10] The government is currently implementing a donor-supported project to rationalize these inter-agency responsibilities and combine the DPM and treasury payroll lists to determine better current levels of employment and work force needs, with assistance from the Asian Development Bank.

these transfers, since one sitting member in the national parliament represents each of the 20 provinces and 89 districts.[11] Indeed, some transfers for development expenditure are paid into trust funds that are under the direct control of the sitting member of the geographic area concerned. This institutional framework makes it difficult for provinces to share in the necessary degree of fiscal retrenchment.[12]

Large gross borrowing requirements

19. Large repayment obligations in the next few years will place an additional heavy burden on the budget. First, external debt servicing costs are scheduled to increase from 3 percent of GDP a year during 2000-02 to 4 percent a year during 2003-04, primarily due to repayment of donor funds received in the context of the previous government's stabilization effort (Table III.5).



20. Second, the maturity structure of domestic debt has been shortening, reflecting increased uncertainty about macroeconomic prospects, and hence rollover obligations in 2003-04, and their associated risks, are now large. Specifically, the share of one-month to six-month treasury bills has increased to over 80 percent of total domestic debt (or to 20 percent of GDP; Table III.4). Even within the treasury bill stock, the average maturity has fallen from 105 days as recently as 2000 to around 50 days by end-2002. Yet in the event of a reevaluation by the private sector of their willingness to hold treasury bills, in accordance with the Central Bank Act, the Bank of Papua New Guinea could only increase its holdings for monetary policy purposes. Further, large purchases of treasury bills by the central bank that were not sterilized could lead to a sharp monetary injection that would exacerbate exchange rate dynamics.

21. Therefore, current total gross domestic and external financing requirements on existing obligations are now in the order of 24 percent of GDP for 2003 and 2004. These

[11] There are also 284 local governments. For details on fiscal federalism issues, see *Papua New Guinea—Selected Issues and Statistical Appendix* (SM/02/161, May 22, 2002)

[12] Compounding this inflexibility, the quality of sub-national spending that is supported by transfers is reportedly weak due to poor (and often political) expenditure priorities, incomplete records that are based on varying classification standards, and lack of adequate oversight.

gross financing requirements will be even higher to the extent that the deficit in 2003 and 2004, net of privatization receipts, is financed by short-term debt.

Large potential shocks to central government debt

22. The central government debt path is also sensitive to shocks that could push debt as a share in GDP to a very high level. The staff has undertaken a sensitivity analysis of selective domestic and external shocks based around the methodology outlined in the recent *Assessing Sustainability* paper (see SM/02/166) adjusted for country-specific circumstances. In general, the methodology is to shock the medium-term baseline path of central government debt by a two-standard deviation change in critical variables as derived from historical country-specific data (which in the case of Papua New Guinea includes both favorable and unfavorable periods). The intention is to provide an indication of the size of the standard errors around the baseline path of the debt-to-GDP ratio. The reference medium-term debt path upon which these shocks are applied is the staff's baseline scenario, which is predicated on a large fiscal consolidation and the implementation of widespread structural reforms over the medium term (see below). Under this baseline scenario, central government debt is projected to fall from 74 percent of GDP in 2002 to 64½ percent of GDP by 2008.[13] The impacts of the various shocks on this medium-term debt-to-GDP path are as follows (Table III.6):

Primary balance: The primary balance is assumed to deteriorate by around 3 percent of GDP for two years, before returning to its baseline level. Under this shock, the central government debt-to-GDP ratio would remain around its current high level, implying a debt-to-GDP level in 2008 that is 10 percentage points higher than projected in the baseline scenario.

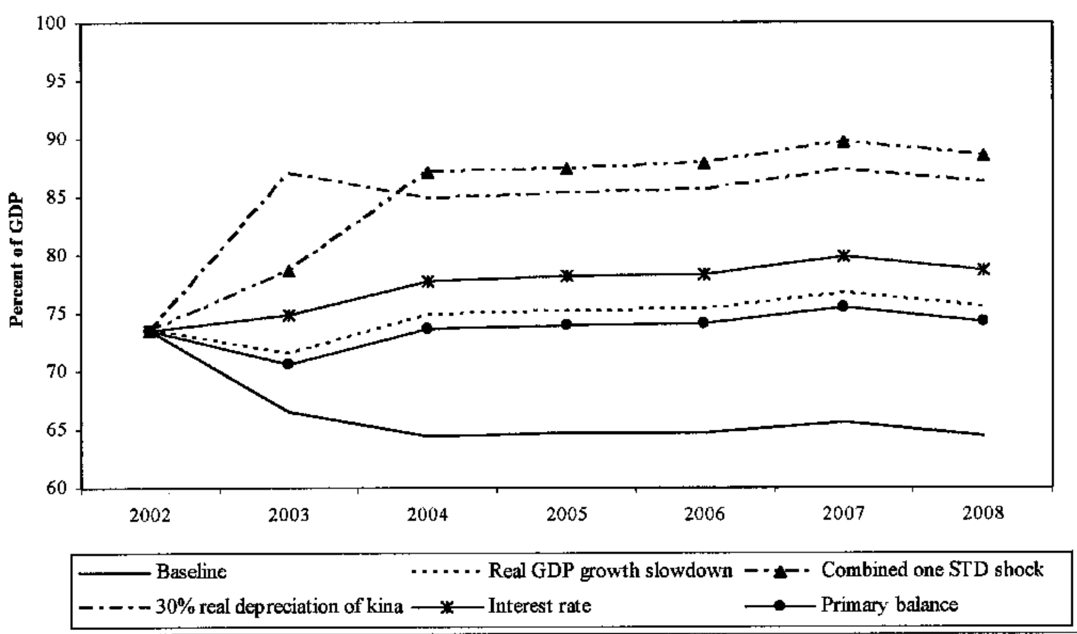
Real depreciation: The kina is assumed to depreciate by 30 percent in real terms in 2003 relative to its level in the baseline and then to remain at this more depreciated level throughout the medium term. The debt-to-GDP ratio increases rapidly in 2003—to 87 percent of GDP or 20 percentage points higher than the baseline in 2003—primarily due to the valuation effect on the stock of external debt, and stays at this higher level thereafter.

Interest rates: The average (domestic and foreign) interest rate is assumed to increase by around 10 percentage points and then to fall back to its baseline level thereafter. In this shock, the debt level would increase to around 79 percent of GDP by 2008.

---

[13] This methodology focuses on just the direct impact on debt magnitudes as a share in GDP, and does not take account of secondary effects on revenue and expenditure from each shock.

Figure III.7. Central Government Debt Sustainability--Stress Tests



Real GDP growth: Real GDP growth is assumed to deteriorate by 5 percent annually during 2003-04 and then return to the baseline path. In these circumstances, the debt level would also stay at around its current level during the medium term.

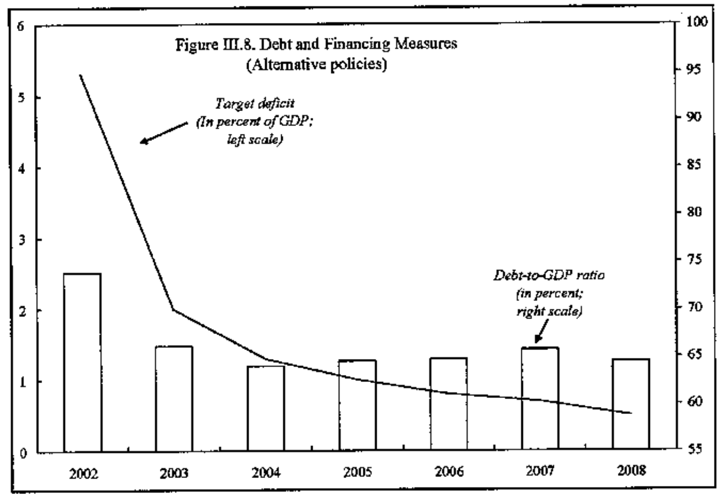
Combined shock: Finally, if the level of interest rates, economic growth, and the primary balance in 2003-04 are all one standard deviation more deleterious than under the baseline scenario, the debt ratio would gradually increase from its current level to reach 89 percent of GDP by 2008, or over 20 percentage points above the level in the baseline scenario.

23. In summary, then, the debt-to-GDP ratio would generally either remain at its current high level, or deteriorate further under the shocks considered here, indicating a large degree of vulnerability to the current level of central government debt.

D. The Magnitude and Form of the Adjustment Path

24. To address these vulnerabilities, and hence mitigate the risks to the fiscal outlook, it is critical that the size of the budget deficit is reduced and that policies are in place to support a high rate of economic growth. To this aim, the staff's medium-term scenario, which is broadly similar to that of the authorities' objectives, is consistent with reducing inflation back to low levels and increasing nonmineral sector growth (to reach 3½ percent by 2008). The staff scenario targets a 9-percentage point reduction in the central government external debt-to-GDP ratio (to around 40 percent) while leaving the domestic debt-to-GDP ratio broadly unchanged. This target for external debt is in line with the Fund's recent *Assessing Sustainability* paper (SM/02/166) that notes a heightened risk of crisis once the external

debt-to-GDP ratio exceeds 40 percent of GDP. In addition to ensuring that policies are in place to achieve the projected increase in nonmineral growth over the medium term, this debt target would be consistent with a fiscal deficit that trends down to just ½ percent of GDP by 2008 and averages 1 percent of GDP over the projection period (Table III.5).



25. As noted, based on unchanged policies, the staff projects that the fiscal deficit in 2003 will be around 3½ percent of GDP. Hence, after taking account of a potential 1½-percentage points of GDP decline in interest payments if a steady reduction in debt levels over the projection period is achieved, reaching a fiscal deficit of ½ percent of GDP by 2008 will require an additional adjustment in the order of 3 percentage points, once the trend decline in mineral receipts is taken into account, in order to achieve the medium-term fiscal objectives.

26. There are myriad combinations of revenues and expenditures that could be implemented to achieve this fiscal adjustment. The main challenge is to find the most appropriate mix given the revenue augmenting opportunities, expenditure needs, and the opportunities for reducing lower-priority expenditure. The forthcoming Public Expenditure Rationalization Review (PERR) will be helpful to identify the expenditure priorities, including the areas for reductions in less productive outlays and for efficiency improvements. Increases in nonmineral taxes, especially indirect tax rates, could also be considered in order to provide more scope for an increase in the needed priority expenditures over the medium-term.

Table III.1. Papua New Guinea: Central Government Budget, 1990-2002

(In percent of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Revenue	32.4	31.1	28.5	27.3	27.0	28.8	28.4	31.4	29.2	29.3	31.3	30.6	29.6
Tax	19.2	17.3	18.1	20.1	20.9	20.5	22.2	23.7	20.5	22.1	24.3	23.4	21.8
Nonmineral taxes	19.2	17.3	16.5	14.8	15.8	16.2	16.3	18.2	17.4	19.1	18.7	17.7	18.4
Mineral taxes	0.0	0.0	1.6	5.3	5.1	4.4	5.9	5.5	3.1	3.0	5.6	5.7	3.4
Nontax	5.4	5.2	4.0	3.1	2.4	2.8	2.0	3.0	3.0	1.9	1.5	1.7	1.5
Of which: mineral nontax	0.2	0.4	0.4	0.3	0.2	0.4	0.3	0.9	0.8	0.4	0.0	0.4	0.1
Grants	7.8	8.7	6.5	4.1	3.7	5.4	4.2	4.6	5.7	5.3	5.5	5.5	6.3
Budget grants	6.9	7.9	5.8	3.5	3.0	4.1	2.4	2.0	2.1	0.8	0.3	0.2	0.2
Project grants	0.9	0.7	0.6	0.6	0.8	1.3	1.8	2.7	3.6	4.5	5.2	5.3	6.1
Expenditure	40.3	36.9	34.3	34.5	30.6	29.8	28.8	31.2	31.0	32.4	32.8	34.5	33.7
Recurrent	29.5	28.6	28.2	28.0	26.4	25.7	22.2	25.0	24.3	23.0	23.3	24.3	23.4
Noninterest recurrent	25.9	25.3	24.7	24.7	23.0	21.1	18.5	20.8	20.0	18.5	18.8	19.9	19.4
National departments	15.2	14.6	14.3	12.5	12.6	13.3	10.5	11.6	11.0	11.0	12.0	12.2	12.5
Provinces	9.0	8.8	7.8	6.5	6.0	5.7	6.4	7.5	7.3	6.1	5.5	6.0	5.4
Statutory authorities	1.8	2.0	2.6	5.8	4.4	2.2	1.6	1.7	1.7	1.4	1.3	1.7	1.5
Interest	3.5	3.2	3.4	3.2	3.4	4.6	3.7	4.2	4.3	4.5	4.5	4.4	4.0
Development and net lending	10.8	8.3	6.2	6.5	4.2	4.1	6.5	6.1	6.6	9.4	9.5	10.2	10.3
Development budget	9.9	8.1	6.3	6.5	4.2	4.0	6.6	6.2	6.7	9.4	8.5	9.8	10.3
Structural adjustment	...	...	...	...	...	...	...	...	...	...	1.1	0.4	...
Net lending	1.0	0.2	-0.1	0.0	0.0	0.0	-0.1	0.0	-0.1	-0.1	0.0	0.0	0.0
Overall balance (from above the line)	-7.9	-5.8	-5.8	-7.2	-3.6	-1.0	-0.3	0.2	-1.8	-3.1	-1.5	-3.9	-4.1
Errors, omissions, and discrepancy													
Residual revenue (+) / expenditure (-) (net)	5.4	3.6	1.5	1.3	2.7	0.2	-2.9	-3.2	1.4	-1.2	0.1	-0.2	-1.4
Overall balance (from below the line)	-2.5	-2.2	-4.3	-6.0	-1.0	-0.8	-3.2	-3.0	-0.4	-4.3	-1.4	-4.1	-5.5
Primary surplus	1.1	1.0	-0.9	-2.7	2.5	3.8	0.5	1.2	3.9	0.2	3.2	0.3	-1.4
Financing	2.5	2.2	4.3	6.0	1.0	0.8	3.2	3.0	0.4	4.3	1.4	4.1	5.5
Foreign financing (net)	0.4	-1.6	1.1	1.3	-2.0	-0.4	0.2	-1.0	-1.2	2.0	0.2	3.2	-1.3
New borrowing	5.1	4.0	2.6	3.1	0.8	3.4	2.0	1.9	1.4	4.7	2.9	6.4	2.0
Project loans	5.1	4.0	2.6	3.1	0.8	1.2	1.7	1.4	1.4	2.4	0.9	1.7	2.0
Concessional financing	0.0	0.0	0.0	0.0	0.0	2.2	0.3	0.5	0.0	2.3	2.0	4.6	0.0
Amortization	-4.7	-5.7	-1.5	-1.9	-2.8	-3.9	-1.8	-2.9	-2.6	-2.6	-2.8	-3.2	-3.3
Domestic financing (net)	2.1	3.8	3.3	4.7	2.4	-0.3	2.1	4.1	1.4	1.7	0.3	-0.4	5.8
Bank of Papua New Guinea	2.2	0.1	0.1	-0.1	1.1	-2.5	-3.2	2.2	6.0	3.7	0.5	-2.7	2.3
Commercial banks	0.2	3.2	3.1	1.8	-1.5	3.9	4.8	0.0	-4.3	-2.5	-1.9	0.2	3.0
Non banks	-0.3	0.5	0.0	3.0	2.7	-1.8	0.5	1.9	-0.2	0.5	1.7	2.1	0.6
Float	...	...	...	...	...	...	...	...	...	0.2	0.6	1.3	-0.9
Asset sales	0.0	0.0	0.0	0.0	0.6	1.6	0.9	0.0	0.2	0.3	0.3	0.0	1.8

