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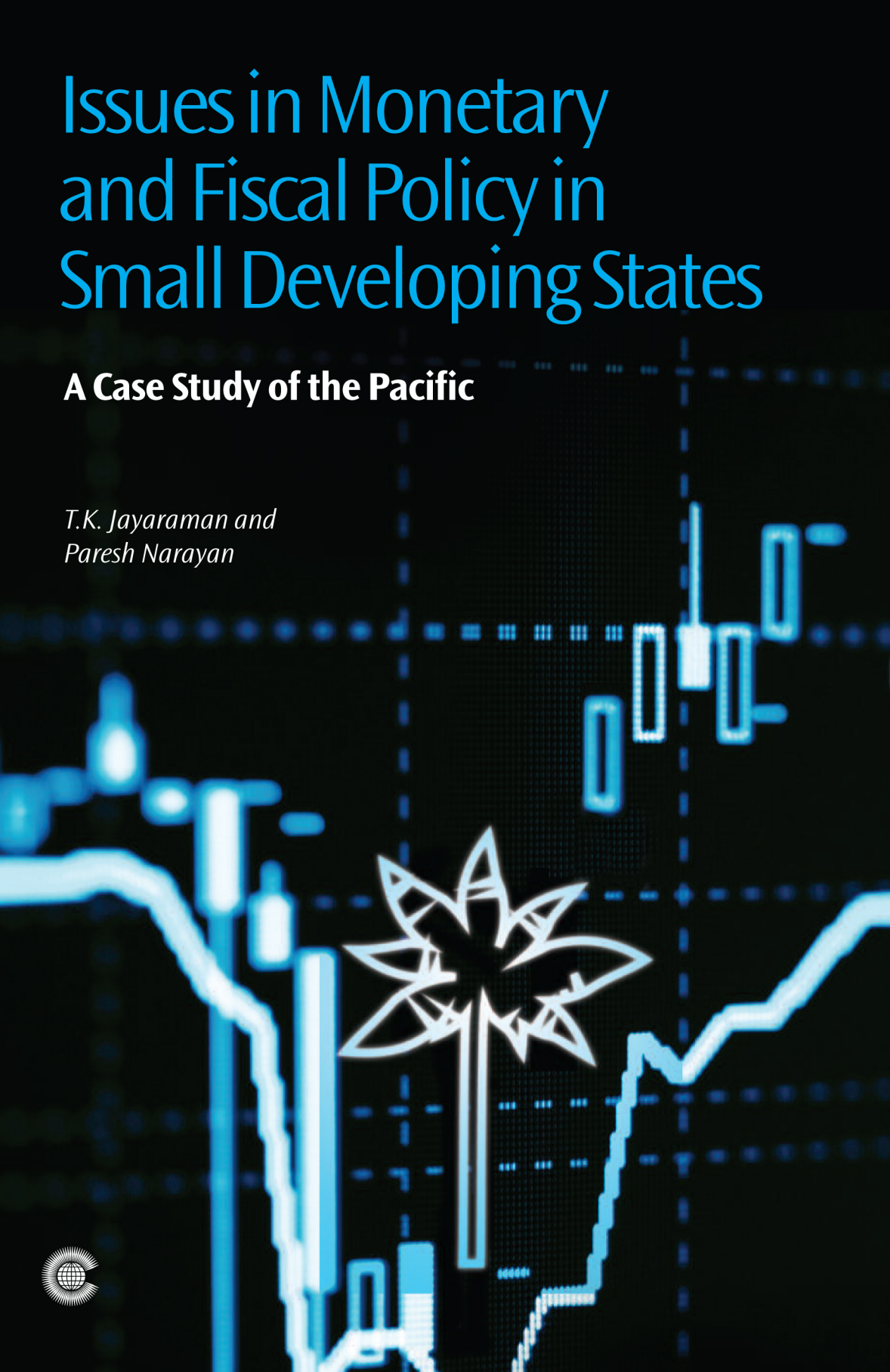
A Case Study of the Pacific

T.K. Jayaraman and
Paresh Narayan



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About the authors

TK Jayaraman is an Associate Professor in the School of Economics, the University of the South Pacific (USP). He earned his Master's and PhD degrees from the University of Hawaii as an East West Center grantee and as a Fulbright Fellow. Dr Jayaraman was a Senior Economist with the Manila-based Asian Development Bank. Before joining USP in 1998, he was a post-doctoral research fellow at the Macmillan Brown Centre for Pacific Studies at the University of Canterbury, Christchurch, New Zealand. His recent publications include *Monetary Issues in the South Pacific Island Countries* (2003) published by USP Book Centre and *Financial Sector Development and Private Investment in Vanuatu* (2003) published by Macmillan Brown Centre for Pacific Studies, University of Canterbury, New Zealand. His current areas of research are aid effectiveness in Pacific island countries and regional economic integration with single economic space and a single currency.

Professor Paresh Narayan is a Professor of Finance at Deakin University (Melbourne, Australia) and an Adjunct Professor of Economics at the University of the South Pacific. Professor Narayan became Australia's youngest professor at the age of 30. He has published more than 160 journal articles and is a consultant to a number of private and international institutions.

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Tables

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Abbreviations and acronyms

APEC	Asia–Pacific Economic Cooperation
ARDL	autoregressive distributed lag
BPNG	Bank of Papua New Guinea
BR	bank interest rate
CBB	Central Bank Bill, PNG
CBS	Central Bank of Samoa
CBSI	Central Bank of Solomon Islands
CPI	consumer prices index
CRE	bank credit
CRR	cash reserve requirement
ECT	error correction term
EEZ	exclusive economic zone
FDI	foreign direct investment
FTAs	free trade agreements
GDP	gross domestic product
GNI	gross national income
HDI	Human Development Index
KAF	kina auction facility
KDF	kina deposit facility
KFR	kina facility rate
LAR	liquid asset ratio
LCI	licensed credit institutions
LRGDP	long-run GDP
MLAR	minimum liquid asset ratio
MLR	minimum lending rate
MMR	money market (interest) rate
MPS	monetary policy statement
MTM	Money transmission mechanism
NDA	net domestic assets
NFA	net foreign assets
NPFs	national provident funds

NRBT	National Reserve Bank of Tonga
ODA	overseas development assistance
OLS	ordinary least squares
OMO	open market operations
PICs	Pacific island countries
PIR	policy indicator rate
PNG	Papua New Guinea
PRA	prescribed reserve asset
RBF	Reserve Bank of Fiji
RBV	Reserve Bank of Vanuatu
repo	repurchase agreement
RGDP	real GDP or output
RTA	regional trade agreement
SAF	secured advance facility
SE	standard error
SRD	statutory reserve deposit
T-bills	treasury bills
ULAR	unimpaired liquid asset ratio
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
VAR	vector autoregressive
VECM	vector error-correction model
WTO	World Trade Organization

Pacific Island currencies

Countries with independent currencies

Fiji	Fiji dollar	F$
Papua New Guinea	kina	K
Samoa	tala or Samoan dollar	ST
Solomon Islands	Solomon Islands dollar	SI$
Tonga	pa'anga or Tongan dollar	T$
Vanuatu	vatu	Vt

Countries without independent currencies

Cook Islands	New Zealand dollar	NZ$
Federated States of Micronesia	American dollar	US$
Kiribati	Australian dollar	A$
Marshall Islands	American dollar	US$
Nauru	Australian dollar	A$
Niue	New Zealand dollar	NZ$
Palau	American dollar	US$
Tuvalu	Australian dollar	A$

Preface

The implementation of monetary and fiscal policies in small states is affected by their inherent vulnerability, which stems from a high dependence on a narrow range of exports and on strategic imports such as food and fuel. These features render small states disproportionately exposed to external economic shocks. Other characteristics which pose disadvantages for small states include their limited ability to exploit economies of scale, and limited opportunities for diversification. These features have constrained policy implementation and success in small states and increased the importance and influence of external reserves, external financing, foreign investment and the international economic climate on domestic policy.

This book examines the implementation of monetary and fiscal policies in the Pacific island countries and the policies' impact on growth and development in these countries. It also identifies the monetary and fiscal policy options most suited for Pacific island countries. For small developing states with little ability to identify new financial resources in periods of stress and during episodes of exogenously induced crisis, monetary and fiscal policies remain among the few policy levers available to policy-makers. The choice of policy, in turn, is crucial for these countries in successfully warding off and more typically mitigating the impacts of crisis. Getting these choices right depends on policy circumstance, institutional constraints, the range of additional policy levers available to governments and some good fortune. The book carefully sets out both the policy and institutional constraints in monetary and fiscal policy management for an important set of small states, and provides a rich illustration of policy implementation in practice, in small Commonwealth Pacific island states.

Among the 14 PICs, six have independent currencies and the accompanying central banks which have been statutorily empowered to issue currencies, and formulate and implement monetary policies with the objectives of growth with domestic price stability and exchange rate stability. These six PICs are Fiji Islands, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu. The other eight are dollarised economies: Kiribati, Nauru and Tuvalu using the Australian dollar; Cook Islands and Niue the New Zealand dollar; and Federated States of Micronesia, Republic of Marshall Islands and Palau the United States dollar. The monetary policy section of the book draws upon various official documents, including those of the central banks and the International Monetary Fund as well as past research studies undertaken by TK Jayaraman.

The section on fiscal policy examines the effect of slow economic growth rates, persistent budget deficits, increasing civil service wage bill and political instability and democracy on the success of fiscal policies in the Pacific island countries. It proposes a number of policy options to address the constraints faced.

1

Monetary Policy Transmission Mechanisms in Pacific Island Countries

TK Jayaraman

1.1 Background

Pacific island countries and their vulnerability to exogenous shocks

The 14 Pacific island countries (PICs)[1] which are formal members of the Pacific Islands Forum are spread over about 10,000 kilometres (km) from east to west and 5,000 km from north to south, with a combined exclusive economic zone (EEZ) of about 20 million sq.km. The total land area is just over 500,000 sq.km of which Papua New Guinea (PNG) accounts for 88 per cent, Fiji, Solomon Islands and Vanuatu for 11 per cent, with the other 10 countries making up the remaining 1 per cent. The population of the PICs is about seven million people, of which close to six million are in PNG.

The PICs, which are dependent on inflows of trade and capital, are highly vulnerable to external shocks as well as domestic shocks. The external shocks are: (i) dramatic changes in terms of trade (the ratio of export price index to import price index); (ii) disruption in supplies of essential imports, such as food and fuel, including petroleum products, caused by conflicts outside the region; (iii) annual natural disasters, which affect one part or the other of each island nation; (iv) fall in inward remittances from former citizens who are now overseas residents during economic decline in the countries of origin; (v) decrease in tourism earnings as a result of either damage to physical infrastructure inflicted by natural disasters or recession in countries of origin of tourists; and (vi) volatility in annual bilateral aid and FDI inflows.

Domestic shocks, aside from natural disasters, include: (i) deterioration in the domestic fiscal situation; (ii) rapid rise in private sector credit growth, giving rise to trade and current account deficits; and (iii) shocks arising from human action, including ethnic unrest and military coups.

The vulnerability of PICs is primarily due to geographical characteristics, which present constraints to growth and development. In a succinct summary, a former Secretary-General of the Pacific Island Forum (Urwin, 2004) identified constraints which include:

- Remoteness and insularity: being located far from major markets and comprising widely dispersed multi-island micro-states, resulting in high international and domestic transportation costs, arising from both the distances to be covered and the low volume of cargo. Further, the development of even a small domestic market is constrained by distances between settlements and infrequent internal transport services.
- Susceptibility to natural disasters: being frequently affected by adverse climatic and other natural events that typically affect the entire population and economy.
- Small population size: having a small population affects a country's institutional capacity and increases unit costs of services, and also restricts the potential for private sector growth and investment.
- Limited diversification: having a narrow resource base and small domestic markets results in having a relatively narrow range of production and exports, and also limits capacity in the private sector.
- Openness: relying heavily upon external trade and foreign investment to overcome inherent scale and resource limitations leaves states vulnerable to external economic and environmental shocks.

Key indicators are given in table 1.1, which also includes information on similarly placed islands in two other regions, the Caribbean and the Indian Ocean. Despite substantial aid, there has been a great variability in economic performance. There have been several years when there was negative economic growth. Some PICs for which GDP data are available have suffered negative economic growth during the last two decades.

The six PICs which have independent currencies will be the focus of this study. The six countries do not all experience the same conditions. Fiji, Samoa, Solomon Islands, Tonga and Vanuatu have populations of less than one million, while PNG's population is close to 6 million. Besides population, PNG with its vast geographical area is also richly endowed with natural and mineral resources. Its export base is very well diversified with crops such as coffee, cocoa and tea, and mineral exports including petroleum and gas. These factors render PNG an outlier for all purposes. However, PNG with its traditional land tenure and its Melanesian background shares many of the socio-cultural characteristics that are unique to the region.

PICs and fixed exchange rate regimes

Among the six PICs with independent currencies, five have fixed exchange rate regimes. These are Fiji, Samoa, Solomon Islands, Tonga and Vanuatu. Papua New Guinea decided to adopt a floating exchange rate regime in 1994 after nearly two decades under a fixed exchange regime.

The choice of fixed exchange rate regime is often dictated by economic circumstances (Tavlas, 2003; Corden, 2002). For a small country with limited natural resources and no significant manufacturing base, a very narrow range of exports confined to primary or primary processed products and thin financial markets, but with high dependency on imports, a fixed exchange rate regime has been considered advisable. Since domestic inflation is largely influenced by landed prices of imported goods, ranging from food and

Table 1.1 PICs and island countries in other regions: selected key indicators

	Population ('000) 2006	*Per capita GDP (current prices in US$) 2006*	*Human Dev Index ranking 2003*	*Aid per capita (US$) 2006*	*Aid*	
					% of GDP 1990	*% of GDP 2006*
Caribbean region						
Antigua and Barbuda	84	11,140	57	39.0	1.2	0.4
The Bahamas	327	15,797	40	–	–	–
Barbados	293	9,423	31	12.8	0.2	0.1
Belize	298	3,740	80	25.6	7.6	0.7
Dominica	72	4,200	71	267.4	11.9	6.5
Dominican Republic	9,615	2,890	79	5.5	1.4	0.2
Grenada	108	4,060	82	247.9	6.3	5.4
Guyana	739	1,160	97	234.0	42.6	20.0
Haiti	9,446	490	146	61.6	5.9	11.7
Jamaica	2,667	3,550	101	13.8	5.9	0.4
St Kitts and Nevis	48	8,960	54	106.6	5.1	1.2
St Lucia	166	5,350	72	111.1	3.1	2.1
St Vincent and the Grenadines	120	3,820	93	39.5	7.8	1.0
Suriname	455	4,210	85	140.1	15.5	3.1
Trinidad and Tobago	1,328	12,500	59	9.8	0.4	0.1
Indian Ocean						
Maldives	300	3,030	100	128.4	9.8	4.4
Mauritius	1,253	5,430	65	14.8	3.7	0.3
Seychelles	85	8,320	50	164.9	9.8	1.9
The Pacific						
Cook Islands	22	2,651	–	490.9	–	28.0
Fiji	853	3,670	92	41.4	3.9	1.8
Micronesia	111	2,390	–	981.0	–	41.3
Kiribati	101	1,240	–	203.3	22.5	18.6
Papua New Guinea	5,995	730	145	45.0	12.8	5.6
Marshall Islands	65	2,980	–	842.3	–	28.5
Samoa	186	2,260	77	254.2	42.6	11.2
Solomon Islands	489	690	129	423.0	21.7	60.5
Tonga	102	2,300	55	215.2	26.3	9.0
Tuvalu	10	1,346	–	260.0	47.2	45.0
Vanuatu	215	1,780	120	221.0	33.0	12.4

Source: World Bank (2008), UNESCAP (2009) – = figures not available

beverages to intermediate and capital goods, and because of their inability to determine their own price levels, small countries would prefer to have a fixed exchange rate regime.

Based on a review of operations of various exchange rate regimes in developing countries, Corden (1993 and 2002) concluded that for small, highly trade-dependent open economies with less diversified production and export structures, a completely fixed exchange rate regime was desirable and he even suggested a better option, namely a currency board. Later experiences showed that the currency board option is better suited to countries which in the past had an extremely poor credibility record in fighting inflation due to fiscal indiscipline, since the option imposes highly restrictive conditions. In the same vein, Corden (2002) also suggested either dollarisation by adopting the currency of a country with which it has trade and investment relations or a currency union.

Further advances in theory showed that the fixed exchange rate regime is superior if the shocks impacting the economy are predominantly of a domestic, nominal nature such as interest changes, whereas the flexible exchange rate regime is preferable if the shocks are of external origin such as terms of trade or domestic real shocks such as natural disasters (IMF, 1997). Experiences in other regions, including the Indian Ocean, show that if fiscal policies become more disciplined and the complementary institutions are strengthened and become more stable, independent and transparent, and less open to political manipulation or private sector pressure, exchange rate policy could move from fixed, through pegged, to managed and finally independent soft inflation targeting.

Annual/bi-annual staff reports filed under Article IV Consultation Missions to PICs and an IMF study (2006) indicate that the fixed exchange rate regime has served Fiji, Samoa, Solomon Islands, Tonga and Vanuatu well. Since most of their imports are sourced from Australia and New Zealand, whose central banks have adopted inflation targeting policies with considerable success, domestic inflation in all PICs has been kept low (see table 1.2).

There are other benefits of fixed exchange rate regimes as well. A stable exchange rate reduces uncertainty in the country's international transactions for which prices are fixed in the world market. Second, it helps stabilise domestic prices and interest rates, which tend to reflect conditions in the world market and thus follow world trends. Third, a stable exchange rate facilitates capital mobility by making it easier for domestic financial institutions to access overseas capital markets. Fourth, a stable exchange rate encourages long-term investments and lowers the risk premium (interest rate) on overseas loans contracted from private lenders. Fifth, and finally, commitment to stable exchange rate imposes strict limits on the use of discretionary policies, which helps improve discipline in the conduct of monetary and fiscal policies (Shah, 2005). In addition, fixed exchange rate benefits the economy, most importantly by stabilising long-run expectations and eliminating the so-called time-inconsistency problem of discretionary policy-making (Mishkin, 1999).

(i) PNG's switch to a floating exchange rate regime in 1994 after a two decade-long experience with a fixed exchange rate regime was proposed on the following grounds:

(ii) PNG's exports, unlike the other five PICs', are well diversified, ranging from agricultural and tree crops to mineral exports, including petroleum and gas;

(iii) PNG's export earnings are a round-the-year phenomenon and are not seasonal as in the case of sugar for Fiji, or fruits and vegetables such as squash in the case of Samoa and Tonga;
(iv) terms-of-trade shocks have had much more severe impact on PNG than the other five PICs in the past, when a fall in prices after a boom in commodities such as copper, cocoa and coffee had devastating effects on the economy;
(v) PNG had by 1994 already successfully adopted prudent fiscal policies;
(vi) PNG had acquired sufficient downward flexibility in wages and prices;
(vii) past reasons for a nominal anchor no longer existed as world inflation had come down, eliminating the fear of imported inflation; and
(viii) a pure float would allow fullest freedom to the central bank of PNG for pursuing an independent monetary policy.

In 1995, a 35 per cent plunge in PNG's currency, the kina, in the aftermath of the adoption of the floating exchange rate regime showed that optimism was misplaced. The reasons listed at (iv) to (vi) were soon proved wrong. However, if we note that inflation (CPI) came down from 15.6 per cent in 2000 to 1.7 per cent in 2005; exports grew by 9.2 per cent per year 1990–05; positive trade balance grew from 2000–05; real per capita income grew at 2.1 per cent per annum during 2000–05 and debt services as a percentage of exports of goods and services declined during 2002–05, it is apparent that time lags are important.

Only fiscal constraint and improved balance of payments following the fall in inflation rate restored stability in the nominal exchange rate in 1997. However, from late 1997 and during 1998 and 1999, the kina depreciated continuously. Fiscal indiscipline was again the cause. Although there was temporary relief between 2000 and 2001, pre-election fiscal slippages just before the 2002 election led to substantial depreciation in the kina (Marciniak, 2006). During these episodes the inflation rate was very high, ranging from 12 per cent to 17 per cent (table 1.2). In subsequent years, inflation was low (for example, in 2006 and 2007) as a stronger kina helped the imported prices to be low.

Fixed exchange rate regimes and role of monetary policy

While the currencies of Fiji, Samoa, and Vanuatu are pegged to a basket of currencies of major trading partners, the exchange rate regime of Solomon Islands dollar is a crawling peg[2] and Tonga's is within a horizontal band[3] of plus or minus 5 per cent (Creane et al., 2006). The five PICs have been targeting exchange rate as a nominal anchor for the conduct of monetary policy by a central bank. Presence of a nominal anchor obliges monetary authorities to commit themselves to a transparent, well-understood, and verifiable target as the paramount objective of monetary policy, to which all other objectives are subordinate.[4]

It is well known, as part of the Mundell-Fleming model of open economy, under a fixed exchange regime and in the presence of perfect capital mobility, there is no scope for an independent monetary policy totally dedicated to domestic growth as a goal (Khatkhate and Short, 1980; Tavlas, 2003). The PICs under fixed exchange rate regimes have exchange controls in the best of times as well as in the worst of times. The severity varies only in degrees. Furthermore, financial assets of PICs are not considered substitutable by overseas

investors for their current assets. Interest changes in PICs therefore have minimal effect on capital mobility. Inflows of foreign aid and remittances are also interest insensitive. Under these conditions amounting to absence of perfect capital mobility, there is scope for independent monetary policy.

Expansionary monetary policy leads to trade deficits and deterioration in balance of payments. Twin deficits have been a frequent occurrence in all PICs (Jayaraman and Choong, 2008). Demand for money remaining the same, increase in money supply results in an increase in imports and capital outflows, if capital movements are not restricted. Net foreign assets are reduced until equilibrium is reached between money supply and demand. Thus, the monetary approach to balance of payments, which was as formally presented by Johnson (1972) has been tested and found valid in the case of PICs (Jayaraman, 1993). Inflation in PICs is mainly determined by import prices and their components, namely import prices and import prices in foreign currency. In the five PICs, the inflation objective has to be pursued through fixed exchange regimes, while the objective of export competitiveness should be pursued through wage policy, which is the responsibility of government (Riechel, 2002).

Floating exchange rate regime and monetary policy in PNG

In the case of PNG, the float is known as managed float. Not being intended to be a perfect float, its central bank, the Bank of Papua New Guinea (BPNG), keeps the option of intervening to maintain a desired level of exchange rate, if any depreciation of exchange rate below a certain desired level is considered to trigger inflationary pressures. To this purpose, PNG also accumulates and maintains international reserves just as the five PICs under fixed exchange rate regime seek to maintain a level of reserves equivalent to 3 or 4 months of imports to defend the targeted exchange rate. It is apparent that PNG does not totally dedicate itself to exchange rate adjustment as an automatic remedy for correcting any external disequilibrium. Although it was expected in the euphoria of a floating exchange rate announcement in 1994 that BPNG would be in a position to specifically target inflation as in New Zealand or Australia, it did not happen. However, without having any explicit inflation targeting framework, the Central Bank Act of 2000 set price stability as the primary macroeconomic goal of BPNG. The possible reason is that PNG does not have institutional capability to make available sufficient data on macroeconomic indicators to its central bank in a timely manner that would form the basis for a quantifiable inflation target (Faal and Isnawangsih, 2008).

Key issues

Conflicting goals

A review of monetary policies in all the six PICs shows that goals are not very dissimilar (see section 1.2 on policy strategies). Although the statutes under which central banks have been set up have specified as a goal monetary stability, which would mean domestic price stability and stability of exchange rate, none of them pursues an explicit inflation target

rate. The pre-conditions[5] required for inflation targeting (Carare et al., 2002) do not exist in any PIC. Although some of the PICs, including Fiji, might have fulfilled some of the pre-requirements such as monetary policy instrument independence, a low and stable inflation record, good communication and good public relations record, one important requirement is missing, namely that of a perfectly flexible exchange rate regime. PNG does not fulfil the criterion, although it was anticipated that PNG soon after its 1994 decision to float the kina would be able to pursue an independent monetary policy with greater success than the PICs under fixed exchange rate regimes. The reason is that PNG has a managed float regime with an eye on maintaining a certain level of exchange rate as well as international reserves to defend it. Further, all the six PICs have thin financial markets, including foreign exchange markets with few players.

The central banks' goals are laid down by the statutes of parliament, under which they have been established. There has been an increasing recognition that at least two of the goals are in conflict: monetary stability and growth[6]. Promoting growth through fiscal policy can be inflationary. Experiences have shown that governments are impatient, especially, if they want to pursue populist projects with an eye on the next election, the central bank often finds itself cornered. It would be unfair to expect a central bank to put up stiff resistance. As a reasonable measure, the legislatures would do well to re-look at the respective central bank legislation and eliminate the conflict by removing the goal relating to growth. The governments should re-examine, in consultation with stakeholders in the economy, the legislation for promoting greater central bank independence.

Co-ordination of fiscal and monetary policies

This brings us to the discussion of fiscal dominance in PICs. Expansionary fiscal budgets of the mid-1990s in PNG and Solomon Islands and during 2002–06 in Fiji resulted in sizeable deficits. All of them generated substantial inflationary pressures (table 1.2). Fiji's fiscal deficits were financed through public borrowing, especially from the national provident fund, and

Table 1.2 PICs: fiscal deficits, growth and inflation

	Budget balance					*Growth*					*Inflation*				
	% of GDP					*Annual rate (%)*					*Annual rate (%)*				
	1990–1997	*1998–2005*	*2006*	*2007*	*2008*	*1990–1997*	*1998–2005*	*2006*	*2007*	*2008*	*1990–1997*	*1998–2005*	*2006*	*2007*	*2008*
Fiji	-3.2	-3.0	-2.9	-1.3	-1.5	4.3	2.9	3.4	-6.8	1.2	2.6	3.2	2.5	4.3	7.5
PNG	-2.7	-1.7	3.1	2.5	1.0	7.4	2.6	2.6	6.7	7.3	5.6	10.4	2.4	0.9	10.6
Samoa	-2.8	-0.7	0.3	1.1	-0.3	5.7	3.9	2.6	6.1	3.3	-3.1	4.4	3.7	5.6	6.5
Solomon Is	-5.1	-3.7	1.5	-1.1	NA	10.8	-1.4	6.1	10.3	7.0	2.9	8.5	11.2	7.7	15.1
Tonga	0.1	-0.8	1.5	1.5	-1.0	4.6	3.0	4.4	-0.3	1.0	3.3	8.1	7.3	5.1	10.0
Vanuatu	-4.0	-3.1	1.2	-0.3	NA	3.4	0.9	7.2	5.0	7.2	4.4	2.6	2.0	3.9	4.5

Source: UNESCAP, 2009

fiscal deficits in PNG and Solomon Islands were monetised by central banks. Fiscal deficits in most of the recent years have been sustainable and low. Further, episodes of monetisation of budget deficits, compared with the 1990s, are now few and far between. However, it is necessary to stress the importance of fiscal and monetary policy co-ordination. Most of the central banks in PICs have joint committees to review macroeconomic performance prior to annual budgeting exercises.

Instrument independence

Fiscal and monetary policy co-ordination becomes effective only when central banks are active. If they are passive or meek, co-ordination becomes unproductive and ineffective. Fiscal dominance would then become the order of the day. While central banks are goal dependent, as the goals of monetary stability and economic growth are laid down in the central bank Acts, empowering them with instrument independence is critical. Instrument independence, however, came under severe test, when central banks of Solomon Islands and Tonga incurred financial losses in the 1990s while conducting open market operations (OMO) by auction/tendering process in their own newly introduced, short-term securities for mopping up excess liquidity. Excess liquidity was given rise to mostly by fiscal deficits incurred over a long period. As the two central banks could not finance the operating costs, they had to discontinue OMO and switch on to direct instruments of quantitative controls. The two central banks looked to their governments for sharing operational costs, as the goal of price stability happens to be a shared goal between governments and central banks. As the operational costs could not be financed, OMO had to be discontinued.

Development of financial markets

Success of OMO in PIC central banks' short-term papers is not only dependent on the banks' resource positions but also on the current level of financial intermediation, which is reflected in the degree of development of financial markets. Presently, markets are thin with few players, dominated by the national provident funds (NPFs). Further, there is no secondary market for financial assets with the result that both short-term and long-term securities, issued by central banks and by government or government agencies, are held until their maturity. Two studies by IMF (Laurens, 2005; Buzeneca and Maino, 2007) on the effectiveness of market-based indirect instruments[7] stress the need for completing three steps: (i) development of financial intermediation; (ii) emergence of an active interbank market, where banks could obtain funds overnight to meet their temporary shortage in liquidity; and (iii) evolution of financial markets with both primary and secondary markets for trading in securities. IMF (2007b) notes the interbank money market in Samoa did not include the cash-surplus NPF. The latter is also excluded from participation in the auctioning process of central bank short-term bills. Towards the development of a well-functioning interbank money market and securities market, IMF (2008) has recommended that NPF should be allowed to participate in both markets.