Sources: Data provided by the Papua New Guinea authorities; and Fund staff estimates.

Table III.2. Papua New Guinea: Central Government Revenue, 1990-2002

(In percent of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total revenue and grants	32.4	31.1	28.5	27.3	27.0	28.8	28.4	31.4	29.2	29.3	31.3	30.6	29.6
Tax revenue	19.2	17.3	18.1	20.1	20.9	20.5	22.2	23.7	20.5	22.1	24.3	23.4	21.8
Taxes on income and profit	10.0	9.3	10.6	12.6	11.8	11.5	13.2	14.2	12.9	13.6	15.4	15.4	13.7
Personal tax	6.0	5.7	5.6	3.9	3.6	4.4	4.6	5.2	5.8	6.0	5.7	6.1	6.3
Company tax	3.1	2.5	2.2	2.3	2.0	1.7	1.7	2.1	2.4	2.8	2.8	2.6	2.9
Dividend withholding tax	-	0.4	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6
Mineral and petroleum taxes	-	-	1.6	5.3	5.1	4.4	5.9	5.5	3.1	2.9	4.5	4.4	2.4
Other direct	0.9	0.7	0.6	0.6	0.6	0.6	0.5	0.6	0.9	0.6	0.6	0.5	0.6
Interest withholding tax	-	-	-	-	-	-	-	-	-	0.4	0.7	0.5	0.2
Gaming tax	-	-	-	-	-	-	-	0.3	0.3	0.4	0.6	0.6	0.7
Indirect taxes													
Excise tax	9.2	8.0	7.5	7.5	9.1	9.0	8.9	9.5	7.5	8.5	8.9	8.0	8.1
Domestic excises	2.9	2.2	2.2	1.9	1.9	1.7	1.7	2.1	2.0	2.0	1.8	1.9	1.6
VAT plus mining levy	-	-	-	-	-	-	-	-	-	2.0	3.4	3.2	3.6
VAT (70% national share only)	-	-	-	-	-	-	-	-	-	1.9	2.3	2.0	2.7
Mining levy	-	-	-	-	-	-	-	-	-	0.1	1.1	1.2	1.0
Taxes on international trade	6.3	5.8	5.3	5.6	7.1	7.3	7.2	7.4	5.6	4.5	3.6	2.8	2.8
Import duties	5.9	5.3	4.7	4.1	4.6	5.0	5.0	5.3	5.1	3.2	0.9	0.7	0.8
Export duties (logs)	0.4	0.5	0.6	1.5	2.5	2.3	2.3	2.1	0.5	0.9	1.4	1.0	1.0
Import excises	-	-	-	-	-	-	-	-	-	0.4	1.2	1.1	1.1
Nontax revenue	5.4	5.2	4.0	3.1	2.4	2.8	2.0	3.0	3.0	1.9	1.5	1.7	1.5
Property income	2.7	2.7	2.0	1.5	1.0	1.2	0.8	1.5	1.3	1.0	0.3	1.0	0.7
Dividends	2.0	1.9	1.5	1.0	0.5	0.8	0.5	0.6	0.4	0.5	0.3	0.6	0.6
Other	0.5	0.5	0.1	0.2	0.4	-	-	-	-	-	-	-	-
Mining and petroleum	0.2	0.4	0.4	0.3	0.2	0.4	0.3	0.9	0.8	0.4	-	0.4	0.1
Interest and fees	0.7	0.6	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	2.0	1.9	1.5	1.3	1.3	1.5	1.2	1.6	1.7	0.9	1.2	0.7	0.6
Foreign grants	7.8	8.7	6.5	4.1	3.7	5.4	4.2	4.6	5.7	5.3	5.5	5.5	6.3
Budgetary support	6.9	7.9	5.8	3.5	3.0	4.1	2.4	2.0	2.1	0.8	0.3	0.2	0.2
Project grants	0.9	0.7	0.6	0.6	0.8	1.3	1.8	2.7	3.6	4.5	5.2	5.3	6.1
Memorandum items:													
Asset sales	-	-	-	-	0.6	1.6	0.9	-	0.2	0.3	0.3	-	
Minerals and petroleum receipts	-	-	1.6	5.3	5.1	4.4	5.9	5.5	3.1	3.0	5.6	5.7	3.4
Tax revenue exc. mineral receipts	19.2	17.3	16.5	14.8	15.8	16.2	16.3	18.2	17.4	19.1	18.7	17.7	18.4
Revenue excluding grants	24.7	22.5	22.0	23.2	23.3	23.4	24.2	26.7	23.5	24.0	25.8	25.1	23.3
Revenue excluding project grants	31.6	30.4	27.9	26.6	26.3	27.5	26.6	28.7	25.6	24.8	26.2	25.3	23.5
Revenue exc. minerals and projects	31.4	30.1	25.9	21.0	21.0	22.7	20.5	22.4	21.6	21.3	20.5	19.2	20.0

Sources: Data provided by the Papua New Guinea authorities; and staff estimates.

Table III.3. Papua New Guinea: Central Government Expenditure, 1990-2002

(in percent of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total expenditure and net lending	40.3	36.9	34.3	34.5	30.6	29.8	28.8	31.2	31.0	32.4	32.8	34.5	33.7
Recurrent expenditure	29.5	28.6	28.2	28.0	26.4	25.7	22.2	25.0	24.3	23.0	24.4	24.7	23.4
National	15.2	14.6	14.3	12.5	12.6	13.3	10.5	11.6	11.0	11.0	13.1	12.6	12.5
Salaries & wages	7.3	6.5	6.1	5.5	5.8	5.7	5.0	5.2	4.9	4.5	5.0	5.1	5.3
Goods & services	7.9	8.1	8.2	6.9	6.8	7.6	5.4	6.4	6.1	4.1	3.7	3.9	5.2
Account 207 - Salaries	...	...	...	...	...	...	...	...	...	0.6	0.5	0.4	...
Account 207 - Other	...	...	...	...	...	...	...	...	...	...	0.8	1.9	...
Education funding	...	...	...	...	...	...	...	...	...	...	...	...	1.2
Arrears payment	...	...	...	...	...	...	...	...	...	1.7	2.0	0.9	0.1
Structural adjustment	...	...	...	...	...	...	...	...	...	0.0	1.1	0.4	0.6
Provinces	9.0	8.8	7.8	6.5	6.0	5.7	6.4	7.5	7.3	6.1	5.5	6.0	5.4
Salaries & wages	3.5	3.1	4.3	3.8	3.9	4.3	3.8	4.1	3.9	4.4	3.8	4.3	4.5
Staffing grants	3.5	3.1	2.9	2.6	2.4	...	...	1.5	1.4	1.7	1.3	1.5	
Teachers' salaries	0.0	0.0	1.3	1.1	1.3	...	...	2.6	2.5	2.7	2.5	2.8	3.0
Goods and services	1.0	0.9	1.0	0.7	0.3	1.3	1.1	1.0	1.6	1.0	1.0	1.0	0.4
Conditional grants	4.5	4.8	2.5	2.0	1.8	0.0	1.5	2.4	1.7	0.7	0.7	0.7	0.5
Statutory Authorities	1.8	2.0	2.6	5.8	4.4	2.2	1.6	1.7	1.7	1.4	1.3	1.7	1.5
Interest payments	3.5	3.2	3.4	3.2	3.4	4.6	3.7	4.2	4.3	4.5	4.5	4.4	4.0
Domestic	...	...	2.0	1.9	2.2	3.0	2.5	2.9	2.9	3.0	3.0	2.6	2.3
External	...	...	1.4	1.4	1.2	1.6	1.2	1.3	1.4	1.5	1.5	1.8	1.8
Development and net lending	10.8	8.3	6.2	6.5	4.2	4.1	6.5	6.1	6.6	9.4	8.4	9.8	10.3
Development expenditure	9.9	8.1	6.3	6.5	4.2	4.0	6.6	6.2	6.7	9.4	8.5	9.8	10.3
Project grants (non-cash)	0.9	0.7	0.6	0.6	0.8	1.3	1.8	2.7	3.6	4.5	5.2	5.3	6.1
Concessional loans (non-cash)	5.1	4.0	2.6	1.2	0.8	1.0	1.7	1.2	1.4	1.4	1.1	0.9	0.9
Non-concessional loans (cash)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Domestic resources (cash)	3.9	3.4	3.0	4.7	2.6	1.8	3.1	2.3	1.7	3.6	2.2	3.6	2.5
Net lending	1.0	0.2	-0.1	0.0	0.0	0.0	-0.1	0.0	-0.1	-0.1	0.0	0.0	0.0
Memorandum items:													
Expenditure exc. projects	39.5	36.2	33.7	33.9	29.9	28.5	27.0	28.5	27.3	27.9	27.7	29.2	27.6
Expenditure exc. interest&projects	35.9	32.9	30.3	30.6	26.4	23.9	23.2	24.3	23.0	23.4	23.2	24.8	23.5
Expenditure exc. interest, projects, and commodity expenditure	35.2	32.9	27.6	29.4	25.6	22.9	21.5	23.1	21.6	22.0	22.0	23.9	22.7
Salaries and wages/GDP	10.8	9.5	10.4	9.3	9.6	10.0	8.8	9.3	8.9	9.5	9.3	9.8	9.7
Goods and services and other/GDP	15.1	15.8	14.3	15.4	13.4	11.1	9.7	11.5	11.2	9.1	10.6	10.6	9.7
Share wages in total recurrent	36.7	33.4	36.9	33.4	36.4	38.9	39.5	37.1	36.4	41.1	38.0	39.5	41.6
Share wages&interest in recurrent	48.7	44.8	49.1	45.0	49.4	56.9	56.4	53.9	54.1	60.6	56.5	57.3	58.8

Sources: Data provided by the Papua New Guinea authorities; and Fund staff estimates.

Table III.4. Papua New Guinea: Domestic and External Debt, 1990-2002

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
						(In billions of kina)							
Central government debt 1/	1.4	1.5	1.8	2.3	1.4	3.1	3.3	3.9	4.6	5.5	6.1	7.5	8.0
Domestic debt	0.3	0.5	0.6	1.0	1.4	1.3	1.5	1.7	1.9	1.9	1.9	2.2	2.5
Of which : Treasury bills	...	0.1	0.3	0.5	0.8	0.9	1.1	1.2	1.4	1.5	1.5	1.7	2.2
External debt	1.1	1.0	1.1	1.3	1.5	1.8	1.8	2.2	2.7	3.6	4.3	5.3	5.5
(in millions of U.S. dollars)	1.1	1.1	1.1	1.3	1.3	1.3	1.4	1.3	1.3	1.3	1.4	1.4	1.4
						(In percent of GDP)							
Central government debt 1/	45	41	42	48	51	52	47	50	59	60	60	70	74
Domestic debt	10	13	15	21	26	22	21	25	25	21	20	22	24
Of which : Treasury bills	...	2	6	10	15	16	16	17	19	17	16	18	20
External debt	35	28	27	26	24	30	26	26	34	39	40	48	50
						(In percent)							
Actual average interest rates													
Nominal yield on domestic debt	...	...	12.9	9.6	8.7	11.2	9.7	9.3	9.1	11.7	15.3	12.5	10.5
Real yield on domestic debt	...	...	8.3	4.4	5.7	-5.2	-1.7	5.2	-4.0	-2.8	-0.3	2.9	-1.2
Interest rate on external debt	...	...	5.7	5.7	4.7	5.6	4.6	4.5	4.4	4.2	3.6	3.8	3.7
Memorandum items:													
Privatization receipts (in percent of GDP)	0.0	0.0	0.0	0.6	1.7	1.6	0.9	0.0	0.2	0.3	0.3	0.0	1.8
Treasury bills as ratio of total domestic debt	...	14	40	46	58	71	74	71	75	80	83	79	85
Inflation (period average)	7.0	7.0	4.3	5.0	2.9	17.3	11.6	3.9	13.6	14.9	15.6	9.3	11.8

Sources: Data provided by the Papua New Guinea authorities; and Fund staff estimates.

1/ For comparability between years before and after 1999, MRSF deposit balances held at the BPNG have been subtracted from BPNG's treasury bill holdings.

Table III.5. Papua New Guinea: Medium-Term Fiscal Projections, 2002-08

(In percent of GDP)

	2002	2003	2004	2005	2006	2007	2008
Unchanged policies							
Revenue	29.6	29.0	28.4	28.2	27.8	27.7	27.6
Tax 1/	21.8	21.4	21.1	21.0	20.8	20.7	20.6
Nonmineral taxes	18.4	18.1	18.1	18.2	18.2	18.6	18.7
Mineral taxes	3.4	3.2	3.0	2.8	2.5	2.2	2.0
Non-tax 2/ 3/	1.5	1.6	1.5	1.4	1.3	1.3	1.2
Of which : Mineral non-tax revenue	0.1	0.2	0.2	0.2	0.2	0.2	0.1
Grants 4/	6.3	6.0	5.8	5.8	5.7	5.8	5.8
Budget grants	0.2	0.8	0.0	0.0	0.0	0.0	0.1
Project grants	6.1	5.2	5.8	5.8	5.7	5.7	5.7
Expenditure	33.7	32.5	32.4	32.2	32.1	32.3	33.0
Recurrent	23.4	22.4	20.8	21.4	21.5	22.1	22.8
Noninterest recurrent	19.4	17.4	16.8	16.7	16.8	17.3	17.6
National departments	12.5	10.7	10.0	10.0	10.0	10.3	10.5
Provinces	5.4	5.3	5.2	5.2	5.3	5.5	5.6
Statutory authorities	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Interest	4.0	4.9	4.0	4.7	4.7	4.8	5.2
Development and net lending	10.3	10.2	11.6	10.8	10.7	10.2	10.2
Deficit (above the line)	-4.1	-3.5	-4.0	-4.0	-4.3	-4.6	-5.4
Deficit (below the line)	-5.5	-3.5	-4.0	-4.0	-4.3	-4.6	-5.4
Foreign financing (net)	-1.3	-0.3	-1.1	-1.1	-0.7	-1.0	-1.1
Of which : Amortization	-3.3	-4.2	-3.7	-3.4	-2.9	-2.7	-2.7
Privatization receipts	1.8	0.8	0.4	0.4	0.0	0.0	0.0
Other financing	5.0	3.0	4.7	4.7	5.1	5.5	6.5
Debt-to-GDP ratio	74	69	71	72	74	76	79
Domestic	24	23	25	25	26	29	31
Foreign	50	45	46	47	47	48	47
Adjustment policies							
Target deficit (below the line)	-5.5	-2.0	-1.3	-0.9	-0.7	-0.5	-0.3
Foreign financing (net)	-1.3	-0.3	-1.1	-1.1	-0.7	-1.0	-1.1
Of which : Amortization	-3.3	-4.2	-3.7	-3.4	-2.9	-2.7	-2.7
Privatization receipts	1.8	0.8	0.4	0.4	0.0	0.0	0.0
Other financing	5.0	1.5	2.0	1.6	1.4	1.5	1.4
Debt-to-GDP ratio	74	67	64	65	65	66	64
Domestic	24	22	22	22	22	23	23
Foreign	50	45	43	43	43	43	41

Sources: Data provided by the papua New Guinea authorities; and Fund staff estimates and projections.

Table III.6. Papua New Guinea: Central Government Debt Sustainability Framework, 1992-2008

	Actual											Projections					
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
I. Baseline Medium-Term Projections																	
Public debt/revenues 1/	100.0	167.7	211.5	199.5	193.8	191.0	229.3	206.3	191.5	228.7	248.1	229.3	221.3	222.4	222.9	223.9	220.6
Public debt/GDP 1/	43.9	50.1	54.1	57.4	55.1	60.0	67.7	60.4	60.0	70.0	73.5	66.6	64.5	64.6	64.7	65.6	64.4
Change in public debt/GDP	0.2	6.2	4.0	3.2	-2.3	4.9	7.7	-7.3	-0.4	10.0	3.5	-6.9	-2.1	0.2	0.0	0.9	-1.2
Net debt-creating flows/GDP (5+6)	0.2	-3.4	2.2	0.2	-9.7	-1.8	-3.6	-4.6	-3.3	1.7	-3.0	-4.8	-2.6	-1.9	-1.7	-0.5	-2.7
Overall deficit, excluding net interest payments/GDP (=primary deficit)	2.8	-1.4	1.9	-3.6	-5.1	-4.6	-1.9	-1.3	-3.0	-0.5	0.1	-1.4	-2.6	-2.7	-2.7	-2.8	-3.0
$((r - \pi) - g(1+\pi))/(1+g+\pi+g\pi))$debt/GDP (8/7) 2/	-2.7	-2.0	0.3	3.8	-4.5	2.7	-1.6	-3.2	-0.3	2.2	-3.1	-3.4	0.0	0.8	1.0	2.2	0.3
Adjustment factor: $1+g+\pi+g\pi$	1.2	1.2	1.1	1.1	1.2	1.0	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.0	1.0	1.0	1.0
$((r - \pi) - g(1+\pi))$debt/GDP (9+10)	-3.1	-2.3	0.3	4.2	-5.3	2.8	-1.8	-3.6	-0.3	2.3	-3.4	-3.8	0.0	0.8	1.1	2.3	0.3
$(r - \pi)$ times debt/GDP	3.1	5.5	3.4	2.1	-0.5	0.5	-4.4	1.7	-1.2	0.1	-5.9	-2.3	1.6	1.7	2.2	2.7	2.4
minus $g(1+\pi)$ times debt/GDP	-6.2	-7.8	-3.1	2.0	-4.8	2.3	2.6	-5.4	0.8	2.2	2.5	-1.4	-1.6	-0.9	-1.1	-0.4	-2.1
Residual, incl. asset changes, privatization receipts (negative), and valuation changes in external debt /GDP (3-4)	0.0	9.6	1.8	3.0	7.4	6.7	11.3	-2.8	3.0	8.2	6.5	-2.1	0.5	2.1	1.7	1.5	1.4
Memorandum items: Key macro and external assumptions																	
Nominal GDP (billions of kina)	4	5	5	6	7	7	8	9	10	10	11	12	13	14	14	14	15
Real GDP growth (in percent per year)	13.8	18.2	5.9	-3.3	7.7	-3.9	-3.8	7.6	-1.3	-3.4	-3.1	1.8	2.3	1.3	1.7	0.6	3.1
Consumer price index (change, in percent per year)	4.3	5.0	2.9	17.3	11.6	3.9	13.6	14.9	15.6	9.3	11.8	12.3	6.9	4.0	2.5	2.0	2.0
Exchange rate (kina per US dollar)	1.0	1.0	1.0	1.3	1.3	1.4	2.1	2.5	2.8	3.4	4.0	4.0	4.1	4.3	4.4	4.4	4.5
Nominal appreciation of kina against US dollar		-1.4	-2.7	-24.8	1.3	-8.0	-30.4	-19.2	-7.6	-18.2	-16.0	0.0	-2.5	-4.1	-2.2	-1.2	-1.0
GDP deflator (change, in percent per year)	2.9	-2.5	4.4	13.2	8.5	6.8	14.6	4.8	9.7	6.9	14.3	10.6	3.8	3.2	2.0	1.0	1.7
Average interest rate on public debt (percent per year)	10.0	10.0	11.2	17.1	7.6	7.8	7.2	7.4	7.8	7.0	5.9	7.4	6.2	5.8	5.4	5.2	5.3
Average real interest rate (nominal rate minus change in GDP deflator, percent)	7.1	12.5	6.9	4.0	-0.9	1.0	-7.3	2.6	-1.9	0.2	-8.4	-3.2	2.4	2.6	3.4	4.2	3.6
Growth of revenues (deflated by GDP deflator, in percent per year)	13.1	12.3	2.8	-7.4	10.2	5.8	-9.2	8.9	3.3	-5.5	-6.2	-2.6	3.5	0.4	1.8	0.3	3.0
Growth of noninterest expenditure (deflated by GDP deflator, in percent per year)	15.8	-1.6	2.2	-11.5	-0.2	10.6	-0.9	8.7	0.2	2.7	-5.4	-6.8	-0.6	0.0	1.9	0.1	2.1
II. Stress Tests (in percent of GDP)																	
1. If real interest rate in 2003 and 2004 is average plus two standard deviations, others at baseline											73.5	74.9	77.8	78.1	78.4	79.8	78.6
2. If real GDP growth rate in 2003 and 2004 is negative 5 percent, others at baseline											73.5	71.5	74.8	75.1	75.3	76.6	75.5
3. If primary balance (in percent of GDP) in 2003 and 2004 is average minus two standard deviations, others at baseline											73.5	70.6	73.7	73.9	74.1	75.4	74.2
4. Combination of 1-3 using one standard deviation shocks											73.5	78.6	87.1	87.5	87.9	89.6	88.5
5. One time 30 percent real depreciation in 2003, others at baseline 3/											73.5	86.9	84.8	85.2	85.6	87.3	86.1
Memorandum items																	
Primary deficit (percent of GDP, average of past 10 years)											-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Primary deficit (percent of GDP, standard deviation of past 10 years)											2.3	2.3	2.3	2.3	2.3	2.3	2.3
Real interest rate (nominal rate minus change in GDP deflator, average of past 10 years)											-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Real interest rate (nominal rate minus change in GDP deflator, standard deviation of past 10 years)											5.0	5.0	5.0	5.0	5.0	5.0	5.0
Nominal interest rate (average of past 10 years)											8.8	8.8	8.8	8.8	8.8	8.8	8.8
Nominal interest rate (standard deviation of past 10 years)											3.4	3.4	3.4	3.4	3.4	3.4	3.4
Real GDP growth rate (average of past 10 years)											0.3	0.3	0.3	0.3	0.3	0.3	0.3
Real GDP growth rate (standard deviation of past 10 years)											5.2	5.2	5.2	5.2	5.2	5.2	5.2
GDP deflator (average of past 10 years)											9.2	9.2	9.2	9.2	9.2	9.2	9.2
GDP deflator (standard deviation of past 10 years)											4.0	4.0	4.0	4.0	4.0	4.0	4.0

1/ Indicate coverage of public sector.
2/ Defined as: r = interest rate; π = GDP deflator, growth rate; g = real GDP growth rate.
3/ Real appreciation is approximated by nominal appreciation against US dollar plus increase in domestic GDP deflator.

IV. TAX SUMMARY

A. Direct Taxation

Taxation of individuals

The tax year coincides with the calendar year. Residence is defined as physical presence in Papua New Guinea (PNG) for more than six months out of a given tax year. Resident individuals are taxed on global income from all sources, subject to double-taxation treaties. Nonresident individuals are liable for tax only on income derived from PNG sources.

There are two separate types of assessment: (i) a fortnightly salary or wages tax assessment; and (ii) an annual nonsalary or wages income assessment. Expenses of earning income are fully deductible, and there are no capital gains or gift taxes. The tax rates on assessed income are shown below.

Table IV.1. Individual Income Tax Rates

Income Bracket	Tax Rate (Percent)
Below K 6,000	0
K 6,001 to K 16,000	25
K 16,001 to K 70,000	35
K 70,001 to K 95,000	40
Above K 95,000	47

Taxation of companies

Tax years generally correspond to calendar years, unless there is sufficient reason to deviate from that rule (e.g., if the parent company has a different tax year). A company is considered resident for tax purposes if it is incorporated in PNG, has its management in PNG, or is controlled by PNG residents. A resident company is taxed on its global income from all sources. Nonresident companies pay tax only on PNG sourced income.