Structural liquidity surplus

Besides the usual problem of fiscal dominance afflicting developing countries, there is also the problem of structural liquidity surplus, unique to PICs (this is because of weak demand for bank credit for investment purposes, as investment opportunities are poor). The coexistence of excess liquidity and shortage of credit available for the private sector, especially longer-term credit for investment is due to structural constraints. Commercial banks always insist upon sufficient collateral, especially in regard to land-based investment projects. In the light of the prevalent communal land tenure system, the collateral requirements are difficult to fulfil. Among the central banks in PICs, only RBF remunerates the legal reserves kept with it under SRD requirements. Excess reserves in Fiji and total reserves in any of the other PICs do not earn any interest. Consequently, bank loans are designed to carry a large spread between lending rate and deposit rate to compensate for the loss of interest earnings on reserves as well as to offset likely losses they would incur in the presence of current high incidence of loan defaults (Jayaraman and Sharma, 2003).

Compulsory payments to national provident funds (NPFs) have also been contributing to excess liquidity in the absence of investment projects. Current restrictions in PICs on investment by NPFs overseas have been compounding the problem of structural liquidity surplus. Solomon Islands in recent years has relaxed the restrictions, enabling its NPF to invest its surplus funds with the condition that they would be recallable in the event of any emergency to meet the shortage in international reserves. The removal of restrictions on overseas investment by Solomon Islands NPF has contributed to reduction in excess liquidity to a considerable extent.

Continuing importance of direct instruments

In those PICs where restrictions on overseas investment and other capital controls persist, indirect instruments including issue of central bank securities have been helpful. However, sometimes there is reluctance on the part of central banks on the ground that higher interest costs involved would affect their profitability to lower the issuance price in the auctioning process, and this has reduced the attractiveness of such short-term papers to commercial banks. Since the money market comprises only a few players, if the rate set by central bank is lower than the prevailing market rate, the central bank short-term papers become less attractive and the OMO becomes a failure.[8] This has been documented by an IMF study on Samoa (IMF, 2007b).

If central banks in PICs cannot efficiently conduct OMO in central bank paper and efforts to mop up excess liquidity become a failure or result in losses, the only alternative is to resort to the time-tested, rule-based instruments. In the late 1990s, both Reserve Bank of Vanuatu (RBV) and National Reserve Bank of Tonga (NRBT) relied upon direct instruments. Specifically, NRBT used SRD ratio and credit ceilings to tighten monetary conditions, while RBV introduced liquid asset ratio (LAR) to induce commercial banks to hold government securities and RBV Notes. In 2006 RBF, in addition to OMO in RBF Notes, raised SRD ratio, imposed credit ceilings, and other restrictive measures. In fact IMF (2008) has suggested that in the face of excess liquidity, Samoa should introduce LAR in

addition to the current SRD ratio.[9] This particular suggestion would mean that commercial banks would become a captive market for central bank and government securities. It is of interest here that use of LAR is on the decline in the region.

Lessons learned

While goal dependence is beyond the control of central banks in the Pacific region, as they have already been determined by the statutes governing their existence, instrument independence has to be guarded and nurtured both by central banks and governments. After all, monetary stability is a shared goal of the central bank and government. In respect of those central banks whose financial positions are not sound and conducting the open market operations in central bank issued short-term paper results in losses, it is advisable that governments consider bearing the cost of OMO until such time as the central bank concerned has improved its financial position.

Use of direct instruments such as an increase in SRD ratio is presently at the discretion of central banks. Obtaining the approval of government should be dispensed with, in case the Act does not specify such a requirement.

Most of the friction between government and central bank can be sorted out if there is constant and effective co-ordination between them. If the co-ordination committees are fed with well-researched documents on latest macroeconomic conditions of the economy, it will not be difficult to reach the required consensus.

Timely and accurate reporting of macroeconomic data is the critical requirement. Statistical agencies have to be strengthened as we find frequent revision of GDP data in a given year has been causing concerns not only in the current period but also in the past.

Effectiveness of monetary policy often gets tested, when a fire-fighting role has to be played to preserve the stability of exchange rate in the face of unsustainable series of annual deficits in PICs. This happens both in those PICs under fixed exchange rate regimes as well as under the managed float as in PNG, which would not like a steep depreciation of the currency, as it would be inflationary. Monetary policy can be successful, only if there were prudent and sustainable management of public finances. Any tightening, consequent to excessive fiscal spending and consequent deficits will only crowd out private investment and undermine growth.

PICs are grappling with grave issues of macroeconomic instability since the beginning of the new millennium due to expansionary fiscal policies. Stagnation in government revenues and fall in aid inflows have compounded the problem of growing fiscal deficits. These deficits, financed first by domestic borrowing including central bank credit and later by overseas borrowing, have serious repercussions on balance of payments. These include external current accounts slipping into deficits, followed by plummeting of foreign reserves, with spectre of default on foreign loans looming and exchange rates being under threat. The only way out appears to be launching a programme of fiscal adjustment[10] carried out in a sustained manner in the medium term. In these circumstances, monetary policy can only play a secondary and supportive role aiming at maintaining the critically required level of international reserves.

1.2 Policy strategies

Monetary policy strategies

Monetary stability is one of the monetary policy objectives of all the central banks in the five PICs (Fiji, Samoa, Solomon Islands, Tonga and Vanuatu) under fixed exchange rate regimes. In fact, the wording of the relevant sections in the statutes empowering their central banks with functions and responsibilities is almost identical.[11]

Monetary stability is concerned with macroeconomic stability, exchange rate stability and external equilibrium and with the outcomes of policy on volatility of inflation, output, employment and sustainable development. In other words, monetary stability primarily means stability of the value of currency, both domestically and externally. The maintenance of stability of the exchange rate is critical in these five PICs, whose economies are highly open because of a large share of trade. Under fixed exchange rate regimes, any increase in net domestic assets (NDA) as a result of expansionary monetary policy will be offset by a decline in net foreign assets (NFA), leaving the money supply unchanged. This is the well-known trilemma. The economies under fixed exchange regimes cannot have an independent monetary policy.

Since inflation in PICs is mainly determined by import prices and their components, namely import prices and import prices in foreign currency, the goal of monetary stability has to be pursued only by targeting exchange rate, and each central bank requires an appropriate level of international reserves, which is roughly estimated in the range of 4 to 5 months of import cover. This is because the adjustment for bringing the economy back to equilibrium has to fall on income and expenditure through monetary tightening.

On the other hand, in economies under a pure flexible exchange rate regime, adjustment to reach equilibrium automatically falls on the exchange rate. Such an exchange rate regime would even eliminate the need for keeping any level of official reserves to defend the exchange rate. In PNG it was expected that with greater autonomy under the amended Central Banking Act of 2000[12] the central bank under the flexible exchange rate regime would be able to pursue an unrestricted monetary policy unlike under the fixed exchange rate regime. Price stability was specifically mentioned, as external stability was taken care of by the floating exchange rate regime.

However, PNG's float is not a pure float. It is a managed float, under which the country's central bank, Bank of PNG (BPNG) aims at some comfortable level of reserves so that the domestic currency is not allowed to depreciate below a preferable level with a view to keeping inflationary pressures under control. In fact, BPNG can intervene by selling foreign currency for domestic currency to stop the decline in the value of the kina. BPNG formulates its monetary policy stance by considering the level of its international reserves, as one of the key macroeconomic indicators. Thanks to the commodity boom during 2005–07, the accumulated foreign exchange reserves provided an import cover of about 6 months in 2005, 8.6 months in 2006 and 9.1 months in 2007.

In a policy speech in April 2009, dealing with the likely impact of world recession on PNG, BPNG Deputy Governor Bakani made it clear that (i) the link between monetary aggregates (money supply) and inflation in PNG was weak and not as strong as in other economies under

flexible exchange rate regimes; and (ii) the most influential factors of inflation have been the exchange rate and imported (foreign) inflation of PNG's major trading partners.[13] In fact, PNG's preference for appreciation of the kina against the US and Australian dollars during the worldwide surge in oil and food prices in late 2007 until mid-2008 is understandable. The prices of fuel are by convention usually quoted in US dollars and food is mostly sourced from Australia. Appreciation of the kina acted as a buffer against inflation.

In these circumstances, it is obvious that the monetary policy strategies in the five PICs under fixed exchange rate regimes and in PNG, whose exchange rate regime is a managed float, are not very different. Monetary stability, as mandated by legislatures for the five PICs and price stability for PNG as laid down in the Central Banking Act 2000, as the objectives for their central banks are intertwined with exchange rate stability and hence the monetary policy strategy for all of them has been to maintain a stable external value of domestic currency.

Targets

All PICs aim at maintaining a comfortable level of international reserves, ranging from three to five months' equivalent of imports, so that the nominal exchange rate would remain stable, subject to fluctuations within the allowable range.[14] These targets are sought to be reached by aiming at specifically identified intermediate targets, such as key short-term interest rates in PNG and Fiji, and reserves in Tonga.

Instruments

Monetary policy instruments of a central bank[15] are generally divided into two: (a) direct instruments, which are based on the regulatory power of the central bank and (b) indirect instruments, which are linked to money market operations.

The direct instruments, which are also rule-based, include: (i) reserve requirements, a requirement for a bank to hold minimum balances with the central bank, typically as a percentage of its liabilities, known as statutory reserve deposit (SRD) ratio; (ii) a requirement for a bank to hold minimum amounts of specified liquid assets, typically as a percentage of its liabilities, known as liquid asset ratio (LAR); and (iii) standing facilities, which are monetary instruments used at the initiative of banks and bearing a pre-specified interest rate, allowing banks to borrow from (refinance facility), or deposit funds with, the central bank (IMF, 2005a). When a central bank uses its regulatory powers through direct instruments, its aim is to change the balance sheets of commercial banks. By so doing, there is one to one correspondence effect. For example, if a central bank imposes a credit ceiling, commercial bank loans fall proportionately.

The aim behind indirect instruments, which are used at the discretion of the central bank, is to change its own balance sheet. If the central bank undertakes sale of its own security or a government/government agency issued security, it acquires additional reserves, thereby absorbing the intended excess liquidity from the economy. The central bank conducts open market operations (OMO) as a participant in the money market by buying/selling bonds

issued by government and government agencies on the secondary market, and buying/selling assets under a repurchase agreement in the repo market, or through foreign exchange swaps. The PICs conduct open market operations, which are based on auction techniques that are regulated by the central bank. Since OMO by PICs' central banks does not involve selling or buying securities in a secondary market but only by primary issuance of the central bank's own securities or government securities issued exclusively for monetary policy purposes by auction/tendering mode, IMF labels them as open market type operations (IMF, 2005a). The reason is obvious: the financial sectors in PICs are at nascent stages, with no secondary markets for financial securities (see appendix 1).

Until the mid-1990s most of the PICs relied heavily on direct instruments, such as SRD and LAR, as well as controls over interest rates, directed credit, priority lending to designated sectors and credit ceilings. As part of financial sector reforms, all quantitative controls, including lending to priority sectors were phased out with eventual discontinuance by 1998. By the 1990s, all central banks introduced indirect instruments, which are linked to money market conditions, by commencing weekly open market type operations in their own 91-day and 182-day central bank bills through public auction mode. The open market operations in central bank papers helped the central bank in its liquidity management. However, central banks of Solomon Islands and Tonga found the operating costs of OMO unprofitable and had to quit, as governments were unable to financially support the central banks.

Monetary policy developments in PICs

Fiji

Fiji's monetary history starts with the establishment of its Central Monetary Authority in 1973, which was succeeded by RBF in 1984. Until the early 1980s, Fiji's financial system was heavily regulated and monetary policy was conducted using a variety of direct controls on commercial bank lending. Interest rates were also regulated. Control over the quantity of money was the central approach in the conduct of monetary policy. The RBF used changes in reserve requirements of commercial banks, with SRD ratio to influence the liabilities of the central bank or the money base. Since 1987, Fiji has been moving towards a more deregulated financial system.

Monetary policy objectives

Major objectives of monetary policy in Fiji, as specified in Section 4 of the RBF Act (1985),[16] are two: maintaining price stability and ensuring an adequate level of foreign reserves. Regarding the goal of price stability, RBF seeks to keep headline inflation low: that is, not exceeding 3 per cent.[17] Since the headline inflation measure is often influenced by large, but temporary, policy shocks, RBF also looks at underlying measures of inflation such as 'trimmed mean'[18] and 'inflation excluding volatile items'.[19] During 1998–2007, average underlying (trimmed mean) inflation in Fiji was around 1.9 per cent, while average headline inflation[20] was around 3.0 per cent. In 2007, inflation was 4.3 per cent compared with 3.1 per cent in 2006, which would be attributed to the rise in international commodity prices.

Fiji's monetary policy is implemented in the context of a fixed exchange rate arrangement according to which the value of the domestic currency, Fiji dollar, is linked to a trade-weighted basket of currencies of major trading partners, including Australia, Japan, New Zealand and the USA. Maintenance of a stable exchange rate has been a necessity as merchandise trade alone represents 60 per cent of GDP, since domestic inflation is largely influenced by exchange rate changes. Towards this objective of maintaining a stable exchange rate, RBF targets a level of international reserves equivalent to three months of imports of goods. Maintaining the external exchange rate stability, more critically, requires appropriate domestic policies. While financial sector stability and efficiency are to be achieved by prescribing and enforcing internationally accepted prudential standards that financial institutions should meet, monetary stability is maintained through formulation and implementation of an appropriate monetary policy in close co-ordination with the finance ministry, which is exclusively responsible for fiscal policy (Ali and Jayaraman, 2002).

By the end of 2007, official foreign reserves were F$958.7million, sufficient to cover 4.4 months of imports of goods. Due to widening current account deficit in December 2008, reserves were F$761.2 million, equivalent to imports of 2.9 months. The international reserves further declined to F$429.6 million by March 2009. Upon revaluation, following the April 10, 2009 devaluation, the reserves were revised upwards and stood at F$631.2 million in May 2009 (RBF, 2009).