The general company tax rate was increased from 25 percent to 30 percent in the 2003 Budget. Taxable income generally corresponds to accounting income. Company income tax is payable as provisional tax, so that companies pay tax on the current year's income. Provisional tax is payable in three equal installments on April 30, July 31, and October 31 each year. Business losses can be carried over for up to 20 years; they cannot be carried back.

A number of tax incentive schemes are operational, including a ten-year tax exemption for companies that establish themselves in one of 41 least developed districts. Mining and petroleum companies are subject to different rates of taxation than nonmining companies, as indicated in the following table.

Dividend withholding tax of 17 percent is applicable to all dividends paid by resident companies and received by resident companies from sources outside of Papua New Guinea. Dividend withholding tax on dividends paid to nonresidents is a final tax.

Interest withholding tax of 15 percent was introduced in 1999. Interest withholding tax on interest paid to nonresidents is a final tax. Interest paid by mining and petroleum companies to nonresident financial institutions is exempt.

Table IV. 2. Company Income Tax Rates

Industry	Resident Tax Rate	Nonresident Tax Rate
Nonmining	30 percent plus 17 percent dividend withholding tax	42 percent
Petroleum	50 percent for old and 30 percent or 45 percent for new projects	As for residents.
Mining	30 percent plus 10 percent dividend withholding tax	37 percent
Gas	30 percent	As for residents.

Other provisions for the mining and petroleum sectors

Depreciation for new mining projects is allowed with a 25 percent decline in the balance pool for all assets, regardless of whether they are long or short life assets. Double depreciation deduction is allowed for mineral exploration expenses incurred after January 1, 2003 that results in a subsequent mining development. The first 100 percent deduction is allowed as a deduction against assessable income. The second deduction arises once a mine commences commercial operations. Ring fencing rules on mines allow pooled exploration expenditure to be claimed against tax payable at a rate of 25 percent of the value of the pool at the end of the year, if this does not reduce tax payable by more than 25 percent.

A mining levy was introduced in July 1999 to capture the windfall gain of the mining industry from the introduction of the VAT, which resulted from the zero-rating of their exports in conjunction with the removal of the 11 percent basic import duty for all sectors of the economy. The tax is levied at 11 percent on the imports and deemed imports of the mining industry. The government commenced phasing out the mining levy over a four-year period, intending to reduce it by one-fourth of the original amount every year from 2002–05. In the 2003 budget, the government suspended the phase out of the levy

The government has introduced special fiscal terms for Petroleum Prospecting Licenses issued before January 1, 2008, which convert to Petroleum Development Licenses before

January 1, 2018. These projects are entitled to a reduced petroleum corporate tax rate of 30 percent, compared with the usual petroleum corporate tax rate of 45 percent. Companies that choose to make use of the Fiscal Stabilization Act are required to pay a premium for the period of fiscal stability set at 2 percent of Company Tax payable. Fiscal stability is offered for the duration of the financing repayment period of the project, usually 10 to 15 years. Additional profit taxes, which were applied to mining and petroleum company income that exceeded an internal rate of return of at least 20 percent, have been abolished for all companies except the prospective Gas-to-Australia Project.

Papua New Guinea is one of the few countries in the world with a compulsory state equity option. The State equity is considered by potential developers and financiers as an indirect tax by the sector as it is not valued at market price.

A national resource tax is imposed by the national government but paid to landowners as a royalty of 2 percent of the net value of output from mining and petroleum projects.

Superannuation

All companies employing 20 or more persons are required to provide superannuation for their employees. Employee contributions are deducted from gross basic salary at a minimum rate of 5 percent, while the employer contributes 7 percent of the employees' gross salary. Civil servants contribute to the Public Officers Superannuation Fund, where contribution rates of 6 percent for the employee and 8.4 percent for the employer apply. Superannuation funds are subject to income tax.

B. Indirect Taxation

Sales tax (value-added tax)

A national value-added tax (VAT), modeled after New Zealand's Goods and Services Tax (GST), was introduced in July 1999, replacing the previous provincial sales taxes and the basic import duties. The VAT has a uniform tax rate of 10 percent, with zero-rated exports, including for the mining sector. Exempted goods and services are mainly medical services, financial services, education services and supplies, fine metals, unprocessed logs, and public transportation fees. VAT is levied on all imported goods, with the exception of imports for aid projects and diplomatic missions and for the mining sector. All businesses with an expected turnover in excess of K 100,000 must register for VAT; registration for other businesses is voluntary.

On September 27, 2002, the Supreme Court found, in a special constitutional reference brought by the Morobe Provincial Government, that the Organic Law providing for revenue sharing of any sales and service taxes, including the VAT. The Supreme Court subsequently stayed its judgment until July 1, 2003 to give the State time to amend the Constitutional provisions to validate the VAT. Agreement was reached with the Governor of Morobe Province on October 15, 2002 to make certain changes to the VAT system. These include: repeal of the VAT and replacement with an equivalent GST; entitlement of each province to

80 percent of net (after refunds) GST collected in the province; and consideration to reducing the GST tax rate and/or exempting certain items.

Excise taxes

Excise taxes are applied to alcoholic beverages (beer, wine, and spirits), cigarettes, other manufactured tobacco products, and fuels. Since the 1999 tax and tariff reform, excise taxes apply to a few products that were previously protected by high tariffs. The excise rates for alcohol and tobacco products will be indexed by 4 percent every six months from May 1, 2003. Previously, excise rates were adjusted by 2.5 percent every six months.

For imported goods, excise taxes are applied in addition to any import duty and the VAT.

Table IV.3. Excise Taxes

Commodity	Excise Rate
Alcohol	
Beer	K 36.3-51.5 per liter of alcohol
Wine, sparkling wine, vermouth, whisky, rum, gin, vodka, liquors	K 54.8 per liter of alcohol
Tobacco products	
Cigarettes (Virginia blend tobacco)	K 123 per 1000
Cigarettes (dark fired tobacco, no filter)	K 65 per 1000
Cigarettes (dark fired tobacco, filter)	K 84 per 1000 (from July 2003)
Cigars,	K 130 per kilogram
Chewing tobacco, snuff other	K 33.4 per kilogram
Petroleum products	
Gasoline	K 0.61 per liter
Aviation gasoline	K 0.02 per liter
Diesel	K 0.06 per liter
Other	
Pearls, diamonds, and some metals	40 percent
Drying, dictating and answering machines, microwave ovens	30 percent
Motor vehicles	10-110 percent
Arms	60 percent
Poker machines	150 percent

Import duties

The Harmonized Commodity Description and Coding System (HS Tariff) was adopted in January 1991. The 1995 revision of the code was adopted in 1996. Papua New Guinea became a member of the World Customs Organization in 1998, and is implementing the WTO agreement on Customs Valuations. Papua New Guinea bound its entire tariff schedule during the Uruguay Round.

A seven-year tariff reform program commenced in July 1999, rationalizing the tariff structure and setting a schedule for the phased reductions of tariffs. There are presently four major ad valorem tariff rates (0 percent, 20 percent, 30 percent, and 45 percent) and some additional specific tariff rates. Under the tariff reform program, tariff rates will be reduced a further 5 percentage points to final rates of 15, 25, and 40 percent without exceptions in January 2006.

Preferential import tariff arrangements exist with members of the Melanesian Spearhead Group, and a bilateral arrangement with Fiji.

Table IV.4. Tariff Rates
(In percent)

Tariff Category	Current Tariff Rate	Tariff Rate Prior to July 1999
Duty free	0	0
Input rate	Abolished	5
Basic rate	Abolished	11
Intermediate rate	20	40
Protective rate	30	55
Prohibitive rate	45	75–125

The descriptions of the tariff categories are as follows:

- Duty free items: more than three-fourths of all lines fall into this category.
- Intermediate rate items: Intermediate goods.
- Protective rate items: Goods that are produced, or potentially can be produced, in Papua New Guinea and are seen as requiring a level of protection.
- Prohibitive rate items: These include vegetables and fruits, beer, cigarettes and cigars, veneer and plywood, and sugar. Tariffs for some of these products (sugar, plywood, and veneer) will be higher than the prohibitive rate during the phased reduction, but set at the general rate in 2006. There is a specific tariff on beer, spirits, cigarettes, and certain tobacco products.

Export duties

Export duties are levied only on selected types of products; the duty varies depending on the product. Export duties are calculated on an f.o.b. basis and are payable before shipment.

A preshipment inspection system on the export of round logs has been supplied by a private contractor since late 1994.

From 2003, the log export duty rate is determined by the world U.S. dollar price as shown in the following table. Plantation logs are exempt from duty.

Table IV.5. Log Export Duties

World f.o.b. Log Price (US$ per cubic meter)	Marginal Tax Rate (In percent)
Up to 22.60	10
22.60 to 27.60	25
27.60 to 32.65	45
32.65 to 37.65	50
37.65 to 50.20	55
Over 50.20	65

Mineral ores and concentrates (excluding gold, silver, and copper) and crocodile skins are charged an export tax set at 5 percent, and sandalwood at a rate of 15 percent.

C. Other Taxes

Poker machine tax was introduced in October 1996 as a general revenue measure, and last increased in April 2000. The Gaming Machine Act specifies the distribution of the turnover of gaming machines to all stakeholders.

Table IV.6. Poker Machine Tax

Recipient	Share (Percent)
National government	74
Operators	4
Site owners	22

Stamp duties are imposed by the national government on the execution of certain documents. The rates vary by type of document.

Debit Tax on withdrawals from financial institutions will be introduced during 2003, applying at the rate of 0.01 percent of the withdrawn amount. The Debits Tax will replace the existing K 0.20 stamp duty applying to checks.

Departure tax of K 30 is payable by all persons departing Papua New Guinea. Departing international passengers also pay a K 30 terminal facility charge to the Civil Aviation Authority.

Land taxes may be imposed by provincial governments although this tax is difficult to implement and collect.

Table 1. Papua New Guinea: GDP by Sector at Current Market Prices, 1997-2002

			Preliminary			
	1997	1998	1999	2000	2001	2002
			(In millions of kina)			
Nominal GDP	7,064	7,789	8,781	9,515	9,821	10,881
Mineral	1,309	1,639	2,087	2,663	2,900	3,157
Nonmineral	5,755	6,150	6,694	6,852	6,921	7,723
Of which : Nonagricultural	3,626	3,795	4,174	4,308	4,492	5,070
Agriculture, forestry, and fishing	2,129	2,355	2,521	2,544	2,429	2,653
Mining and quarrying	1,309	1,639	2,087	2,663	2,900	3,157
Manufacturing	651	722	798	795	797	958
Electricity, gas, and water	78	88	100	113	118	131
Construction	374	370	364	374	383	420
Wholesale and retail trade	674	710	834	830	857	937
Transport, storage, and communication	356	386	430	420	488	551
Financing, insurance, real estate, and business services	251	269	289	322	358	422
Less : Imputed bank service charge	174	188	199	223	252	292
Community, social, and personal services	963	1,045	1,096	1,134	1,283	1,449
Import duties	372	394	465	454	488	497
Less : Subsidies	2	2	3	2	2	2
			(Annual percentage change)			
Memorandum items:						
Nominal GDP	2.7	10.3	12.7	8.4	3.2	10.8
Mineral	-19.7	25.2	27.3	27.6	8.9	8.9
Nonmineral	9.6	6.9	8.9	2.4	1.0	11.6

Sources: Papua New Guinea National Statistical Office; and Fund staff estimates.

Table 2. Papua New Guinea: GDP by Sector at Constant Prices, 1997-2002

	1997	1998	1999	2000	2001	2002
			Preliminary			
			(In millions of 1983 kina)			
Real GDP	3,675	3,536	3,803	3,756	3,627	3,516
Mineral	636	743	817	784	780	705
Nonmineral	3,039	2,794	2,986	2,971	2,848	2,811
Of which: Nonagricultural	1,865	1,752	1,899	1,785	1,726	1,746
Agriculture, forestry, and fishing	1,174	1,042	1,087	1,186	1,122	1,065
Mining and quarrying	636	743	817	784	780	705
Manufacturing	331	340	344	316	289	310
Electricity, gas, and water	45	49	51	53	50	50
Construction	164	159	151	143	134	131
Wholesale and retail trade	405	396	426	368	346	339
Transport, storage, and communication	187	188	192	162	172	173
Financing, insurance, real estate, and business services	136	141	148	154	159	165
Less: Imputed bank service charge	98	101	105	108	112	116
Community, social, and personal services	512	421	513	505	534	539
Import duties	146	161	181	193	155	155
Less: Subsidies	1	1	1	1	1	1
			(Annual percentage change)			
Memorandum items:						
Real GDP	-3.9	-3.8	7.6	-1.3	-3.4	-3.1
Mineral	-26.0	16.8	10.0	-4.0	-0.6	-9.6
Nonmineral	2.5	-8.1	6.9	-0.5	-4.2	-1.3

Sources: Papua New Guinea National Statistical Office; and Fund staff estimates.

Table 3. Papua New Guinea: GDP by Type of Expenditure at Current Market Prices, 1997-2002

(In millions of kina)

	1997	1998	Prel. 1999	2000	2001	2002
Gross domestic product	7,064	7,789	8,781	9,515	9,821	10,881
Market component	6,183	6,823	7,714	...	...	...
Nonmarket component	881	965	1,067	...	...	...
Consumption	5,480	6,026	7,611	...	...	...
Private	4,119	4,619	6,123	...	...	...
Market component	3,253	3,669	5,071	...	...	...
Nonmarket component	866	950	1,052	...	...	...
Government	1,361	1,407	1,488	...	...	...
Gross capital formation	1,488	1,395	1,439	...	...	...
Gross fixed capital formation	1,079	1,089	1,063	...	...	...
Market component	1,065	1,074	1,047	...	...	...
Private	776	806	805	...	...	...
Government	288	267	243	...	...	...
Nonmarket	15	15	15	...	...	...
Change in inventories	409	307	377	...	...	...
Exports of goods and services	3,312	3,942	4,153	...	...	...
Goods	3,128	3,732	3,931	...	...	...
Services	184	211	222	...	...	...
Less : Imports of goods and services	3,217	3,575	4,423	...	...	...
Goods	2,402	2,637	3,262	...	...	...
Services	815	938	1,160	...	...	...

Source: Papua New Guinea National Statistical Office.

Table 4. Papua New Guinea: GDP by Type of Expenditure at Constant Prices, 1997-2002

(In millions of 1983 kina)

	1997	1998	Prel. 1999	2000	2001	2002
Gross domestic product	3,675	3,536	3,803	3,756	3,627	3,516
Market component	3,073	2,897	3,122	...	...	...
Nonmarket component	602	640	682	...	...	...
Consumption	2,731	2,614	3,028	...	...	...
Private	2,033	1,928	2,336	...	...	...
Market component	1,441	1,299	1,665	...	...	...
Nonmarket component	591	629	671	...	...	...
Government	698	686	691	...	...	...
Gross capital formation	681	582	522	...	...	...
Gross fixed capital formation	461	437	366	...	...	...
Market component	450	426	355	...	...	...
Private	328	320	273	...	...	...
Government	122	106	82	...	...	...
Nonmarket	10	11	11	...	...	...
Change in inventories	221	146	156	...	...	...
Exports of goods and services	1,457	1,539	1,471	...	...	...
Goods	1,376	1,457	1,392	...	...	...
Services	81	82	79	...	...	...
Less : Imports of goods and services	1,195	1,199	1,216	...	...	...
Goods	892	885	897	...	...	...
Services	303	315	319	...	...	...

Source: Papua New Guinea National Statistical Office.

Table 5. Papua New Guinea: Production of Major Commodities, 1997–2002

	1997	1998	1999	2000	2001	2002
Production volumes						
Crude oil (millions of barrels)	27.6	29.5	32.0	25.5	21.0	16.4
Copper (thousands of tonnes)	107.7	151.6	187.9	203.1	212.6	211.3
Gold (tonnes)	46.7	61.4	65.6	74.5	69.1	63.1
Silver (tonnes)	63.6	74.5	70.0	79.2	67.7	64.0
Cocoa (thousands of tonnes)	29.8	20.1	31.4	38.0	36.5	35.0
Coffee (thousands of tonnes)	59.2	74.1	73.2	59.4	51.6	50.0
Tea (thousands of tonnes)	6.5	6.6	8.2	8.5	8.8	4.3
Copra (thousands of tonnes)	90.3	58.1	63.5	59.8	50.2	37.0
Copra oil (thousands of tonnes)	48.6	53.2	50.3	48.0	21.8	16.0
Palm oil (thousands of tonnes)	274.9	213.0	253.8	336.3	327.6	250.0
Rubber (thousands of tonnes)	4.4	4.9	3.7	3.7	3.6	1.5
Logs (millions of cubic meters)	2.4	1.1	1.3	1.4	1.2	1.2
			(In millions of kina)			
Production values						
Crude oil	841	856	1,450	2,032	1,866	1,548
Copper	334	491	717	967	1,078	1,291
Gold	818	1,371	1,718	2,116	2,327	2,760
Silver	9	17	25	34	35	41
Cocoa	73	82	92	85	111	115
Coffee	326	476	385	263	189	201
Tea	10	19	19	20	22	15
Copra	47	39	66	54	36	22
Copra oil	51	70	96	66	24	15
Palm oil	207	272	338	307	291	316
Rubber	7	7	5	6	7	3
Logs	409	154	256	283	235	242

Source: Data provided by the Papua New Guinea authorities.

Table 6. Papua New Guinea: Employment by Sector, 1997–2002

	1997	1998	1999	2000	2001	2002 March
			(June 1989 =100, annual average)			
Total	100	98	101	102	96	96
Retail	104	112	115	118	115	115
Wholesale	83	83	87	87	78	76
Manufacturing	119	124	129	136	126	125
Building and construction	86	74	71	70	52	53
Transportation	99	95	90	85	83	82
Agriculture, forestry, and fisheries	83	76	79	82	79	79
Financial and business services	127	139	147	135	132	131
Mining 1/	122	136	138	150	139	146
			(Annual percentage change)			
Total	-0.2	-2.3	2.6	1.5	-5.2	-2.7
Retail	10.0	7.5	2.7	2.9	-6.0	-7.2
Wholesale	0.7	0.1	4.6	0.3	-4.8	-7.9
Manufacturing	3.8	4.0	3.8	5.5	-9.3	-2.0
Building and construction	-4.0	-13.6	-4.3	-2.0	-22.3	-3.5
Transportation	2.6	-3.8	-5.7	-5.6	-1.2	-0.2
Agriculture, forestry, and fisheries	-8.3	-9.1	3.7	4.7	-5.5	-2.7
Financial and business services	9.6	9.2	5.8	-8.2	12.1	4.4
Mining 1/	4.7	11.7	1.2	9.4	-7.3	1.1

Source: Bank of Papua New Guinea, *Quarterly Economic Bulletin*.

1/ Not included in overall index; excludes subcontractors.

Table 7. Papua New Guinea: Consumer Price Index by Expenditure Group, 1997-2002

	All Groups Total	Food	Drinks, Tobacco, and Betelnut	Clothing and Footwear	Rents, Fuel, and Power	Household Equip. and Operations	Trans. and Comm.	Misc.	Bank of Papua New Guinea's Underlying Inflation 1/
	(Percentage change from corresponding quarter of previous year)								
1997									
Mar.	2.8	4.4	6.2	9.6	3.3	2.9	-9.2	15.6	1.2
Jun.	3.7	6.2	8.0	8.7	2.7	3.4	-9.6	14.6	1.4
Sep.	3.8	6.7	7.3	8.1	3.5	4.9	-9.6	13.0	1.2
Dec.	5.3	8.4	5.9	7.7	3.5	5.7	-4.3	13.2	3.3
1998									
Mar.	8.0	10.3	10.4	12.3	-0.9	8.8	8.3	-11.2	5.5
Jun.	9.4	10.3	11.3	11.5	-1.8	11.9	13.6	-8.7	9.6
Sep.	14.7	15.2	19.6	12.6	-1.1	16.2	19.1	-5.7	16.0
Dec.	21.8	17.3	38.7	16.8	2.1	21.7	24.3	-3.0	20.4
1999									
Mar.	14.2	15.4	12.9	9.8	4.4	25.7	16.1	7.9	19.0
Jun.	14.1	13.9	9.1	12.3	4.3	24.5	23.8	5.0	18.9
Sep.	18.2	19.6	10.8	15.7	4.5	30.2	29.7	6.3	17.6
Dec.	13.2	18.7	-3.8	16.1	3.7	29.4	27.8	5.0	16.3
2000									
Mar.	19.6	19.9	13.3	18.2	8.2	24.0	28.5	21.2	17.8
Jun.	21.9	19.6	28.2	17.8	8.3	23.2	22.3	20.2	15.7
Sep.	12.2	8.8	18.6	14.3	5.6	8.0	13.0	13.6	10.1
Dec.	10.0	7.7	13.9	13.0	7.3	2.2	11.3	11.5	7.8
2001									
Mar.	8.9	5.9	15.5	11.2	2.5	3.7	10.2	4.4	6.4
Jun.	7.8	7.9	11.7	12.5	6.8	-0.7	4.7	6.7	4.6
Sep.	10.0	11.8	13.3	12.0	7.7	2.0	4.6	9.2	6.6
Dec.	10.3	12.5	13.5	11.1	7.7	2.6	4.6	9.5	8.2
2002									
Mar.	10.5	15.9	10.7	10.9	7.1	0.2	5.8	-2.0	8.3
Jun.	9.4	17.3	4.5	9.6	1.4	4.7	5.5	-2.0	10.3
Sep.	12.3	17.1	8.2	8.6	1.4	9.6	13.7	0.2	15.4
Dec.	14.8	17.8	13.9	6.5	2.7	12.7	17.8	1.2	17.3
Memorandum item:									
Weights in total basket (percent) 2/	100.0	40.9	20.0	6.2	7.2	5.3	13.0	7.5	63.6

Sources: *Consumer Price Index*, National Statistical Office; and Bank of Papua New Guinea's *Quarterly Economic Bulletin*.

1/ Excluding food and goods and services subject to administered prices.

2/ Weights are based on the 1977 expenditure survey.

Table 8. Papua New Guinea: Central Government Fiscal Performance, 1997-2002

(In millions of kina)

	1997	1998	1999	2000	2001	2002
Revenue	2,218	2,273	2,569	2,982	3,006	3,222
Tax	1,674	1,595	1,941	2,315	2,294	2,370
Nonmineral taxes	1,284	1,355	1,675	1,780	1,739	2,005
Mineral taxes	390	241	266	535	555	365
Nontax	215	234	166	145	172	163
Of which: Mineral nontax revenue	61	66	37	...	42	10
Grants	328	444	463	522	540	689
Budget grants	140	161	69	31	16	21
Project grants	188	283	394	491	524	668
Expenditure	2,202	2,412	2,843	3,123	3,392	3,668
Recurrent	1,768	1,895	2,020	2,219	2,389	2,550
Noninterest recurrent expenditures	1,470	1,560	1,628	1,790	1,956	2,110
National departments	820	858	969	1,141	1,203	1,357
Salaries and wages	367	384	393	473	502	574
Retrenchment costs	...	...	14	...	...	...
Arrears payments	...	...	149	193	91	12
Education funding	...	...	...	...	...	135
Goods and services	...	...	545	475	572	569
Structural adjustment payments	453	475	...	77	40	68
Provinces	530	566	537	527	589	588
Salaries and wages	288	307	384	363	420	486
Goods and services	...	...	85	94	98	48
Conditional grants	...	...	68	69	71	54
Statutory authorities	120	136	121	122	165	165
Interest	298	335	393	429	433	440
Domestic	206	228	261	284	253	247
Foreign	91	107	132	144	180	193
Development budget and net lending	434	517	823	905	1,003	1,118
Development budget	437	521	828	806	967	1,123
Project grants	...	...	394	491	524	668
Concessional loans	...	...	121	107	88	95
Nonconcessional loans	...	...	...	...	...	93
Domestic funds	...	...	313	209	356	267
Net lending	-3	-5	-5	-3	-4	-5
Overall balance (from above the line)	16	-139	-275	-142	-386	-445
Errors, omissions, and discrepancy	-229	109	-105	13	-19	-150
Overall balance (from below the line)	-213	-30	-379	-129	-405	-596
Financing	213	30	379	129	405	596
Foreign financing (net)	-74	-94	180	15	314	-141
Domestic financing (net)	287	110	153	28	-35	635
Float	...	...	20	58	127	-99
Asset sales	0	14	26	27	0	201
Memorandum item:						
Nominal GDP (millions of kina)	7,064	7,789	8,781	9,515	9,821	10,881

Source: Data provided by the Papua New Guinea authorities.

Table 9. Papua New Guinea: Central Government Revenue and Grants, 1997-2002

(In millions of kina)

	1997	1998	1999	2000	2001	2002
Total revenue and grants	2,218	2,273	2,569	2,982	3,006	3,222
Tax revenue	1,674	1,595	1,941	2,315	2,294	2,370
Taxes on income and profit	1,004	1,009	1,198	1,470	1,509	1,487
Personal tax	368	449	524	544	599	690
Company tax	150	186	246	265	252	311
Dividend withholding tax	34	43	47	54	58	62
Mineral and petroleum taxes	390	241	259	427	435	259
Other direct	45	68	50	57	52	69
Interest withholding tax	...	...	37	64	51	22
Gaming tax	18	23	35	59	62	74
Indirect taxes	670	587	743	845	785	883
Excise tax	149	152	171	175	187	179
VAT plus mining levy	...	...	173	327	319	396
VAT (70 percent national share only)	...	...	166	218	198	290
Mining levy	...	...	7	109	120	106
Other indirect	...	...	1	2	1	1
Taxes on international trade	521	434	398	342	280	308
Import duties	372	394	282	89	73	84
Export duties (logs)	149	40	79	134	98	107
Import excises	...	...	37	119	108	117
Nontax revenue	215	234	166	145	172	163
Property income	103	100	84	27	98	74
Dividends	42	34	47	27	56	64
Mining and petroleum	61	66	37	...	42	10
Dividends	17	14	22	...	...	...
Interest	44	52	15	...	...	...
Interest and fees	2	3	3	3	1	0
Other	111	132	79	115	73	67
Asset sales	...	...	...	...	...	22
Foreign grants	328	444	463	522	540	689
Budgetary support	140	161	69	31	16	21
Project grants	188	283	394	491	524	668
Memorandum item:						
Revenue, excluding grants	1,890	1,829	2,106	2,459	2,466	2,534

Sources: Data provided by the Papua New Guinea authorities; and Fund staff estimates.