Instruments of monetary policy

Prior to 1997, the conduct of monetary policy largely focused on controlling the level of growth in monetary and credit aggregates (see appendix 1). The conduct of monetary policy then comprised direct controls that were imposed on commercial banks by the central bank. These included credit restrictions, interest rate ceilings, SRD ratio and the unimpaired liquid asset ratio (ULAR). Fiji's central bank relied on other direct interventions as well. One such intervention was that all licensed financial institutions, including commercial banks, were required to maintain a minimum of not more than 35 per cent of deposits and other liabilities in minimum holding of unimpaired liquid assets in terms of treasury bills of the government and securities issued by government and official agencies. Further, RBF was fixing credit limits and controlling both deposit and lending rates, along with mandated priority sector lending targets.

Open market operations

These quantitative restrictions were gradually relaxed beginning from 1989 and discontinued in the early 1990s, as part of its financial sector liberalisation programme. It also reduced SRD. In 1989, and in what can be viewed as the first step towards adopting a more market-based mechanism to conduct monetary policy, RBF began an open-market type of operations in its own short-term debt paper of various maturities, known as RBF Notes, ranging from 91 to 180 days, primarily as a measure towards liquidity management. The yield to maturity of the 91-day RBF Notes has now come to be officially recognised as the policy indicator rate (PIR), signalling the monetary policy stance of RBF.[21] The rate is set

in line with RBF's declared monetary policy objectives of low inflation of about 3 per cent and an adequate level of international reserves to cover about four months of imports of goods and services.

When the actual 91-day rate is not aligned with the policy indicator rate, RBF would exert pressure on the market for short-term funds by selling or redeeming RBF Notes to influence the amount of funds in their market. The open market operations are conducted to drain out the excess liquidity in the system until the 91-day yield to maturity rate of RBF Notes is brought in alignment with the policy indicator interest rate. By maintaining continuous pressure on the system, the RBF expects to influence short-term interest rates including the money market interest rate (MMR).[22] The discount rate, at which commercial banks can borrow from RBF known as minimum lending rate (MLR), is linked to the policy indicator rate (PIR). The MLR is normally fixed at 50 basis points above PIR. Thus, changes in the PIR are automatically reflected in the MLR.

The framework for the conduct of monetary policy in Fiji since 1997 has been broadly in line with the frameworks of Australia and New Zealand. The fundamental difference, however, with the current and the previous framework is that in Australia, the formulation and implementation of monetary policy was aimed at the quantity of funds (determining the level of liquidity), whereas in New Zealand the emphasis is on the price of funds or interest rate. The yield to maturity rate on the 91-day RBF Note is the policy indicator rate (PIR), which conveys to market participants the intended monetary policy stance. When RBF raises PIR, it is indicating to the market that it is pursuing a contractionary monetary policy and in cases where it lowers the rate, it is pursuing an expansionary monetary policy stance.

In 2006, as the economy was getting heated with an unprecedented private sector credit boom, which was preceded by continuous annual budget deficits under expansionary fiscal policy pursued by the government after general election in 2001, RBF had to raise its benchmark interest rates twice, from 1.75 per cent to 4.25 per cent.[23] Further, it also raised SRD ratio from 5 per cent to 7 per cent in February 2006. Prompted by concerns on the outlook for foreign reserves, RBF resorted to direct controls to protect reserves levels, in terms of credit ceilings. However, as foreign reserves declined and as liquidity under a fixed exchange rate regime is determined by net foreign assets, the economy experienced the effects of monetary tightening. The liquidity management through OMO in RBF Notes was no longer considered necessary. The issue of RBF Notes has been suspended since December 2006. To ease the monetary situation, SRD ratio was reduced in May 2007 from 7 per cent to 6 per cent. Relaxations in credit ceilings were introduced only in mid-2008 and commercial banks were allowed to exceed their ceiling while lending to the identified priority sectors.

Impact of global crisis

The global economy went into recession in mid-2008 with the prediction that global output would decline by 1.3 per cent in 2009. Further, the impact of this deepening world recession on Fiji's trading partners was intensifying in early 2009. Anticipating a significant effects on Fiji's tourism industry and commodity exports, RBF imposed exchange controls on current

Box 1.1 Fiji: monetary policy instruments

Reserve requirements

Statutory reserve deposit (SRD) ratio is 5 per cent on all deposit liabilities of commercial banks since 1 April 2009, reduced from 6 per cent. The legal reserves kept with the Reserve Bank of Fiji are remunerated. The rate of interest paid on reserves is 0.9 per cent.

Earlier when RBF was conducting open market operations in its own papers of different maturities, known as the Reserve Bank of Fiji (RBF) Notes, the legal reserves were remunerated at the same rate as the yield to maturity rate of 91-day RBF Notes.

Discount window

Discount lending rate, known as minimum lending rate, was reduced to 6.32 per cent in April 2009 from 9.25 per cent.

Repurchase rate is the same as minimum lending rate at 6.32 per cent.

Open market operations

Reserve Bank of Fiji Notes. RBF was conducting open market operations in its own securities until December 2006. The 91-day yield to maturity rate was the policy indicator interest rate signifying the monetary policy stance. RBF was conducting OMO through tendering process.

Moral suasion

Frequent meetings with banks are held to persuade banks to reduce interest rate spread, to increase deposit rate, and to lend more to medium and small enterprises and prioritised sectors.

accounts. These included reductions in overseas travel allowances and limits for credit and debit card payment. Economic outlook continued to be grim in April 2009 and it was forecast that Fiji's economy would contract by 0.3 per cent in 2009. To facilitate further monetary easing, SRD ratio was reduced to 5 per cent in early April 2009. Close on its heels came the announcement on 10 April 2009 of devaluation of the currency by 20 per cent.

Papua New Guinea

Monetary policy objectives

The BPNG was established in 1973 under the Central Banking Act. The objectives were the maintenance of both domestic price stability and external stability along with promoting conditions for economic growth[24]. For maintaining a stable domestic price level, as inflation was mostly imported, a fixed exchange rate regime was then considered appropriate by BPNG until 1994, when it decided to float the domestic currency. Further, it was even felt necessary to have an appreciating exchange rate (known as hard kina) for controlling inflation. The first instrument of monetary policy was formally introduced in 1974, which was minimum liquid asset ratio (MLAR). The MLAR was set at 15 per cent of deposits of commercial banks. In 1976, when PNG attained full monetary independence, the Australian dollar was discontinued as legal tender and the country's currency was pegged at one to one Australian dollar. The BPNG regulated bank credit flows through various quantitative

measures, which included interest rate directives to commercial banks and issue of lending guidelines. In 1980, the lender of last resort facility was announced. Also in 1980, treasury bills were auctioned, which also served the purpose of absorbing excess liquidity. In 1983, a discount facility began to be provided to commercial banks with additional flexibility. Thus, until 1984, BPNG targeted at growth in credit and broad money through MLAR and auction of T-bills, and lending guidelines and interest rate directives (BPNG, 2007).

Monetary policy instruments

In 1984/85, as part of financial sector reforms, BPNG discontinued regulation of all interest rates, including rates on passbook savings accounts. However, BPNG continued to issue lending guidelines, directing banks to give priority to developing projects and government enterprises. Interest rate ceilings were re-imposed in June 1986, only to be revoked in late 1986. In 1992, 28-day and 60-day T-bills were introduced by government, which were used by BPNG for liquidity management purposes. In 1994, the discount facility was suspended (BPNG, 2007).

Thus, there were confusing signals from BPNG, which were understandable as the central bank was under severe pressure from the government. PNG's large budget deficits of 1980 and mid-1990s, which were incurred due to increased military expenditures on Bougainville, tax reductions, agricultural subsidies, and persistent expenditure overruns, were all monetised by its central bank. On one hand BPNG had to act as an agent of government to finance spending; on the other hand, BPNG had to fight inflationary pressures arising out of fiscal excesses.

Switching on to floating exchange rate regime

In 1994, PNG took a major step: it quit the fixed exchange rate regime and switched on to a managed float regime. Earlier, when the kina came under pressure in 1978, PNG discontinued the peg to Australian dollar but linked the kina to a basket of currencies of major trading partners. Despite the basket pegged exchange regime during the next five-year period, there were step devaluations in response to external shocks. Falls in export prices and closure of the Bougainville copper mines and rising prices for oil and other imports, necessitated a downward adjustment of the kina for diversifying non-mineral exports. There was a 10 per cent devaluation in 1983 (Marciniak, 2006).

Budget deficits of the early 1990s and consequent deterioration in balance of payments and easing of regulations on capital flows resulted in the depletion of reserves, which went down to a precarious level of less than one month equivalent of imports in 1994. The currency was devalued in early 1994 by 12 per cent and the kina was floated from 10 October 1994. Within a few months after floating the currency, the kina in nominal terms declined further by 35 per cent. In subsequent years, with improved finances and better fiscal management as well as better performance on the balance of payments front, the kina stabilised (Marciniak, 2006).

Short-term liquidity management

In 1995, towards short-term liquidity management, the kina auction facility (KAF) was introduced, replacing discount facility. Under this BPNG was enabled to respond quickly to fluctuations in liquidity by buying or selling kina in auction on a weekly basis. It was the first step towards the adoption of more market-oriented monetary instruments. The KAF interest rate became the key official rate as it determined the price of liquidity at the margin. The KAF provided short-term liquidity when required (selling kina) or when necessary absorbing liquidity through acceptance of deposits (buying kina).

In 1998, BPNG introduced a 10 per cent non-interest-bearing instrument known as cash reserve requirement (CRR), calculated on total deposits and prescribed liabilities of each bank. Because of the introduction of CRR, MLAR was reduced from 20 per cent to 10 per cent. In 1999, BPNG introduced yet another new monetary policy instrument, known as Kina Deposit Facility with the rate set at 2 per cent below KAF rate.

In 2000, the old Act of 1973 was replaced by a new Act, known as Central Banking Act 2000, which conferred greater independence on BPNG. Towards promoting a high degree of transparency of central bank actions, the new Act requires publication of a six-monthly monetary policy statement (MPS) indicating the stance over a six-month period. In February 2001, BPNG announced its intention to announce on the first Monday of each month a rate signalling the stance of monetary policy for the whole month. The rate is known as kina facility rate (KFR) and any change in KFR, based on economic fundamentals in the economy is expected influence short-term interest rates in the market, In the same year, BPNG introduced the repurchase agreement (repo) under which the central bank is allowed to sell or repurchase to or from the commercial banks a government security at the discretion of BPNG as and when the need arises for liquidity management. The BPNG sells at a margin above the KFR to inject liquidity and buys at a margin below KFR to absorb excess liquidity, on an uncollateralised basis, for a period ranging from overnight to 14 days.

In 2004, BPNG started conducting open market operations through auction procedure in its own paper known as central bank bill (CBB), separating the treasury bill auction from its own CBB auction. Thus, as of 2009, BPNG uses the following instruments: MLAR, CRR, KFR and repurchase agreement as part of monetary policy, the intermediate target being short-term interest rates in the money market (box 1.2).

Impact of global crisis

Global recession, which began in mid-2008, has already ended the commodity boom in PNG, which benefited PNG immensely during 2005–08. The windfall gains in terms of high export earnings from mineral exports including petroleum and gas and non-mineral exports such as tree crops, including coffee, cocoa and tea have been wisely saved and kept in trust accounts so that they can be utilised for critical expenditures during the bust period. BPNG Governor Kamit (2009) felt confident that the history of the 'lost decade' would not repeat itself: 'In the 1990s when in spite of high earnings from our mineral wealth and steady economic growth, because of gross fiscal mismanagement PNG was deprived of the

opportunity to set the stage for progress and growth'. As the Deputy Governor Bakani (2009) warned, 'We hope to avoid the experience of the 1990s where monetary policy became burdened with Government's debt management. The difference now is that the Central Banking Act 2000 safeguards monetary policy from any political interference and influence. But to achieve macroeconomic stability and growth, it requires close co-ordination between fiscal and monetary policies'. How PNG would handle the bust phase of the business cycle depends upon the nature of use of funds held in trust accounts.

The monetary policy statement (MPS) released in March 2009 for the next six months was more concerned with fighting inflationary pressures generated by high international food and fuel prices and very strong domestic demand. Accordingly, BPNG tightened monetary policy by increasing KFR from 6 per cent in June 2007 to 8 per cent in December

Box 1.2 PNG: monetary policy instruments

Minimum liquid asset ratio (MLAR)
Introduced in 1974, the minimum liquid asset ratio was 15 per cent of total deposits and other prescribed liabilities in the form of liquid assets, namely cash deposits, with the BPNG or government securities of up to three years to maturity. Currently the MLAR is 25 per cent of total deposits and other prescribed liabilities, in the form of liquid assets, namely cash deposits, with the BPNG or government securities of up to three years to maturity.

Special deposits – cash reserve requirements (CRR)
Introduced in 1998 as a cash deposit requirement, CRR specifies a fraction (initially at 10 per cent) of commercial banks' deposits and prescribed liabilities, that should be kept as deposits with the bank at zero rate of interest for liquidity management purposes. CRR is currently 3 per cent.

Standing (kina deposit) facility
Commercial banks can deposit surplus funds for three days earning interest below kina facility rate (KFR).

Kina facility rate (KFR)
Introduced in February 2001, KFR signals BPNG's stance on monetary policy. The KFR is a monthly rate announced on the first Monday of each month. It is based on an assessment of economic fundamentals in the economy. Changes in the KFR are expected to influence short-term interest rates in the economy.

Money market operations

Repurchase agreement
Introduced in 2001, repurchase agreements between the BPNG and commercial banks allow BPNG to sell to and repurchase from the commercial banks a government security at the discretion of BPNG as and when the need arises for liquidity management. The BPNG sells at a set margin which changes from time to time above KFR to inject liquidity and buys at a margin below the KFR to diffuse liquidity currently on an uncollateralised basis, overnight or up to 14 days.

Lender of last resort
Introduced in 1980, interest charged was based on commercial banks' lending rate. From 1986, the rate has become more punitive and stands at 36.5 per cent per annum.

2008. The KFR was kept unchanged at 8 per cent in the first three months of 2009. It would be continued at the same level for some time until circumstances changed. The kina was also allowed to appreciate. The MPS recognised that foreign inflation was expected to be lower in 2009 and that, the full impact of the global downturn on PNG being uncertain, export receipts will be lower, exerting downward pressure on the exchange rate. 'The effect of potential depreciation of the kina combined with continued very strong domestic demand is expected to contribute to inflationary pressures in 2009, which warrants maintaining a tight fiscal and monetary policy stance in the first half of the year' (BPNG, 2009).