Table 10. Papua New Guinea: Central Government Fiscal Financing, 1997-2002

(In millions of kina)

	1997	1998	1999	2000	2001	2002
Total financing	213	30	379	129	405	596
Foreign financing (net)	-74	-94	180	15	314	-141
New borrowing	133	108	410	278	627	222
Project loans	97	108	206	84	172	222
Concessional financing	36	0	204	193	455	0
Amortization	-207	-202	-231	-262	-313	-363
Domestic financing (net)	287	110	153	28	-35	635
Bank of Papua New Guinea						
Net credit to central government	156	465	325	48	-269	245
Securities	294	404	-490	-23	-26	-19
Treasury bills	348	407	-545	0	0	0
Inscribed stock	-54	-3	55	-23	-26	-19
Temporary advance	0	0	0	0	0	75
Deposits	-137	61	815	71	-243	189
Commercial banks						
Net credit to central government	-1	-336	-217	-182	23	327
Securities	-67	-227	-234	-127	83	304
Treasury bills	-84	-198	-176	-123	-2	369
Inscribed stock	17	-29	-58	-4	85	-65
Loans	70	8	-59	-12	-5	-4
Deposits	-3	-117	76	-43	-55	27
Nonbanks						
Net credit to central government	131	-19	45	162	210	63
Securities	...	-15	48	158	288	71
Treasury bills	...	...	89	173	187	70
Inscribed stock	...	...	-42	-15	101	1
Loans	...	-4	-3	4	-77	-8
Float	...	...	20	58	127	-99
Asset sales	0	14	26	27	0	201

Sources: Data provided by the Papua New Guinea authorities; and Fund staff estimates.

Table 11. Papua New Guinea: Central Government Domestic Debt, 1997-2002

(In millions of kina; end of period)

	1997	1998	1999	2000	2001	2002			
						Mar.	Jun.	Sep.	Dec.
Central government net domestic debt by creditor:									
Bank of Papua New Guinea									
Net credit to central government	-97	368	693	741	472	663	645	743	717
Securities	881	1,285	795	772	746	739	739	736	728
Treasury bills 2/	771	1,178	633	633	633	633	633	633	633
Inscribed stock 3/	110	107	162	138	113	106	105	103	94
Temporary advance	0	0	0	0	0	9	0	83	75
Less: Deposits	978	917	102	31	275	85	93	77	86
Of which: MRSF	696	677	0	0	0	0	0	0	0
Commercial banks									
Net credit to central government	937	601	384	202	225	389	260	335	552
Securities	1,033	806	572	445	528	694	573	640	832
Treasury bills 2/	942	744	568	445	443	609	491	622	812
Inscribed stock 3/	91	62	4	0	85	85	82	18	20
Loans	75	83	24	12	7	6	5	3	3
Less: Deposits	171	287	212	255	310	311	318	309	283
Nonbanks									
Net credit to central government	444	425	470	633	905	780	958	947	906
Securities	341	326	374	532	819	756	934	924	891
Treasury bills 3/ 4/	...	201	291	464	651	597	770	779	721
Inscribed stock 3/	...	125	83	68	168	158	164	145	170
Loans	103	99	97	101	85	24	24	24	16
Central government net domestic debt:	1,284	1,394	1,548	1,575	1,601	1,832	1,863	2,025	2,175
Total gross domestic debt	2,432	2,599	1,861	1,861	2,186	2,227	2,275	2,410	2,543
Securities	2,255	2,417	1,741	1,748	2,093	2,189	2,245	2,300	2,450
Treasury bills	...	2,124	1,492	1,542	1,727	1,840	1,894	2,034	2,166
Inscribed stock 3/	...	293	249	206	366	349	351	266	284
Loans	178	182	120	113	93	38	29	110	93
Less: Central government deposits	1,148	1,204	314	286	584	396	411	386	368

Sources: Bank of Papua New Guinea; and Department of Treasury.

1/ Less deposits in MRSF account, which was closed in 1999.
2/ Discount value.
3/ Face value.
4/ Less RBA swap in 1999, which is considered external debt.

Table 12. Papua New Guinea: Monetary Survey, 1997-2002

(In millions of kina; end of period)

	1997	1998	1999	2000	2001	2002			
						Mar.	Jun.	Sep.	Dec.
Net foreign assets	771	473	699	1,053	1,580	1,458	1,708	1,513	1,419
Bank of Papua New Guinea	579	301	512	812	1,249	1,170	1,375	1,078	908
Foreign assets	670	401	574	934	1,656	1,572	1,832	1,539	1,379
Less: Foreign liabilities	91	100	62	122	406	402	457	460	471
Commercial banks	192	171	187	241	331	288	333	434	511
Net domestic assets	1,808	2,169	2,176	1,977	1,507	1,702	1,492	1,638	1,798
Domestic credit	2,320	2,716	2,825	2,699	2,367	2,664	2,495	2,691	2,862
Net credit to central government	840	969	1,077	943	697	1,052	906	1,077	1,269
Bank of Papua New Guinea	-97	368	693	741	472	663	645	743	717
Claims on central government	881	1,285	795	772	746	748	739	819	802
Less: Central government deposits	978	917	102	31	275	85	93	77	86
Commercial banks	937	601	384	202	225	389	260	335	552
Claims on central government	1,108	889	596	457	535	700	578	643	835
Securities	1,033	806	572	445	528	694	573	640	832
Treasury bills	942	744	568	445	443	609	491	622	812
Inscribed stock	91	62	4	0	85	85	82	18	20
Loans	75	83	24	12	7	6	5	3	3
Less: Central government deposits	171	287	212	255	310	311	318	309	283
Claims on other sectors	1,480	1,747	1,747	1,756	1,670	1,612	1,589	1,613	1,594
Private sector	1,064	1,372	1,517	1,562	1,543	1,481	1,453	1,499	1,445
Official entities	299	208	159	124	115	106	94	94	128
NFPEs	298	203	153	123	114	105	92	91	126
Provincial governments	1	5	5	1	1	1	2	4	2
Nonmonetary financial institutions	117	167	72	70	12	25	42	20	20
Other items, net	-512	-547	-649	-722	-860	-961	-1,002	-1,053	-1,064
Broad money	2,579	2,642	2,875	3,030	3,087	3,160	3,200	3,150	3,217
Narrow money	919	1,021	1,234	1,272	1,321	1,471	1,526	1,502	1,535
Currency outside banks	225	277	342	285	272	300	341	349	366
Demand deposits	695	744	891	987	1,049	1,171	1,185	1,153	1,169
Quasi money	1,659	1,621	1,641	1,759	1,766	1,689	1,675	1,648	1,682
Memorandum items:									
Reserve money growth 1/	-2.0	36.2	70.0	-18.4	8.5	14.5	31.5	22.0	11.4
Narrow money growth rate 1/	6.3	11.1	20.8	3.1	3.9	27.1	28.4	24.6	16.2
Broad money growth rate 1/	13.3	2.5	8.8	5.4	1.9	5.9	5.5	4.6	4.2
Private sector credit growth rate 1/	36.3	29.0	10.5	3.0	-1.2	-7.4	-11.8	-8.4	-6.3
Broad money multiplier	9.1	6.9	4.4	5.7	5.3	5.1	4.8	4.9	5.0
Nominal GDP (in millions of kina)	7,064	7,789	8,781	9,515	9,821	10,086	10,351	10,616	10,881
Broad money velocity	2.7	2.9	3.1	3.1	3.2	3.2	3.2	3.4	3.4
Nominal nonmineral GDP/broad money	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.4	2.4

Sources: Data provided by Papua New Guinea authorities; and Fund staff estimates.

1/ Percent change from corresponding period of previous year.

Table 13. Papua New Guinea: Balance Sheet of the Central Bank, 1997-2002

(In millions of kina unless otherwise indicated; end of period)

	1997	1998	1999	2000	2001	2002			
						Mar.	Jun.	Sep.	Dec.
Net foreign assets	579	301	512	812	1,249	1,170	1,375	1,078	908
Foreign assets	670	401	574	934	1,656	1,572	1,832	1,539	1,379
Less: Foreign liabilities	91	100	62	122	406	402	457	460	471
Of which: Non-IMF liabilities	7	4	4	2	2	3	3	5	4
Net domestic assets	-297	83	141	-280	-671	-555	-708	-438	-264
Domestic credit	100	490	539	167	-74	114	92	416	586
Net credit to government	-97	368	693	741	472	663	645	743	717
Securities	881	1,285	795	772	746	739	739	736	728
Treasury bills 1/	771	1,178	633	633	633	633	633	633	633
Inscribed stock	110	107	162	138	113	106	105	103	94
Advances	0	0	0	0	0	9	0	83	75
Less: Central government deposits	978	917	102	31	275	85	93	77	86
Drawing accounts	7	17	-1	-64	177	0	12	0	0
Trust accounts	966	891	100	94	97	84	80	76	85
Counterpart fund accounts	5	9	3	1	1	1	1	1	1
Credit to other sectors	217	122	57	59	56	56	56	56	56
Claims on the private sector	0	0	0	3	3	3	3	3	3
Claims on deposit money banks	216	121	54	53	52	52	52	52	52
Claims on nonmonetary financial institutions	0	0	3	3	0	0	0	0	0
Less: Central bank securities	0	0	196	608	586	574	591	341	157
Less: Kina facility deposits	20	0	15	25	15	30	18	42	30
Other items net	-397	-407	-399	-446	-598	-669	-800	-854	-850
Reserve money	282	384	653	533	578	615	667	640	644
Currency in circulation	276	324	421	364	385	367	429	436	472
Notes	246	293	387	327	349	330	392	397	433
Coins	30	32	34	36	37	37	38	38	39
Deposits of commercial banks	6	60	232	169	188	241	219	195	162
ESA deposits	6	60	95	21	34	81	63	40	8
CRR deposits	0	0	137	148	154	160	156	155	154
Other deposits	20	4	5	4	4	8	19	9	9
Memorandum items:									
Reserve money growth 2/	-2.0	36.2	70.0	-18.4	8.5	14.5	31.5	22.0	11.4
Nominal GDP (millions of kina)	7,064	7,789	8,781	9,515	9,821	10,086	10,351	10,616	10,881
Nominal GDP growth rate 2/	2.7	10.3	12.7	8.4	3.2	3.5	7.1	8.9	10.8
Nominal nonmineral GDP (millions of kina)	5,755	6,150	6,694	6,852	6,921	7,122	7,322	7,523	7,723
Nominal nonmineral GDP growth rate 2/	9.6	6.9	8.9	2.4	1.0	3.2	6.3	9.0	11.6
Use of fund credit (millions of SDRs)	35	32	16	30	86	86	86	86	86
Use of fund credit (millions of US$)	48	46	22	39	108	107	114	113	116
Gross international reserves (millions of US$)	188	187	206	304	440	420	460	382	343
Exchange rate (US$/kina, end of period)	0.571	0.477	0.371	0.326	0.266	0.267	0.251	0.249	0.249
Exchange rate (US$/SDR, end of period)	1.349	1.408	1.373	1.303	1.257	1.247	1.330	1.323	1.360

Sources: Data provided by Papua New Guinea authorities; and Fund staff estimates.

1/ Holdings of Treasury bills less outstanding central bank bills.

2/ Percent change from corresponding period of previous year.

Table 14. Papua New Guinea: Consolidated Balance Sheet of Commercial Banks, 1997-2002

(In millions of kina unless otherwise indicated; end of period)

	1997	1998	1999	2000	2001	2002			
						Mar.	Jun.	Sep.	Dec.
Net foreign assets	192	171	187	241	331	288	333	434	511
Foreign assets	206	286	286	296	422	341	442	550	615
Foreign liabilities	14	114	99	56	91	53	109	116	104
					0	0	0	0	0
Reserves	6	60	232	169	188	241	219	195	162
CRR accounts	0	0	137	148	154	160	156	155	154
ESA accounts	6	60	95	21	34	81	63	40	8
Currency	51	47	79	79	113	67	89	87	106
Domestic credit	2,412	2,321	2,267	2,487	2,421	2,530	2,436	2,285	2,298
Net credit to central government	937	601	580	810	811	963	852	676	709
Claims on central government	1,108	889	792	1,065	1,121	1,274	1,170	984	991
Securities	1,033	806	768	1,053	1,114	1,268	1,164	981	989
Treasury bills	942	744	763	1,053	1,029	1,184	1,082	963	968
Inscribed stock	91	62	4	0	85	85	82	18	20
Inscribed stock of maturity < 3 years	83	62	4	0	85	85	82	18	20
Inscribed stock of maturity > 3 years	8	0	0	0	0	0	0	0	0
Loans	75	83	24	12	7	6	5	3	3
Less: Central government deposits	171	287	212	255	310	311	318	309	283
Claims on other sectors	1,474	1,720	1,688	1,677	1,610	1,567	1,585	1,609	1,589
Private sector	1,063	1,371	1,473	1,492	1,483	1,436	1,449	1,495	1,441
Official entities	299	208	159	124	115	106	94	94	128
NFPEs	298	203	153	123	114	105	92	91	126
Provincial governments	1	5	5	1	1	1	2	4	2
Nonmonetary financial institutions	113	141	56	61	12	24	42	19	20
Other items, net	-84	-54	53	-8	2	28	54	48	-12
Deposits	2,354	2,365	2,532	2,745	2,815	2,860	2,860	2,801	2,851
Demand	1,058	1,142	1,276	1,437	1,550	1,642	1,696	1,743	1,710
Term	1,296	1,223	1,257	1,308	1,265	1,218	1,164	1,058	1,141
Central bank credit	216	121	54	53	52	52	52	52	52
Discount facility	0	0	0	0	0	0	0	0	0
Repurchase agreements	0	0	0	0	0	0	0	0	2
Agricultural support schemes	215	120	53	53	52	52	52	52	51
Other	2	1	1	0	0	0	0	0	1
Memorandum items:									
Deposits subject to reserve requirements	2,507	2,545	2,698	2,956	3,100	3,141	3,155	3,088	3,120
Implied cash reserve ratio (percent)	0	0	5	5	5	5	5	5	5
Kina facility borrowings (-deposits)	-20	0	-15	-25	0	3	6	9	12
Liquid assets	1,072	912	931	1,131	1,224	1,406	1,285	1,088	1,089
Liquid asset ratio (percent)	43	36	35	38	39	45	41	35	35
Excess ESA balances	-14	60	80	-4	34	84	69	49	20
Total commercial bank assets	3,063	3,364	3,455	3,672	3,926	3,956	3,887	3,860	3,956
Claims on central government/total assets (percent)	36	26	23	29	29	32	30	26	25

Sources: Data provided by Papua New Guinea authorities; and Fund staff estimates.

Table 15. Papua New Guinea: Commercial Bank Loans by Sector, 1997–2002

(In millions of kina; end of period)

	1997	1998	1999	2000	2001	2002			
						Mar.	Jun.	Sep.	Dec.
Total	1,554	1,829	1,768	1,762	1,674	1,614	1,591	1,613	1,593
Business	1,339	1,547	1,542	1,522	1,473	1,419	1,396	1,282	1,413
Agriculture, forestry, and fishing	290	232	138	110	200	172	65	60	90
Coffee	114	80	13	26	11	4	8	6	2
Cocoa	82	56	50	26	74	114	1	5	56
Coconut products	30	24	29	0	27	0	0	0	0
Palm oil	5	0	1	9	38	0	0	0	0
Fisheries	12	12	9	8	8	14	15	14	6
Forestry	23	34	20	21	20	16	11	11	15
Other 1/	26	27	16	20	23	24	30	23	10
Manufacturing	88	77	68	94	107	91	96	83	136
Engineering and metal processing	11	9	2	5	4	4	5	3	4
Food, drink, and tobacco processing	46	39	19	57	71	60	64	53	74
Textile, leather, and wood products	10	10	16	16	11	11	8	3	8
Chemicals, paints, and gases	9	4	2	0	1	0	5	6	5
Other 2/	12	16	29	16	20	16	15	17	44
Transport and communication	135	141	194	112	126	126	129	121	114
Finance	117	166	69	67	12	24	42	19	20
Commerce	233	350	362	368	375	377	359	360	325
Buyers, processors, and exporters	152	208	247	261	232	218	211	224	236
Wholesale trade	28	35	54	48	46	39	43	59	29
Retail trade	54	108	61	59	97	120	105	77	60
Building and construction	45	61	60	60	61	69	66	67	42
Mining and quarrying	63	55	19	15	17	25	28	21	69
Metals and other mining	34	20	18	14	3	14	14	7	47
Petroleum and natural gas	29	34	1	0	14	11	14	14	22
Other business 3/	368	465	633	698	576	537	611	551	617
Government	76	88	29	13	8	7	8	7	5
Central government 4/	75	83	24	12	7	6	5	3	3
Provincial government	1	4	5	1	1	1	2	4	2
Local government	1	1	1	0	0	0	0	0	0
Persons	140	194	197	227	192	188	188	324	175
Advances for housing	62	95	91	104	82	94	101	132	126
Other personal loans	78	99	106	123	111	94	87	192	49

Source: Bank of Papua New Guinea, *Quarterly Economic Bulletin*.

1/ Includes rubber, tea, and cattle.
2/ Includes printing and packaging.
3/ Includes hotels and restaurants, real estate, renting and business services, electricity, and gas and water supply.
4/ Excludes short-term government debt instruments and other deposits.

Table 16. Papua New Guinea: Reserve Requirements, December 1996-December 2002

(In percent)

Period	Cash Reserve Requirement (CRR)	Minimum Liquid Assets Ratio (MLAR)	Total Requirement
December 1996-February 1997	0	27	27
March 1997-July 1998	0	20	20
August 1998-November 1998	0	20	20
December 1998-January 12, 1999	0	0	0
January 15, 1999-February 1999	10	0	10
March 1999-May 1999	5	15	15
June 1999-August 1999 1/	5	20	25
September 1999-December 2002	5	25	30

Source: Bank of Papua New Guinea.

1/ From June 1999, CRR deposits at the central bank were excluded from the definition of liquid assets.

Table 17. Papua New Guinea: Interest Rates, 1997-2002

	Kina Deposit Rate 1/	Treasury Bills Weighted Average Auction Yield 28-day	63-day	91-day	182-day	Commercial Banks: Weighted Average Deposit Rate	Weighted Average Lending Rate	Indicative Overdraft Rate	Passbook Accounts	Term Deposits (less than K50,000) 3-6 Months	6-12 Months	12-24 Months
1997	10.20	13.8	12.7	14.2	14.5	5.1	10.7	9.50	3.00-4.50	5.00-8.00	5.25-8.50	5.00-8.50
1998	18.15	19.0	21.9	23.4	23.9	8.7	20.2	12.75	3.00-5.25	6.00-11.50	6.00-12.00	7.00-15.00
1999	12.80	22.7	22.9	21.7	20.4	8.5	18.2	12.75	3.00-5.25	6.00-11.00	6.00-12.50	6.00-12.00
2000	4.41	15.7	15.6	15.5	14.9	6.7	15.5	16.75	2.50-5.25	6.00-11.50	6.00-11.50	7.25-11.50
2001												
January	4.25	15.9	16.0	15.6	15.0	6.3	15.7	16.75	2.50-5.25	6.00-11.50	7.25-11.50	8.00-11.50
February	14.25	15.9	15.9	15.8	14.8	6.3	15.6	16.75	2.50-5.25	6.00-12.00	7.25-12.00	6.75-15.00
March	13.75	15.6	15.8	15.4	14.1	6.6	15.4	16.75	2.50-5.25	6.00-12.00	7.25-12.00	6.75-15.00
April	13.50	15.3	15.4	14.9	13.0	6.3	15.1	16.75	2.50-5.25	7.25-12.25	7.25-11.50	7.25-12.00
May	12.75	12.7	12.6	12.6	12.1	6.1	15.0	16.75	2.50-5.25	7.25-12.25	7.25-11.50	7.25-12.00
June	12.75	12.7	12.7	12.7	12.3	5.6	14.8	15.75	2.50-5.25	6.50-12.50	6.50-11.50	7.00-10.00
July	12.25	12.4	12.6	12.6	12.4	5.1	14.4	15.75	2.50-5.25	6.50-12.50	6.50-11.50	7.00-10.00
August	12.25	11.7	11.7	11.9	11.7	5.3	14.6	15.85	2.50-5.25	6.00-10.50	6.00-11.50	6.50-10.00
September	11.25	11.1	10.9	11.1	11.7	4.8	14.7	15.10	2.50-5.25	6.00-10.50	7.00-11.50	6.50-12.00
October	11.25	10.3	10.3	10.6	10.8	4.6	14.4	15.00	2.50-5.25	5.50-11.50	5.50-11.50	6.50-10.00
November	11.25	10.1	10.1	10.2	10.1	4.5	14.7	13.65	2.50-5.25	5.50-11.50	5.00-11.50	5.00-10.00
December	11.25	10.2	10.2	10.3	10.2	4.1	14.6	13.65	2.50-5.25	5.50-11.50	5.75-11.50	5.00-10.00
2002												
January	11.25	9.8	9.6	9.4	9.6	3.9	14.4	13.65	2.00-3.50	4.75-11.50	5.50-10.00	4.00-10.00
February	11.25	9.9	9.8	9.8	9.8	3.7	14.4	13.65	2.00-3.50	5.00-11.50	5.25-10.00	4.00-10.00
March	11.25	10.0	9.9	10.0	9.9	3.3	14.2	13.65	1.50-3.50	5.00-10.50	5.00-10.00	5.00-10.00
April	11.25	10.3	10.1	10.0	9.8	3.0	14.2	13.65	1.50-3.50	4.00-8.00	4.00-10.00	3.00-10.00
May	11.25	10.5	10.2	10.1	10.0	2.9	14.1	13.65	1.00-3.50	4.00-8.00	4.00-10.25	3.00-10.25
June	11.25	11.0	10.6	10.5	10.2	2.6	13.8	13.65	1.00-3.50	4.00-8.00	4.00-10.25	3.00-10.25
July	11.25	11.5	10.9	11.0	10.4	2.1	13.9	8.75	1.50-3.25	4.00-7.25	4.00-10.00	3.00-7.00
August	11.75	12.1	11.7	11.6	11.1	2.5	13.7	8.75	1.50-3.25	3.75-7.00	4.25-10.00	4.75-7.00
September	11.75	12.5	12.2	12.0	11.4	2.9	13.7	8.75	1.50-3.25	4.00-7.00	4.25-10.00	4.75-7.00
October	11.75	12.6	12.6	12.5	11.8	3.1	13.7	8.75	1.50-3.25	4.00-6.00	4.25-6.75	4.75-7.25
November	13.25	13.9	13.7	13.0	12.5	4.8	13.1	8.75	1.50-3.25	4.00-6.00	4.25-6.75	4.75-7.25
December	13.25	15.2	14.8	13.9	13.4	5.6	13.7	8.75	1.50-3.25	4.00-8.00	4.00-7.75	4.75-6.00

Sources: Bank of Papua New Guinea, *Quarterly Economic Bulletin.*

1/ Prior to February 2001, the kina deposit rate was determined by a weekly auction for deposits conducted by the central bank. Since then, the Bank of Papua New Guinea has announced a Kina Facility Rate, and the deposit rate was set at 125 basis points below this rate until July 2000, when the margin was reduced to 75 basis points.

Table 18. Papua New Guinea: Balance of Payments, 1997-2002

(In millions of U.S. dollars)

	1997	1998	1999	2000	2001	Est. 2002
Current account balance	-263	22	53	232	174	-74
Mineral	311	564	718	932	808	561
Nonmineral	-574	-540	-665	-700	-634	-635
Trade balance	213	424	494	712	609	399
Exports (f.o.b.)	2,186	1,848	2,019	2,214	1,878	1,624
Mineral	1,328	1,239	1,438	1,737	1,598	1,363
Nonmineral	857	610	581	477	280	261
Imports (c.i.f.)	-1,972	-1,425	-1,525	-1,503	-1,269	-1,225
Mineral	-573	-287	-308	-363	-394	-362
Nonmineral	-1,399	-1,138	-1,218	-1,140	-875	-863
Services balance	-673	-629	-615	-609	-564	-600
Mineral (net)	-444	-389	-413	-442	-396	-440
Nonmineral (net)	-229	-240	-202	-167	-168	-160
Unrequited transfers (net)	197	228	174	129	129	128
Official	229	215	181	189	180	168
Private	-32	13	-8	-60	-51	-41
Capital account balance	53	-167	-123	-283	-99	-72
Medium- and long-term loan disbursements	189	-185	-391	-239	-35	-157
Official (net)	-76	-46	-10	-64	93	-35
Private (net)	266	-139	-381	-174	-128	-122
Direct investment (net)	23	121	307	114	74	19
Commercial banks	-10	15	-2	-10	-27	-45
Other (net)	-149	-118	-37	-148	-111	111
Exceptional financing	25	0	80	70	0	0
Errors and omissions	-19	-45	34	59	-9	50
Overall balance	-204	-190	-36	8	66	-96
Change in net international reserves (- increase)	204	189	-44	-78	-66	96
Gross official reserves	206	194	-19	-98	-136	97
IMF (net)	0	-4	-23	18	70	0
Purchases	0	0	0	38	71	0
Repurchases	0	-4	-23	-19	-1	0
Other liabilities	-1	-1	-2	2	-1	0
Financing gap	0	0	0	0	0	0
Memorandum items:						
Current account (in percent of GDP)	-5.3	0.6	1.5	6.7	6.0	-2.7
Gross official reserves (end-year)						
(In millions of U.S. dollars)	380	187	206	304	440	343
(In months of nonmineral imports)	3.3	1.8	2.2	4.2	6.1	4.5
Public external debt-service ratio (percent of goods and nonfactor service exports) 1/	8.6	7.3	7.5	6.7	7.1	7.4
Public external debt-to-GDP ratio (in percent) 1/	26.9	35.6	42.2	41.8	51.4	54.4

Sources: Data provided by the Papua New Guinea authorities; and Fund staff estimates.