Samoa

Monetary framework

Samoa's monetary policy is implemented in the context of a fixed exchange rate arrangement according to which the value of the domestic currency, tala, is linked to a trade weighted basket of currencies of major trading partners, including Australia, Japan, New Zealand and the USA. Maintenance of a stable exchange rate has been necessary as merchandise trade alone represents 60 per cent of GDP, as domestic inflation is largely influenced by exchange rate changes. While there is no specific target level for the nominal exchange rate of the tala, the Central Bank of Samoa (CBS) aims to avoid a substantial real appreciation of the tala since it can adversely affect the international competitiveness of the export sector (CBS, 2009).

Towards this objective, CBS targets a level of international reserves equivalent to 4 months of imports of goods (CBS, 2009). Maintaining the external exchange rate stability requires appropriate domestic policies. While financial sector stability and efficiency are to be achieved by prescribing and enforcing internationally accepted prudential standards that financial institutions should meet, monetary stability is maintained through formulation and implementation of an appropriate monetary policy in close co-ordination with the finance ministry, which is exclusively responsible for fiscal policy.

Until the late 1990s, CBS relied on two broad categories of instruments, direct and indirect. Direct instruments included controls over interest rates and credit ceilings and the liquid asset ratio. As part of reforms, all of them were phased out with eventual discontinuance by 1998. Effective January 1998, CBS introduced indirect instruments, which are linked to money market conditions, by commencing weekly open market type operations in its own 91-day and 182-day central bank bills through public auction mode. (For an appreciation of the evolution of CBS's monetary policy instruments over the years, see appendix 1).

Open market operations

The open market operations (OMO) in CBS securities helped the central bank in its liquidity management and OMO has now become the primary monetary policy instrument for influencing short-term interest rates. Over the last ten years, CBS strived with notable success in making the conduct of its monetary policy more transparent with issue of public information notices and publication of annual monetary policy statements and

statistics as well as a six-monthly monetary policy statement indicating the policy stance for the next six months.

The effectiveness of OMO in CBS securities, however, came under severe test in 2006, when the economy got overheated with credit boom first and then later followed by substantial public investment. The latter was triggered by preparatory work for the 2007 South Pacific Games and government projects such as the new Development Bank of Samoa building. Consequently, imports rose exercising substantial pressures on balance of payments. The CBS's efforts to tighten monetary policy by issuing its securities towards raising interest rates could not succeed as banks did not bid, since the interest rate set by CBS was below the commercial banks' lending rate on the ground that CBS securities are risk free. As the monetary tightening efforts of CBS did not materialise, private sector credit surged further. Consequently, as balance of trade as well as current account deteriorated in 2006, there was a substantial decline in the country's foreign reserves.

With specific reference to CBS's OMO in its own securities, Buzeneca and Maino (2007) of IMF lists the inadequacies responsible for the failure: (i) auctions of CBS securities are not fully competitive, as CBS sets the acceptance for tender rate usually lower than the lending rate of commercial banks; (ii) the number of participants is small and mainly confined to commercial banks; (iii) interbank money market as well as securities market are not fully developed; (iv) there are no other risk free short-term and long-term securities, except treasury bills and government bonds, that could be used for OMO, when government has kept its budget in balance or surplus; and (v) there is no secondary market for trading with the result all securities are held until their maturity.

Impact of global downturn

As construction activities slowed down and following a decline in tourism, the Samoan economy cooled off in 2008 with a lower rate of growth at 3 per cent. After recording consistently high real growth rates in the previous five years, the economy is expected to decline by 1.3 per cent in 2009, as the adverse impact of the global downturn, which began in mid-2008, would be felt soon. The balance of payments has also been revised to post an overall deficit, driving down the country's international reserves to 4.3 months of import cover from 5.1 months in 2008. The latest monetary policy statement released by the central bank in February 2009 (CBS, 2009) confirmed there were signs that the deflationary process around the globe would be finally reaching Samoa. Tourist arrival numbers are expected to fall further. Private remittances are also expected to decrease. Anticipating the deflationary economic conditions, which were reflected in the sluggish growth in private sector credit, CBS decided to adopt an easy money policy. Accordingly, from February 2009, the lending rate to the commercial banks was reduced from 7.8 per cent to 5.0 per cent, and the term for such lending was also extended to 30 days from 7 days.

Box 1.3 Samoa: monetary policy instruments

Reserve requirements

Statutory reserve deposit (SRD) ratio is 4.5 per cent on all deposit liabilities since March 2008. It was increased from 3.5 per cent, which was the last rate in 2006.

Discount window

Discount lending rate is based on the yield to maturity of the central bank security to be rediscounted plus 1 per cent penalty. During 2005–06, the penalty rate was 3 per cent.

Repurchase rate is determined on the basis of the prevailing market weighted average interest rate on CBS securities plus the penalty rate of 1 per cent. The penalty rate was raised during monetary tightening period in 2005–06 to 3 per cent.

The repo rate is 5 per cent since Feb 2009.

Open market operations

CBS securities. Central Bank of Samoa conducts open market operations in its own securities.

Moral suasion

Frequent meetings with banks are held to persuade banks to control growth in credit.

Solomon Islands

Solomon Islands' monetary policy is implemented in the context of a fixed exchange rate arrangement according to which the value of the domestic currency is linked to a trade-weighted basket of currencies comprising the Australian dollar, the Japanese yen, the New Zealand dollar, and the US dollar. Two devaluations took place: one in the mid-1980s and another after the Asian financial crisis of 1998. In 2002 soon after law and order restoration efforts began, the Solomon Islands currency (SI$) was further adjusted downwards, in all a cumulative 30 per cent against the US dollar. These adjustments have contributed to keeping the real exchange rate more or less constant. However, since 2003 the Central Bank of Solomon Islands (CBSI) has maintained a de facto peg to the US dollar, which has been serving as an effective nominal anchor. As substantial aid inflows strengthened the reserve position, CBSI was keen to maintain a stable bilateral rate US dollar/SI$ rather than permitting an appreciation of the Solomon Islands dollar (Ginting and Porter, 2006).

Monetary policy instruments

Until 1989, CBSI did not have any indirect instrument (for an appreciation of the evolution of CBSI's monetary policy instruments over the years, see appendix 1). It relied on direct instruments, including LAR and direct controls on credit. In 1989, it launched open market operations (OMO) in its own 91-day paper, known as Bokolo bills, for mopping up excess liquidity. However, fiscal dominance and sovereign defaults through the 1990s led to closure of domestic securities markets and ultimately, discontinuance of Bokolo bills. They

were re-introduced and discontinued between 1992 and 1996. During the interregnum, CBSI conducted liquidity management operations by using the T-bills separately issued by government. As CBSI was undertaking OMO in T-bills, it was under pressure. Caution was needed to ensure that use of the new issuance of T-bills did not undermine budget discipline (IMF, 2004a).

Given these circumstances, Solomon Islands in recent years used LAR to the fullest extent to reduce liquidity in the banking system and to fight potential inflationary pressures. The LAR, which was as high as 40 per cent until 1998, was reduced in 1999 to 7.5 per cent of deposit liabilities. Since CBSI uses T-bills for liquidity management, LAR requirement now excludes T-bills as eligible assets. Currently for LAR calculation, the eligible assets are only the deposits held by commercial banks with the central bank. Since there is limited scope for an interbank money market to develop in the near future, and there is no secondary

Box 1.4 Solomon Islands: monetary policy instruments

Liquid assets ratio (LAR)
LAR was introduced in 1983
Banks are required to maintain a balance of liquid assets for each working day amounting to not less than 7.5 per cent of deposit liabilities.
Prior to November 2008, the qualified liquid assets were both cash and deposits with CBSI. In November 2008, cash was removed from the definition of liquid assets.

Standing facilities
Secured advance facility (SAF)
SAF was introduced in Dec 2008
This facility is intended to assist banks with short-term liquidity problems or needs due to specific market situations. This is in accordance with the principal objectives under Section 4 of CBSI Act.
The maturity term of the facility is 7 days and the interest rate is 2.5 per cent above the interest rate on earning assets as determined by CBSI.
The minimum advance is SI$1 million.

Open market operations
Bokolo bills (CBSI's own bills) were introduced in 1989 and discontinued in 1995.

Treasury bills: CBSI auctions treasury bills, having maturities of 7, 14, 28 and 56 days. Originally introduced in early 1980s; discontinued in mid-1995.
Revived around 1999 and continuing.
A cap of $30 million was introduced by CBSI for total T-bills.
While the instrument remains with CBSI, the cost was incurred by government.

Bokolo deposit facility: This was introduced in late 2008 by CBSI with fixed-term maturity of 12, 18 and 24 months.
Interest rates on the facility are 4 per cent, 4.25 per cent and 4.5 per cent.
The amount of deposit is negotiable.
The purpose behind the facility is to absorb excess liquidity in the banking system.

Monetary stance
CBSI does not target any rate.

market for T-bills, indirect instruments are not likely to emerge as a reliable monetary policy instrument. Commercial banks have to look to standing facilities offered by CBSI for meeting liquidity needs, which would eventually emerge as a discount facility. Further, as a major departure from past practices, CBSI has now allowed Solomon Islands national provident fund to invest overseas up to 30 per cent of its investment portfolio (about US$20 million), which considerably reduced domestic liquidity in the system (IMF, 2008).

Tonga

Tonga's monetary policy is implemented in the context of a fixed exchange rate arrangement according to which the value of the pa'anga is based on a weighted basket of currencies comprising the Australian dollar, the Japanese yen, the New Zealand dollar, and the US dollar.[25] The exchange rate is managed on a day-to-day basis by National Reserve Bank of Tonga (NRBT) on the basis of the movement of the basket of currencies.

Monetary policy objectives

The principal objectives of NRBT as defined by the NRBT Act[26] include regulation of issue of currency, and supply and availability of exchange of money; managing external reserves; promoting monetary stability and soundness of the financial system; and fostering conditions for economic development. The NRBT aims at maintaining low inflation, and gross foreign reserves equivalent to three months of total imports or above. More than two-thirds of the items on the CPI basket comprise imported goods. Given the high pass-through of the changes in the exchange rate to the price level, NRBT recognises that exchange rate stability is critically required for maintaining domestic price stability.

The NRBT pursues these objectives in close consultation with the government and most changes in monetary and exchange rate operations require government approval. In order to improve transparency of monetary policy measures and accountability of NRBT for the conduct of its policies, amendments to the 1988 Act introduced in 2007 require NRBT to bring out a monetary policy statement every six months.

Although the amended legislation also enables NRBT to conduct its monetary policy with greater autonomy, there are outside pressure groups as well. The pressure groups from the private sector and state enterprises with foreign debt denominated in US dollars have prevented NRBT from taking steps towards adjusting the currency to improve competitive advantage, as they would give rise to increase in debt obligation in domestic prices. Further, NRBT has been under frequent strain when it has to pick up unsold government bonds issued to finance annual budget deficits. Consequent reserve money creation, through monetisation of deficits, has contributed to excess liquidity. Since NRBT has limited monetary policy instruments to mop up surplus funds in the system, inflation has been a recurrent phenomenon.

Open market operations

The NRBT relied solely on direct instruments until mid-1990s. (See appendix 1 for an appreciation of chronological developments in monetary policy changes.) In the late 1990s,

NRBT assumed an active role by conducting open market operations (OMO) by auctioning the 28-day central bank paper, known as reserve bank notes. However, NRBT's OMO came to a halt in 2001 due to financial losses, mainly arising out of mounting interest payment obligations as well as a rise in administrative costs. Since the government was unable to support the central bank in its liquidity management operations by meeting OMO costs, NRBT experienced ultimate deterioration in its capital base (Singh, 2006). Consequently, NRBT had to switch on to direct instruments, which included SRD, credit ceilings and moral suasion.

With some improvement in its own finances, NRBT resumed OMO in its paper in 2007. But success was elusive, as there has been a surge in excess liquidity, caused by frequent monetisation of annual fiscal deficits. IMF (2008c) observed that a continued reliance on NRBT Notes would only result in increased operating costs, which in the absence of government support for meeting the inflationary pressures, created in the first place by its own fiscal excesses, would only undermine the central bank's financial position.

In addition to the excess liquidity created by monetisation of fiscal deficits on a regular basis, there is also the phenomenon of structural excess liquidity, which is prevalent in economies with shallow financial markets with a small number of participants. In such economies as in Tonga and other island countries, IMF (2005a) and Buzeeca and Maino (2007) observe that OMO in either government-issued securities or the central bank's own paper would result in overshooting of interest rates and market volatility. In these circumstances, it is recommended that direct instruments be used, such as SRD and LAR as well as credit ceilings and moral suasion, all aimed at effecting immediate changes in banks' balance sheets, as they would be more effective since they directly affect the volume of liquidity.

Although expansionary policies, including monetary easing in 2007, were appropriate to facilitate recovery of the economy from the after-effects of riots, volatility in fuel prices and rising food prices in 2008 caused inflationary pressures which concerned policy-makers. By July 2008, the Tonga economy was on a modest path to recovery, as growth was spurred by new investments financed by credit. Simultaneously, imports increased and inflation rose, once again exerting pressures on foreign reserves. Although large aid inflows reversed this trend later, NRBT was aware of inflationary potentials, unless growth in lending is curbed. The NRBT has been using moral suasion to convey the message that domestic banks should 'manage their lending prudently against the quality of their portfolios and their future payments obligations to ensure that adequate liquidity is maintained in the banking system at all times' (NRBT, 2009).

Aside from NRBT closely monitoring growth in lending against foreign payments obligations by the financial system and issuing NRBT Notes to ensure financial stability and maintenance of adequate foreign reserves, both finance ministry and central bank have to co-ordinate their actions to minimise pressures on public finances, as civil service is pressing the government to increase the wage bill, with consequent impact on balance of payments and reserve position. Box 1.5 highlights the current policy instruments in place.

Box 1.5 Tonga: monetary policy instruments

Credit ceilings
They are imposed on the net domestic assets of each individual bank. It has been one of the main monetary policy instruments in Tonga since 2000. However, as of March 2009, there has been no credit ceiling in place.

Statutory reserve requirements
SRD, as of March 2009, is 10 per cent.

Liquid assets ratio
Liquid assets ratio was introduced in 2007. As of March 2009, minimum LAR requirement is 5 per cent.

Standing facilities
Short-term liquidity facility: Allows the banks to borrow from the NRBT for a short term (normally for less than a month), using government bonds or NRBT notes as collateral. The discount rate charged by the NRBT on these short-term loans is 17 per cent per year during the first 10 days, and 19 per cent thereafter, as of August 2007. This was reduced to 6 per cent in March 2009 and further reduced to 4.5 per cent in May 2009. This rate is now linked to the interbank lending rate.

Unsecured advance
The NRBT does not lend as unsecured advance.

Repurchase rate
In March 2009, 6 per cent and reduced to 4.5 per cent in May 2009.

Money market instruments
Reserve bank notes: NRBT bills were introduced in the mid-1990s; they were discontinued in 2001 owing to high operating costs. NRBT reintroduced its 28-day reserve bank notes in 2007. The government does not issue treasury bills.

Vanuatu

Monetary policy objectives

The objectives of Reserve Bank of Vanuatu (RBV), as laid down by the 1980 RBV Act (Section 4), are to promote monetary stability in terms of low inflation and an adequate level of international reserves, while supporting conditions conducive to orderly and balanced economic development. The RBV seeks to keep inflation below 4 per cent and maintain at least four months of international reserves, with real GDP growth of 3.0 per cent (Reserve Bank of Vanuatu, 2008).

The RBV Act specifies that the RBV and the Ministry of Finance are both monetary institutions. There is a close working relationship between these two organisations. However, Article 25(h) of the RBV Act gives the Minister of Finance the power to give directives to the RBV, with which RBV must comply. By and large, RBV had enjoyed a high degree of independence until 1998 when government intervened, annulling RBV's decision to devalue the vatu and dismissing the central bank governor (Jayaraman, 2000). There has been no further serious government intervention of the kind observed in 1998 (IMF, 2009).

The government has an advance facility with the RBV. This facility has been frequently used in recent years as government had cash flow problems, contributing to build-up of excess liquidity. In 2003, the advance facility was reduced from 500 million vatu to 400 million vatu.

Monetary framework

Vanuatu has a fixed exchange rate regime under which the value of the domestic currency, vatu, is determined on the basis of an undisclosed transactions-weighted (trade and tourism receipts) basket of currencies of Vanuatu's major trading partners. The RBV quotes daily rates for vatu. Buying and selling rates of vatu against the currencies in the basket are quoted once a day with margins ranging between 0.25 and 0.3 per cent around the middle rate. The RBV aims at maintaining a level of international reserves, to cover approximately six months of imports. There are no capital controls in Vanuatu, and therefore not much room for an independent monetary policy. Within the exchange rate regime, the RBV attempts to guide monetary developments, including domestic credit conditions.[27]

In 1988, RBV introduced its direct instrument, which was primarily intended for prudential reasons. It imposed for the first time a reserve requirement on all banks, the SRD ratio, under which all commercial banks were required to keep 10 per cent of demand, time, and saving deposits of residents in vatu with the RBV. In fact, until 1998, SRD ratio was the only monetary policy instrument of RBV. The RBV's lender-of-last-resort facility (the advance facility) was more often used by non-banks than commercial banks, as the latter were awash with liquidity.

During 1998, the country's financial system came under great stress, as rumours were rife that the state-sponsored Vanuatu National Provident Fund (VNPF) was not financially sound. Following national unrest, the government allowed the public to prematurely withdraw their retirement savings from VNPF. Since Vanuatu has no exchange controls of any kind with both local and expatriate residents being free to hold deposits, currency substitution became rampant and capital flowed out. With a view to stemming the capital outflows, RBV devalued the vatu. Although the decision to devalue vatu was annulled by government within 24 hours, speculations continued to be strong. The RBV imposed temporary controls on capital movements.

Open market operations

As liquidity rose in the system in 1998, RBV introduced open market operations (OMO) in central bank-issued short-term securities, known as RBV Notes, through a tendering process. Since the selling of RBV short-term paper varying in maturity from 90 days to 180 days was through tendering/auctioning process, IMF (2005a) calls it as open market type operations. The RBV imposed another reserve requirement, namely the prescribed reserve asset (PRA) ratio, under which banks were required to hold 16 per cent of vatu deposit liabilities in the form of government securities and/or the RBV notes. Furthermore, RBV raised the base-lending rate of the advance facility to 11 per cent. The commercial banks followed suit and raised their deposit and lending rates.[28]

As these monetary policy changes helped to stabilise the financial system, RBV discontinued the PRA requirement in 1999. At the same time, the SRD requirement was also modified. Aside from covering all the demand, time, and saving deposits of residents in vatu, the new SRD included 50 per cent of residents' demand deposits in foreign currency. As an instrument of monetary policy, the usefulness of the PRA was limited. The near-absence of a secondary market in government securities and the shallowness of the financial sector also made it difficult to use the PRA as an effective monetary policy instrument. Two new credit facilities were also introduced: the rediscount facility and the repurchase facility, which rendered the advance facility superfluous, leading to its abolition in 1999. The rediscount rate is the RBV's benchmark rate. (For an appreciation of chronological monetary policy developments, see appendix 1.)

Economic recovery began with fiscal consolidation in early 2000s. It was followed by large aid and foreign direct inflows, consequent to the return of a better environment for investment. These inflows and rise in tourism earnings enabled the country to reach a very comfortable level of foreign exchange reserves. The level of international reserves was equivalent to eight months of import cover during 2007/08, compared with the targeted figure of four months, giving rise to high liquidity in the system. As a result there was no interbank lending. The volume of OMO in RBV Notes rose during this period to stabilise money market conditions.

Impact of global downturn

The effects of global recession since mid-2008, which have spread to Australia and New Zealand, the main sources of tourism revenues as well as foreign direct investment, were then yet to be fully felt in Vanuatu. However, RBV in November 2008 took a pre-emptive step, which was aimed at easing the prevailing tight monetary conditions. The SRD ratio was reduced from 10 per cent to 8 per cent of all vatu deposits and 50 per cent of demand deposits in foreign currency. In late 2008, when new construction activities funded by large capital inflows from Australia and to a lesser extent New Zealand began to experience a slowdown, there were clear indications that pressures would be felt soon. As a more accommodative policy was apparently needed, in January 2009 the SRD ratio was further reduced to 5 per cent. It was expected that further easing in monetary policy and a more accommodative fiscal stance for 2009 would help to cushion the impact on growth. GDP growth was expected to be in the 3–4 per cent range in 2009 (IMF, 2009a).

The RBV's monetary policy statement (RBV, 2009) of 9 March indicated that the monetary policy stance announced in January 2009 would remain unchanged, while recognising the possibility of a widening current account deficit, exercising downward pressure on the stock of foreign exchange. However, foreign exchange reserves, supported by falling import prices as well as commitments by development partners to continue increasing aid flows to Vanuatu, are likely to be sufficient to finance around 4.8 months worth of imports of goods by the end of the year.

More pointedly, as Vanuatu's major trading partners and the important sources of tourists visiting the country – Australia and New Zealand – have reduced significantly in recent months, there are risks that demand for tourism and investment will slow sharply and growth

might be less than the forecasted figure of 3 per cent in 2009. In such an uncertain economic environment, prudent and co-ordinated fiscal and monetary policies would be needed to lessen the impact of global economic downturn. The RBV has taken initiatives to show that it can respond quickly when required to free up liquidity. Since government's fiscal position has been sound with budget surpluses accumulated in recent years, supportive expansionary fiscal policy actions would also help to meet the recessionary conditions.

Box 1.6 Vanuatu: monetary policy instruments

Reserve requirements

Introduced in 1988, the statutory reserve deposit (SRD) ratio is calculated on a monthly average basis. This requirement stands now at 10 per cent of deposits, which is defined as 50 per cent of residents' demand deposits in foreign currency as well as all the demand, time, and saving deposits of residents in vatu.

Standing facilities

Discount facility: Banks can sell (rediscount) treasury bills and/or RBV notes with an up to 90-day maturity to the RBV.

Repurchase facility: Banks sell government bonds and/or RBV notes to the RBV and subsequently buy back the securities at a specified date and price. In the period between the sale and the repurchase of the securities, the RBV provides the bank with temporary liquidity. The discount rate applies to these operations.

Money market operations

RBV notes: The RBV intermittently auctions these RBV notes, which have maturities of 28, 91, 119, and 182 days to absorb excess liquidity.

Policy variable: Reserve money, defined as the sum of currency issued and bank's deposits, is the key monetary policy variable. Bank's deposits include compulsory deposits in connection with SRD requirements and excess reserves partly used by banks to meet daily clearing needs and to grant private sector credit.

Intermediate variables: The RBV monitors closely a set of key monetary aggregates (e.g. various levels of money supply, private sector credit, and international reserves) for assessing the efficiency of its policies.

Monetary instruments: The RBV controls the money supply by monitoring banks' liquidity through the following indirect instruments.

- ***Statutory reserve deposit (SRD):*** Primarily a prudential instrument. Under the SRD commercial banks are required to maintain 10 per cent of average vatu deposits and 50 per cent of foreign currency demand deposits for the two months preceding the calculation date.
- ***Open market operations:*** Central for liquidity management purposes. The RBV regularly buys and sell its own notes in open market operations to regulate banks' liquidity. The notes have maturities of 14 days, 28 days, 63 days, and 91 days.
- ***Rediscount window and repurchasing agreement facilities:*** Primarily lender-of-last-resort facilities. Banks experiencing liquidity shortages can access RBV funds through these facilities. Banks' holdings of RBV Notes and government bonds are used as collateral. These facilities have rarely been used since their inception in 1998 because of a generally favourable liquidity situation. The rediscount rate is the RBV's benchmark rate.

Assessment of monetary policy implementation in PICs

A review of the implementation of monetary policy instruments in PICs during the last two decades shows that direct instruments have played a major role and that they would continue to play an important role in years to come, despite earnest efforts to introduce open market operations in central bank securities. Effectiveness of OMO in central bank securities came under severe test in 2006 in Samoa. Although CBS in Samoa did not discontinue OMO in its short-term paper, central banks in Tonga and Solomon Islands had to discontinue, since their profitability was adversely affected due to mounting interest payments on outstanding securities.

An IMF study on Samoa (2007b) identified the factors that reduce the effectiveness of monetary policy in PICs, including Samoa. These factors include fiscal dominance, undeveloped securities market and structural liquidity surplus. Ineffective or absence of co-ordination between the ministry of finance and central banks and lack of central bank autonomy[29] have also created situations of weak ineffective monetary policy formulation and implementation in dealing with situations of excess liquidity and inflationary potential.

In regard to the failure of CBS's OMO in its own securities during the overheated phase in 2005–06, IMF identified the following factors: (i) auctions of CBS securities are not fully competitive, as CBS usually sets the acceptance for tender rate lower than the lending rate of commercial banks; (ii) the number of participants is small and mainly confined to commercial banks; (iii) interbank money market as well as security markets are developed; (iv) there are no other risk-free short-term and long securities, except treasury bills and government bonds, that could be used for OMO, when government has kept its budget in balance or surplus; and (v) there is no secondary market for trading with the result all securities are held until their maturity.

All these factors are relevant to other PICs as well.

For developing market-based monetary policy, an IMF study (2005a) and Buzeneca and Maino (2007) emphasise three vital steps: (i) first, developing financial intermediation; (ii) facilitating interbank market; and (iii) developing financial markets. Only at the end of the third step can liquidity management fully rely on market-based instruments. All PICs still have a long way to go, as their financial markets are at nascent stages of development. Inter-bank market is not effective. Money markets in all PICs continue to remain shallow with a small number of participants; and there is no secondary market for government or central bank securities.

Further, IMF (2005a) cautions against absorbing excess liquidity in PICs through open markets using either government-issued securities or the central bank's own paper, as this would result in overshooting of interest rates and market volatility. Therefore, in these circumstances employment of direct instruments such as SRD, LAR and other quantitative measures including credit ceilings would be more effective, as they directly affect the volume of liquidity.[30] The RBF in Fiji during the immediate post-coup periods, after May 1987, May 2000 and December 2006, the NRBT in Tonga during 2000–06 following the fiscal deficits and riots in the nation's capital, and RBV in Vanuatu following the 1998 VNPF crisis, had to rely on raising SRD and LAR ratios as well as imposing quantitative controls such as bank-by-bank credit ceilings, besides increasing interest rates. IMF (2005a)

also cites the experiences of both developed and developing economies in this regard: use of reserve requirements (Spain), mandatory deposits (Mexico and the Netherlands) and moving deposits from commercial banks to the central bank (Malaysia and Thailand).

Transmission mechanism

Monetary policy transmission: a brief literature survey

Monetary policy transmission is described as a process through which changes in monetary policy influence aggregate demand, output and price level in the economy. The impact of monetary policy decisions on the country's GDP is through its influences on consumption and investment decisions of households, business and financial intermediaries. At least seven channels have been identified through which monetary policy affects economic activities. These include: (i) interest rate channel; (ii) money supply channel; (iii) credit channel; (iv) the balance sheet channel; (v) asset price channel; (vi) exchange rate channel; and (vii) expectations channel (Mishkin 1995, 1996, 2001, 2006). A stylised representation of the transmission mechanism is shown in figure 1.1.

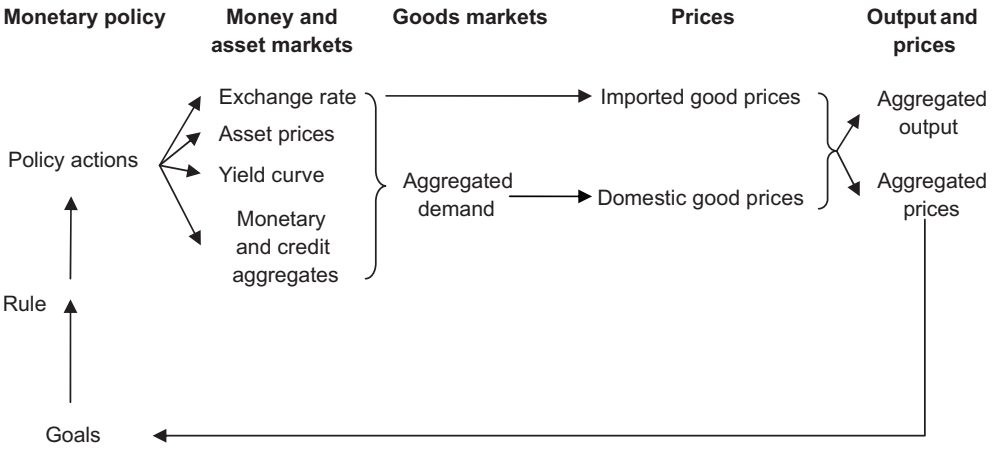

Figure 1.1 A stylised monetary policy transmission mechanism
Source: IMF (2005a).