1/ Central Government and Bank of Papua New Guinea debt.

Table 19. Papua New Guinea: Exports of Major Commodities, 1997-2002

(In millions of U. S. dollars)

	1997	1998	1999	2000	2001	2002
Copper						
Value (US$ million)	177	192	225	270	320	292
Volume (thousands of tons)	78	137	180	159	213	186
Unit value (US$ per ton)	2,275	1,404	1,252	1,702	1,504	1,565
(US cents per pound)	103	64	57	77	68	71
Gold						
Value (US$ million)	501	597	606	707	629	580
Volume (tons)	44	58	63	73	69	58
(US$ per ounce)	352	319	299	302	283	310
Petroleum						
Value (US$ million)	595	395	542	751	560	410
Volume (thousands of barrels)	27,972	28,034	30,646	25,458	21,294	16,399
Unit value (US$ per barrel)	21	14	18	30	26	25
Silver						
Value (US$ million)	6	8	8	10	9	9
Volume (tons)	35	43	54	61	68	54
(US$ per ounce)	5	5	5	5	4	5
Logs						
Value (US$ million)	286	75	100	103	73	60
Volume (thousands of cubic meters)	2,376	1,067	1,312	1,399	1,212	1,184
Unit value (US$ per cubic meter)	120	70	76	73	60	51
Coffee						
Value (US$ million)	227	231	164	107	56	50
Volume (thousands of tons)	59	84	79	67	52	50
Unit value (US$ per ton)	3,841	2,772	2,065	1,604	1,087	1,003
(US cents per pound)	174	126	94	73	49	45
Cocoa						
Value (US$ million)	51	40	33	31	33	29
Volume (thousands of tons)	39	26	29	38	36	35
Unit value (US$ per ton)	1,325	1,521	1,144	807	898	820
Palm oil						
Value (US$ million)	144	132	133	111	85	79
Volume (thousands of tons)	275	213	254	336	328	250
Unit value (US$ per ton)	526	620	522	330	260	315
Copra						
Value (US$ million)	25	19	26	22	5	2
Volume (thousands of tons)	90	58	64	67	21	16
Unit value (US$ per ton)	276	320	411	323	214	151
Coconut Oil						
Value (US$ million)	36	34	38	24	8	11
Volume (thousands of tons)	49	53	50	48	27	30
Unit value (US$ per ton)	734	637	747	497	299	383
Tea						
Value (US$ million)	7	9	7	7	5	4
Volume (thousands of tons)	7	7	8	9	8	4
Unit value (US$ per ton)	1,116	1,391	909	870	694	873
(US cents per kg)	112	139	91	87	69	87
Rubber						
Value (US$ million)	5	4	2	2	2	1
Volume (thousands of tons)	4	5	4	4	4	2
Unit value (US$ per ton)	1,031	724	530	627	556	505
(US cents per pound)	47	33	24	24	21	19
Other						
Value (US$ million)	126	114	135	71	93	97
Total exports (US$ millions)	2,186	1,849	2,019	2,214	1,878	1,624
Minerals and petroleum	1,328	1,239	1,438	1,737	1,598	1,363
Nonmineral	857	610	581	477	280	261

Sources: Data provided by the Papua New Guinea authorities; and Fund staff estimates.

Table 20. Papua New Guinea: Direction of Trade, 1997-2002

(In percent of total)

	1997	1998	1999	2000	2001	Est. 2002
Exports (f.o.b.) by destination						
Australia	25.9	18.7	26.3	30.0	24.6	24.0
Japan	16.8	12.3	11.6	11.3	10.6	9.8
People's Republic of China 1/	2.6	1.3	2.8	6.5	4.2	3.7
Germany	7.1	7.1	6.6	4.1	4.0	2.7
Korea	3.6	4.6	4.7	3.8	3.0	3.2
Thailand	1.2	1.2	1.2	1.0	2.4	1.0
United Kingdom	5.1	3.4	3.5	2.8	2.1	2.5
United States	2.3	5.3	4.6	1.3	1.5	3.3
New Zealand	0.3	0.7	0.2	0.7	1.3	1.3
Philippines	2.7	2.4	1.9	0.6	2.3	2.4
Singapore	1.1	1.1	0.4	0.7	0.8	0.7
Netherlands	0.3	1.1	1.8	0.5	0.6	0.5
Malaysia	1.1	0.6	0.6	0.4	0.3	0.2
Hong Kong, SAR	1.3	0.7	0.2	0.2	0.2	0.2
Other	28.7	39.5	33.8	36.1	42.0	44.7
Imports (c.i.f.) by origin						
Australia	50.2	52.5	53.1	49.7	51.2	49.8
Singapore	11.1	9.8	12.8	19.9	19.0	19.0
Japan	8.9	7.9	5.6	4.0	4.6	4.2
New Zealand	4.3	4.2	4.1	3.8	4.0	4.4
Malaysia	2.2	2.6	3.6	3.4	2.8	3.0
People's Republic of China 1/	1.5	1.6	2.6	2.2	1.9	2.0
United States	6.6	5.4	3.6	2.2	2.2	2.2
Germany	1.1	1.8	0.6	0.7	0.7	0.5
Thailand	1.0	1.3	1.7	1.7	1.5	1.6
Hong Kong, SAR	2.0	1.5	1.4	1.2	0.9	0.9
Korea	2.1	1.9	1.2	1.0	0.9	0.9
United Kingdom	1.1	0.9	1.1	0.7	0.6	1.7
Netherlands	0.2	0.3	0.2	0.3	0.5	0.4
Philippines	0.5	0.2	0.3	0.2	0.2	0.2
Other	7.3	8.3	8.2	8.8	9.1	9.2

Source: International Monetary Fund's *Direction of Trade Statistics.*

1/ Excluding Hong Kong, SAR and Macau.

Table 21. Papua New Guinea: Net Services and Transfers, 1997-2002

(In millions of U.S. dollars)

	1997	1998	1999	2000	2001	2002
Services balance (net)	-673	-629	-615	-609	-564	-600
Factor services	-324	-266	-275	-214	-229	-239
Interest	-77	-88	-95	-73	-60	-57
Receipts	40	20	17	26	19	33
Mineral	12	11	11	15	12	13
Nonmineral	5	1	3	2	1	1
Official	23	8	4	10	6	19
Payments	-117	-107	-112	-99	-78	-90
Mineral	-17	-35	-45	-40	-25	-33
Nonmineral	-24	-20	-9	-7	-8	-10
Official	-76	-52	-57	-52	-45	-47
Concessional	-61	-41	-45	-47	-40	-43
Nonconcessional	-15	-9	-11	-3	-2	-2
IMF charges	0	-3	-2	-2	-3	-3
Dividends	-205	-149	-157	-120	-152	-165
Receipts	1	1	6	1	2	9
Mineral	0	0	0	0	0	0
Nonmineral	1	1	6	1	2	9
Payments	-205	-150	-162	-121	-153	-174
Mineral	-122	-100	-115	-67	-116	-126
Nonmineral	-83	-50	-48	-54	-37	-48
Other factor service payments	-42	-29	-24	-22	-18	-16
Nonfactor services	-304	-315	-284	-341	-271	-292
Freight, insurance, and travel receipts	32	19	17	13	11	11
Travel payments	-65	-40	-43	-41	-30	-31
Mineral	-11	-4	-2	-2	-1	-1
Nonmineral	-54	-37	-41	-39	-29	-29
Other	-272	-294	-258	-313	-252	-271
Receipts	344	246	231	235	188	233
Mineral	109	120	96	97	85	84
Nonmineral	235	126	135	138	103	150
Payments	-616	-540	-489	-548	-440	-505
Mineral	-371	-333	-301	-391	-286	-307
Nonmineral	-245	-207	-188	-157	-154	-198
Other	-45	-48	-56	-54	-64	-70
Unrequited transfers	197	228	174	129	129	128
Official	229	215	181	189	180	168
Receipts	229	215	181	189	180	168
Australia budgetary support	93	78	22	6	21	0
Project and commodity aid	131	137	154	178	155	163
Other grants	5	0	5	6	4	5
Payments	0	0	0	0	0	0
Private	-32	13	-8	-60	-51	-41
Receipts	70	83	62	13	26	18
Payments	-102	-70	-69	-73	-77	-58

Sources: Data provided by the Papua New Guinea authorities; and Fund staff estimates.

Table 22. Papua New Guinea: External Central Government and Central Bank Debt Outstanding, 1997-2002

(In millions of U.S. dollars, unless otherwise indicated)

	1997	1998	1999	2000	2001	2002
Total	1,310	1,346	1,452	1,442	1,498	1,474
Central government	1,258	1,298	1,348	1,394	1,390	1,357
Multilateral creditors	801	814	798	790	844	828
World Bank Group	376	359	334	345	380	363
Asian Development Bank	363	384	401	387	409	406
EU	41	47	60	54	52	56
Other	21	24	4	4	3	3
Bilateral	389	428	507	571	516	489
Australia	27	4	1	85	99	87
China	6	10	13	15	15	15
Japan	326	384	447	423	371	352
Other	31	30	46	48	31	35
Commercial creditors	68	56	43	33	29	41
Banks	45	39	31	30	20	37
Other	22	17	12	4	10	3
Central bank (BPNG)	52	48	103	48	108	117
IMF liabilities	50	46	23	39	107	116
Other	2	1	80	9	1	1
Memorandum items:						
Central Government external debt/GDP (in percent)	25.5	34.0	39.2	40.4	47.7	50.1
Public external debt/GDP (in percent) 1/	26.6	35.2	42.2	41.8	51.4	54.4
GDP	4,928	3,782	3,444	3,448	2,912	2,709
Exports of goods and services	2,592	2,113	2,268	2,462	2,077	1,867
Government revenue	1,077	1,264	1,318	888	826	891

Sources: Data provided by the Papua New Guinea authorities; and Fund staff estimates.

1/ Central Government and Bank of Papua New Guinea

Table 23. Papua New Guinea: Central Government and Central Bank Debt Service, 1997-2002

(In millions of U.S. dollars)

	1997	1998	1999	2000	2001	2002
Total	164	154	160	166	146	138
Principal	118	101	108	114	94	90
Interest	46	53	52	52	52	47
Central government	164	147	136	145	142	135
Principal	118	97	85	95	93	90
Interest	46	50	50	50	50	45
Multilateral creditors	65	79	85	86	80	71
Principal	38	48	54	54	50	48
Interest	27	31	32	32	29	23
World Bank Group	40	49	50	49	42	38
Principal	25	31	34	32	29	27
Interest	15	18	17	17	13	11
Asian Development Bank	20	25	29	31	31	28
Principal	10	13	15	18	18	18
Interest	10	12	13	14	13	11
Other	5	5	6	6	7	0
Principal	3	4	5	4	4	4
Interest	1	1	2	1	3	2
Bilateral	49	51	33	46	49	55
Principal	35	37	19	31	31	34
Interest	14	14	14	15	18	20
Australia	26	23	0	0	6	20
Principal	23	21	0	0	0	12
Interest	4	2	0	...	6	8
China	...	...	...	0	1	1
Principal	0	0	0	...	0	0
Interest	...	...	...	0	0	0
Japan	20	24	29	45	39	30
Principal	10	13	16	30	28	19
Interest	9	11	13	15	11	11
Other	3	4	4	1	4	4
Principal	2	3	3	1	3	3
Interest	1	1	1	1	1	2
Other commercial	50	17	17	13	14	10
Principal	45	12	13	10	12	8
Interest	5	5	4	3	2	2
Banks	44	10	10	9	12	7
Principal	40	7	7	7	10	6
Interest	4	3	3	2	2	0
Other	6	7	7	3	2	3
Principal	5	5	5	3	2	2
Interest	1	2	1	0	0	1
Central bank	0	7	25	21	4	3
Principal	0	4	23	19	1	0
Interest	0	3	2	2	3	3

Sources: Data provided by the Papua New Guinea authorities; and Fund staff estimates.

Table 24. Papua New Guinea: Official International Reserves, 1997-2002

(In millions of U.S. dollars, end of period)

	1997	1998	1999	2000	2001	2002
Net foreign reserves	328	139	183	256	331	226
Gross official reserves	380	187	206	304	440	343
Gold	21	21	21	21	21	21
SDR	0	0	1	12	0	0
Foreign exchange	359	165	184	271	418	322
IMF position	0	0	0	0	0	0
Foreign liabilities	52	48	23	48	108	117
Fund credit	50	46	23	39	107	116
Other	2	1	0	2	1	1
Memorandum items:						
Gross official reserves						
(In months of nonmineral imports)	4.0	1.8	2.2	4.2	6.1	4.5
(In months of total imports)	3.2	1.5	1.6	2.9	4.3	3.2

Sources: Bank of Papua New Guinea; and Fund staff estimates.