Interest rate channel

The traditional view is that a fall in nominal interest rate, following a rise in nominal money stock, given the unchanged price level in the short run due to market rigidities, and hence also a fall in real interest rate, would cause a rise in investment spending, thereby increasing aggregate demand and rise in output. The key here is that it is a fall in the real cost of borrowing that would promote investment. Taylor (1995) in his survey on empirical research studies on interest rate channel concluded that there is strong empirical evidence for substantial effects on consumer spending on semi-durables and investment spending, making the interest rate monetary transmission mechanism a strong one.

Money supply channel

The money supply channel view is that an expansionary monetary policy increases bank reserves and relaxes the constraints to banks' ability to create more loans and as a result short-term interest rate falls (Ramey, 1993; Romer and Romer, 1990; Thornton, 1994). Here, money supply expansion would mean increases either in M1 (narrow money, i.e. demand deposits plus currency) or M2 (broad money, i.e. M1 + quasi money [saving and time deposits]).

Credit channel

Increase in money supply through a rise in bank reserves would raise the ability of banks to expand lending. Banks would make available loans to new borrowers as well. This would encourage further consumption spending in terms of purchases of semi-durables and business investment. The bank credit channel has assumed greater importance in recent years, not only in industrialised but also in developing economies as documented in studies by Bernanke (1986), Bernanke and Blinder (1988), Kashyap et al. (1993) and Kashyap and Stein (1994).

Balance sheet channel

The balance sheet approach lays emphasis on the role of collateral in reducing moral hazards. An expansionary monetary policy causes increases in financial and physical asset prices, thereby raising the market net worth of firms and the value of collateral, company cash flow and ultimately the firms' credit worthiness. Further, a rise in asset prices increases the ratio of liquid financial assets to household debt, thereby reducing the probability of financial distress and increasing consumption and housing investment (Mishkin, 2001).

Asset price channel

This particular transmission channel rests on Tobin's *q* theory, which is applied to business investment (Mishkin 1995, 2001, 2006). An expansionary monetary policy raises the price level of equities. Increase in its stock prices enables a firm to raise additional equity capital while issuing less stock. Transmission through asset price increases is further strengthened by Modigliani's life cycle model, according to which increases in financial wealth raise consumption by households (Mishkin, 1995, 2001, 2006).

Exchange rate channel

Monetary policy influences exchange rate through interest rates. An expansionary monetary policy would increase money supply, leading to a fall in interest rate. Under conditions of perfect capital mobility and perfect substitutability of financial assets, capital would flow out and domestic currency would depreciate. Depreciation would make the country's exports more attractive to foreigners; an increase in net exports would result in greater aggregate demand leading to rise in output (Mishkin, 2006).

Expectations channel

Monetary policy decisions have an impact on the economy through their influence on the expectations of economic agents about the future outlook of the economy. In particular, expectation effects may improve monetary policy transmission channels by shortening reaction lags. The expectation channel is likely to be more effective if the central bank has already acquired a high degree of credibility through its past performance.

Limitations in the island economies

There are constraints limiting the efficiency of transmission mechanisms acting through the various channels. One of the constraints faced by Solomon Islands is that in the absence of a well-developed financial sector and a vibrant secondary market, in which financial assets could be traded with ease and speed, interest rate channel does not operate effectively (Worrell, 2000; Fairbairn and Worrell, 1996).

The balance sheet approach presupposes that financial assets are important constituents of firms'/consumers' portfolios and assumes the existence of convertibility between illiquid (consumer durables) and liquid (financial) assets. Empirical studies have shown that markets for assets in the PICs and the Caribbean region have not attained the sophistication to function as an efficient conduit for monetary policy (Baksh and Craigwell, 1997). A recent study (Dabla-Norris and Floerkemeir, 2006) notes that the inability of banks in developing countries to properly assess credit risk, due to both weak risk management expertise and opaque corporate accounting practices, increases banking spreads and reduces the effectiveness of the balance sheet channel.

With reference to asset price channel mechanism and its variants of Tobin's *q* theory (valuation of equities), the required pre-condition, namely the presence of financial assets constituting a key component of borrowers' and wealth holders' portfolios, does not exist in any PIC. Further, commercial banks dominate the financial sector, since the non-bank financial sector institutions (stock, debt securities and mortgage market, insurance industry) are still in their infancy. Thus, market financing does not matter, which largely precludes the asset price channel's working through wealth and income effects (Dabla-Norris and Floerkemeir, 2006).

The exchange rate channel transmission mechanism for its full efficiency presupposes a floating system, which adjusts to capital flows. Since Solomon Islands has adopted a fixed exchange rate regime, this particular channel does not operate there. In view of the constraints discussed above, it is more likely that in small island economies with undeveloped money markets, monetary pulses are transmitted to the real sector through the money channel rather than through the interest rate channel.

Transmission mechanism in PICs

So far five PICs have been taken up for empirical studies on monetary policy transmission mechanism. They are: Fiji (Jayaraman and Choong, 2009a); PNG (Faal and Isnawangsih, 2008); Samoa (Jayaraman and Dahalan, 2008); Solomon Islands (Jayaraman and Choong,

2009b); and Vanuatu (Jayaraman and Choong, 2009c). For an extended discussion, see section 1.3.

The findings of these studies are described briefly below.

Fiji

Jayaraman and Choong (2009a) in their study on monetary policy transmission mechanism in Fiji focused on five variables. Three of them were policy variables, namely monetary aggregate (M1), nominal exchange rate (units of US dollar per unit of Fiji dollar), and interest rate (represented by money market rate, in the absence of consistent data series of RBF 91-day yield to maturity rate), and two goal variables, namely output (real GDP), and price level. They used annual observations over a 37-year period (1970–2006). The study found that the money channel had a larger impact on real GDP and on the price level than the interest rate channel.

PNG

In their study on PNG, Faal and Isnawangsih (2008) considered the effects of changes in three policy instruments, namely interest rate, the repo rate (the key interest rate signifying the monetary policy stance of BPNG), and nominal exchange rate (units of US dollar per one unit of kina) on two target variables: output or real GDP, and price level.[31] Beside the basic model, they employed bank lending rate, bank credit, and reserve money. The study findings were that changes in repo rate affected output sluggishly; output and prices did not respond to lending rate shocks; bank credit did not affect economic activity; and response of output and prices did not respond significantly to changes in reserve money. They concluded that structural rigidities, which included banks' preference to invest in government paper rather than lending to the private sector, were responsible for these results.

Samoa

In their study, Jayaraman and Dahalan (2008) used quarterly data covering a period of 17 years (1990–2006). They adopted a VAR approach and decomposition procedure to evaluate the relative strengths of different monetary policy instruments. The results of the VAR analysis show that in Samoa the money and exchange rate (units of US dollar per unit of Samoan tala) channels are important channels in transmitting monetary impulses to the real sector. In regard to impact on prices, the money channel emerges as the most dominant influence.

Solomon Islands

Covering a 28-year period (1980–2007), Jayaraman and Choong (2009b) chose three policy variables: monetary aggregate (M2), and interest rate (proxied by average lending rate, as there is no consistent time series of short-term interest rate) and nominal exchange rate (units of US dollar per unit of Solomon Islands dollar). The target variables are real output (real GDP) and price level (consumer price index). The study findings are: (i) there is long-run relationship between real output, price, monetary aggregate, interest rate and exchange rate;

(ii) in the long-run relationship, interest rate had no significant effect on real output; (iii) the money variable, both in the long and short run, was much more significant than other policy variables in explaining changes in real output and price level.

Vanuatu

Jayaraman and Choong (2009c) in their study on Vanuatu covered a 28-year period for Vanuatu and adopted the same model, as they did for Solomon Islands. Monetary aggregate is represented by broad money (M2), which includes currency, demand deposits and savings and time deposits in vatu as well as in foreign currency. Interest rate is proxied by lending rate (IR), since there is no consistent data series for short-term rate in Vanuatu, as the RBV 91-day yield to maturity rate data series are available only from 1999. Although there exists a long-run relationship between real GDP (RGDP) and policy variables and the linkage runs only from policy variables to target variable to output, interest rate has no influence on RGDP either in the long run or in the short run. The finding is that monetary aggregate is more important than short-term interest as a channel in transmitting impulses from the monetary sector to the real sector.

Conclusions

The PICs' money and capital markets are still at their nascent stages of development. With a limited number of participants and a small number of financial securities, the market is shallow. There is no secondary market for the limited number of bonds and treasury bills issued by government and its agencies. There is no significant stock market activity either, as the private sector is yet to take off. Savers and investors in PICs have limited portfolio choice and dependence on the banking system is substantial. In these circumstances, interest rate has yet to emerge as a significant policy instrument. Therefore, targeting the monetary aggregate is the most appropriate policy instrument for the central bank.

1.3 Empirical evidence in Pacific island countries

Fiji[32]

Since 1988, Reserve Bank of Fiji (RBF) has been conducting open market operations through a tendering process in its own short-term securities, known as RBF Notes, of different maturities.[33] The yield to maturity of the 91-day RBF Note is now known as policy indicator rate (PIR), which signals the monetary policy stance. The rate is set in line with RBF's declared monetary policy objectives of low inflation of about 3 per cent and an adequate level of international reserves to cover about four months of imports of goods and services.

When the actual 91-day rate is not aligned with the PIR, RBF would exert pressure on the market for short-term funds by selling or redeeming RBF Notes to influence the amount of funds in the market. The open market operations are conducted to drain out the excess liquidity in the system until the 91-day yield to maturity rate of RBF Notes is brought in alignment with the PIR. By maintaining continuous pressure on the system, RBF expects

to influence short-term interest rates including the money market interest rate (MMR).[34] The discount rate at which commercial banks can borrow from RBF, known as minimum lending rate (MLR), is linked to the PIR. The MLR is normally fixed at 50 basis points above PIR. Thus, changes in the PIR are automatically reflected in the MLR.

Data, modelling and methodology

The study covers a 37-year period: 1970–2006. Since PIR data series are available only from 1989, the study uses money market interest rates (MMR), whose data series are available from 1970 onwards, to represent PIR. The monetary aggregate chosen is narrow money (M1)[35].

In the context of Fiji's fixed exchange rate regime, the study includes exchange rate as well, since monetary policy is clearly anchored to it. The exchange rate (E) is defined as units of Fiji dollar, per unit of foreign currency (US dollar). The reason for using the nominal exchange rate is that one can isolate changes in the nominal exchange rate on real economic activity separately from changes in prices, since the real exchange rate is already adjusted for changes in prices and using this variable would make it difficult to isolate price changes (inflation) from exchange rate changes (Dabla-Norris and Floerkemier, 2006). The policy goals are output (RGDP) and price level (PRICE, measured by consumer price index [CPI]).

Table 1.3 Fiji: growth rates and monetary statistics

	Growth rate %	*M1 (F$ million)*	*M2 (F$ million)*	*M1 (% of GDP)*	*M2 (% of GDP)*	*Consumer price index (CPI) (Index)*	*RBF indicator rate (%)*	*Money market rate (%)*	*Nominal exchange rate (Index)*
1985–1989 (ave)	0.4	276.0	810.0	15.7	46.2	57.4	NA	5.2	139.6
1990–1994 (ave)	2.9	331.4	1,274.0	14.4	55.2	84.3	NA	3.4	117.3
1995–1999 (ave)	2.8	500.4	1,454.2	15.6	46.2	98.8	2.10	2.2	111.7
2000	-1.7	593.7	1,513.8	16.5	42.2	100.0	2.30	1.0	100.0
2001	2.0	620.9	1,467.8	16.4	38.8	102.3	1.25	1.0	99.4
2002	3.2	712.0	1,583.0	17.7	39.3	106.0	1.25	0.9	101.1
2003	1.1	900.6	1,980.4	20.6	45.2	109.6	1.19	0.9	106.0
2004	5.3	1,018.0	1,926.0	21.5	40.7	113.2	1.75	0.9	107.8
2005	0.7	1,197.0	2,241.0	23.6	44.2	115.7	2.25	2.1	107.7
2006	2.0	1,142.4	3,012.8	21.3	44.2	118.8	4.25	5.3	105.9

Sources: ADB (2007); IMF (2007a); authors' calculations

Table 1.3 shows the data series employed for the period from 1985 to 2006. The whole of 2007 and subsequent years are unusual for Fiji. There was a coup in December 2006 and the years since then are not normal years, as sanctions by neighbours adversely affected Fiji.

The data are drawn from three sources. The data sources for real GDP are Government of Fiji (2007) and RBF (2007a); and the data source for M1, MMR, E and PRICE is IMF (2007a). All four variables were duly transformed into logarithmic form for regression analysis and entered into vector autoregressive (VAR) framework to calculate the variance decomposition at forecast horizons of 1 through 10 years as well as undertake impulse response analysis. The ordering is set as follows: *log M1*, *log MMR*, *log E*, *log PRICE* and *log RGDP*.

Results

Unit root tests reveal that all variables are integrated of order one. The next step is to investigate existence of any long-run relationship between the variables by checking whether the variables are cointegrated; that is, if there exists a linear combination of them that is stationary. The results of the multivariate cointegration analysis following Johansen and Juselius (1990) confirm existence of a long-run relationship between *log M1*, *log MMR*, *log E*, *log PRICE* and *log RGDP*.

$$\log RGDP = 1.968 + 0.643 \log M1^{**} - 0.036 \log MMR - 1.015 E^{***} - 0.001 \log PRICE$$
$$t = \quad (3.079) \quad (-0.284) \quad (-6.893) \quad (-0.008)$$

** and *** denote significance at 5 per cent and 1 per cent levels, respectively.

The estimates of the long-run parameters have the theoretically expected correct signs. The coefficients of *log E* and *log M1* are found statistically significant at the 5 per cent level. However, the coefficients of both *log MMR* and *log PRICE* are not significant. The magnitudes of long-run output elasticities range from 0.001 (with respect to *PRICE*) to 1.015 (with respect to *E*). As the variables are cointegrated, a vector error correction model (VECM) for purposes of variance decomposition and impulse response analysis is then estimated. The variables entered are in the order: *log M1*, *log MMR*, *log E*, *log PRICE* and *log RGDP*.

Variance decomposition of RGDP

The variance decomposition was calculated of *log RGDP* and *log PRICE* at forecast horizons of 1 through 10 years. While one year would denote the short run, 2 to 5 years represent the medium term, while 5 years ahead is the long run. VAR for each variable was estimated, which included 1 lag. The results are reported in tables 1.4 and 1.5 respectively for *log RGDP* and *log PRICE*, indicating the percentages of variance of the variable forecast as attributable to each variable at a 10-year horizon. The first column lists the years ahead, while the second column refers to standard error (SE), which is the forecast error of the variable at different years. Variables were ordered in the same way as they appear in the table: the third column refers to *log M1*, the fourth column *log MMR*, the fifth column *log E*, the sixth column *log PRICE* and the last column *log RGDP*.

Table 1.4 Fiji: variance decomposition of output (log RGDP)

Period	*SE*	*log M1*	*log MMR*	*log E*	*log PRICE*	*log RGDP*
1	0.0394	1.9659	2.8108	16.0984	0.0000	79.1249
2	0.0480	5.2013	9.5909	17.8540	0.9794	66.3744
3	0.0536	6.4161	9.2053	17.3804	1.2988	65.6994
4	0.0591	9.7239	10.1530	16.7365	1.6079	61.7788
5	0.0636	12.4777	11.2938	15.9907	1.9775	58.2603
6	0.0680	15.5387	12.2345	15.1632	2.2827	54.7808
7	0.0722	18.4830	13.2861	14.3324	2.5872	51.3114
8	0.0762	21.2895	14.2066	13.5302	2.8592	48.1144
9	0.0802	23.9291	15.0727	12.7700	3.1069	45.1214
10	0.0840	26.3643	15.8545	12.0639	3.3301	42.3872

Cholesky ordering: logM1, logMMR, logE, logPRICE, logRGDP

The results indicate that most of the forecast error variance in real GDP is explained by its own shocks, or known as stochastic error terms or impulses or innovation in the language of vector autoregression (VAR), especially in the short term. The impact of a shock in real GDP to its own future values is around 79 per cent in the near term, but decreases to 42 per cent in the long term (10th year). While the impact of interest rate on RGDP is around 3 per cent in the short run and around 16 per cent in the long run, the impact of M1 on RGDP increases from about 2 per cent in the first year and achieves its peak by the tenth year. In the long run M1 accounts for approximately 26 per cent of the variance in real GDP. The exchange rate shock is important in explaining the variation in real GDP, which accounts for about 16 per cent in the short- and medium terms, but the influence of the shock is decreasing in explaining the real output variability compared with the role of price in the long run (around 12 per cent of the variation in output).

Variance decomposition of PRICE

From table 1.5, it is observed that the impact of a shock in monetary aggregate (log M1) on variability in price is relatively low (it fluctuates from 5 per cent to 14 per cent in the first four years) while its longer term impacts explain about 18 per cent to 26 per cent of the forecast error variance of price. The influences of interest rate (MMR) and exchange rate (E) to price are quite small over the short, medium and longer term, overall less than 13 per cent over the period. Price is mostly explained by its own shock in the short and medium terms. The own shock accounts for 65 per cent in the first year, decreases to 43 per cent in the fourth year, and the impact continues to decline to about 17 per cent in the long term. Although the variation in price that can be explained by RGDP is low (around 7 per cent) in the short-term, the variation in RGDP is increasing over the period, beginning from 12 per cent in the second year to 34 per cent in the 10th year.

Table 1.5 Fiji: variance decomposition of log price

Period	*SE*	*log M1*	*log MMR*	*log E*	*log PRICE*	*log RGDP*
1	0.0274	5.8521	9.2791	12.2003	65.4978	7.1707
2	0.0416	5.0061	6.6250	13.3475	62.2939	12.7275
3	0.0553	10.7925	6.8744	12.4665	53.4926	16.3740
4	0.0700	14.7912	8.1309	12.3866	43.0553	21.6360
5	0.0849	18.2308	8.6409	12.5815	35.3505	25.1963
6	0.1002	20.8534	9.0995	12.7045	29.3365	28.0061
7	0.1155	22.8180	9.3704	12.8322	24.8796	30.0999
8	0.1306	24.3461	9.5597	12.9165	21.4996	31.6781
9	0.1455	25.5278	9.6919	12.9793	18.8998	32.9012
10	0.1600	26.4671	9.7845	13.0242	16.8671	33.8571

Cholesky ordering: log M1, log MMR, log E, log PRICE, log RGDP

Correlation matrix of reduced-form VAR residuals

With a view to testing the robustness of the VAR results, which would vary based on different orderings of the variables, the correlation of reduced-form VAR residuals was tested. Table 1.6 presents the correlation matrix of the reduced-form VAR residuals based on the ordering of variables that were entered into VAR. The elements of the correlation matrix between the variables and the rest of the system are low, indicating that the contemporaneous feedback is not a problem. These correlations suggest that the ordering of the variables in a Cholesky decomposition is not of any major concern (Ahmed, 2003).

Table 1.6 Fiji: correlation matrix of reduced-form residuals

	log M1	*log MMR*	*log E*	*log PRICE*	*log RGDP*
log M1	1	-0.5388	-0.0760	0.2457	0.3403
log MMR		1	-0.1460	-0.3288	-0.1686
log E			1	0.1803	-0.2674
log PRICE				1	-0.1185
log RGDP					1

Impulse response function

Impulse responses are depicted in figure 1.2 (log RGDP) and figure 1.3 (log PRICE). In figure 1.2, a shock to monetary aggregate (log M1) has positive impact on output (log RGDP) not only in the short run, but also in long run. Further, the responses of log RGDP to other channels such as interest rate (log MMR), exchange rate (log E), and price (log PRICE) initially exhibit a negative pattern, but they eventually die out in the long term.

In figure 1.3, it is seen that price responds to a monetary aggregate (log M1) shock in a positive and steady manner in the short term, increasing both in the medium and long terms. Price responds least to a shock in real GDP and exchange rate over the period while interest rate responds negatively in the first year and thereafter the response is positive and remains so until the shock dies out.

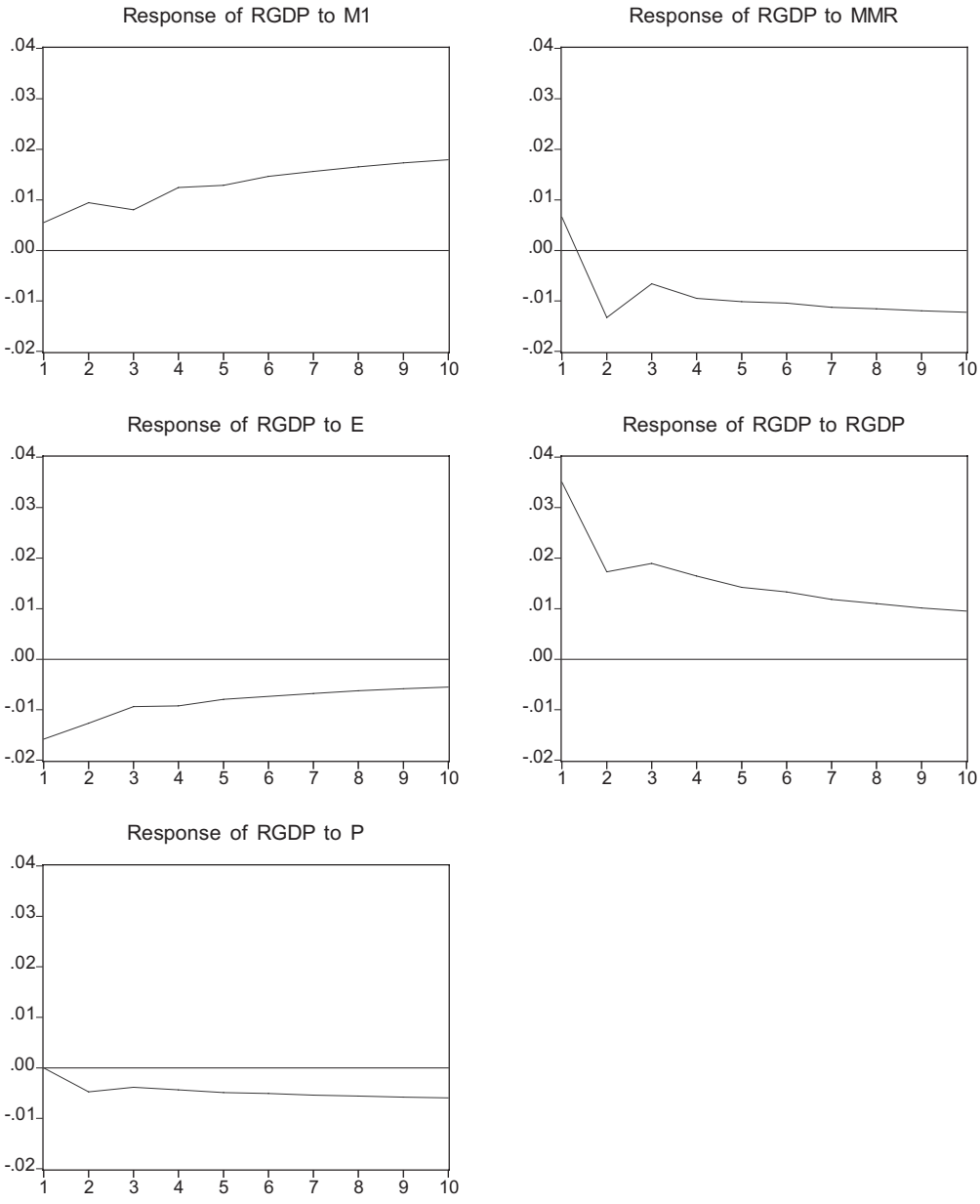

Figure 1.2 Response of output in Fiji to Cholesky one standard deviation innovations

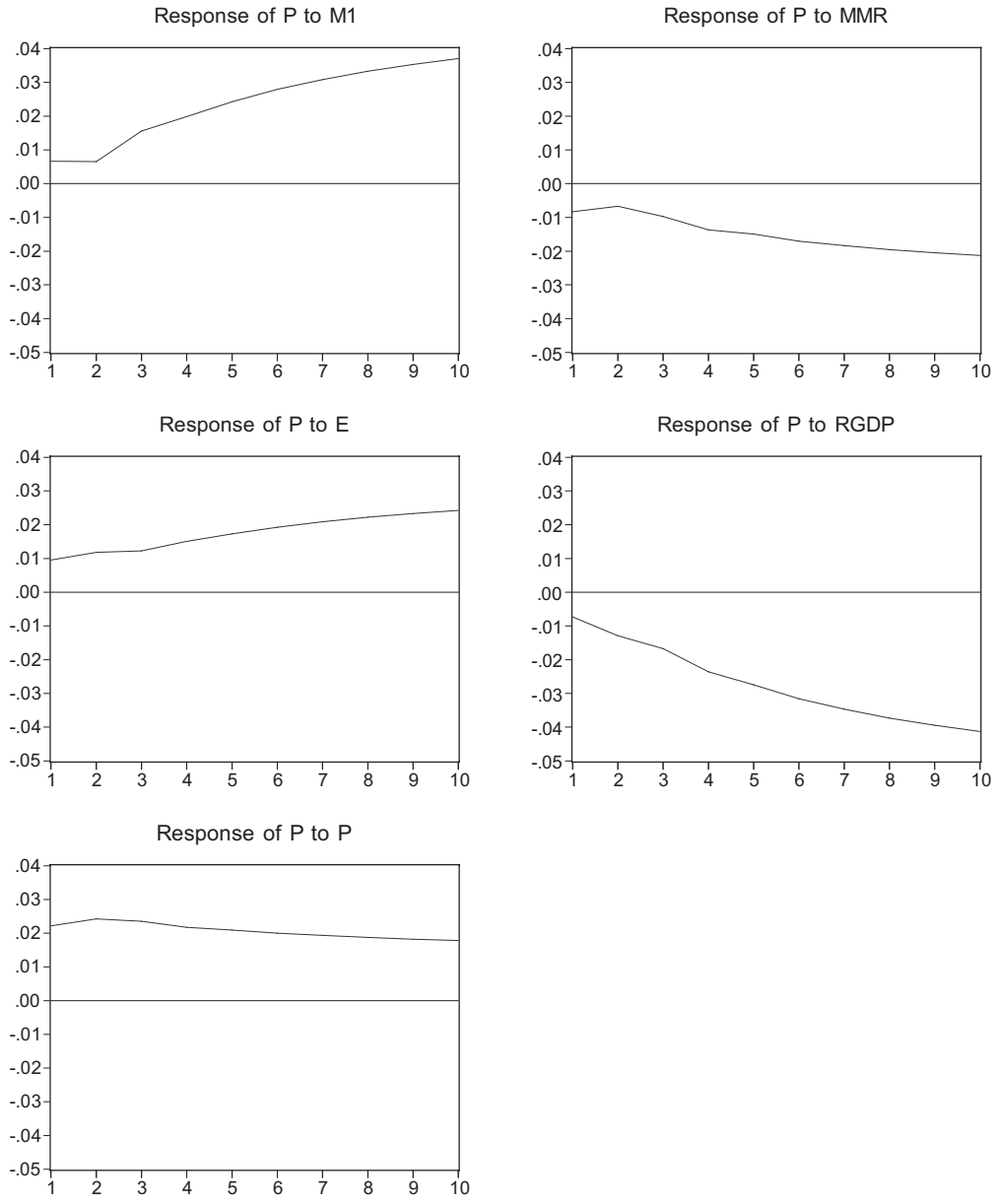

Figure 1.3 Response of price in Fiji to Cholesky one standard deviation innovations

Conclusion

In Fiji, the money channel has had a larger impact on output than the interest rate channel. In regard to price level, money channel exhibited far greater influence than interest rate. These conclusions are similar to the findings arrived at by various studies on other small,

developing economies where money and capital markets are at early stages of development. Interest rate changes which are increasingly adopted through what is known as open market operations by central banks in industrialised countries aiming at changes short-term interest rate, known as federal funds rate in USA and official cash rate in Australia, do not work in Fiji, as the financial sector is not well developed. There are no secondary markets for sale and buying of financial assets, including government-issued short-term securities, which are used for open market operations by central banks. In these circumstances, it is more effective to use direct instruments at the disposal of central banks in PICs, which directly change the balance sheets of banks and so will change the monetary aggregate. It is therefore recommended that authorities target monetary aggregate as a policy variable for effective monetary policy implementation.

Samoa[36]

Effective January 1998, CBS commenced weekly open market type operations (OMO) in its own 91-day and 182-day central bank bills through public auction mode. The OMO not only has helped liquidity management, but also has become the primary monetary policy instrument for influencing short-term interest rates in the market and base for determining the central bank discount and repurchase rates.

Methodology

For exploring how monetary shocks, which refer to impulses in the language of VAR, affect the economy, the study employed the VAR methodology, which has been increasingly adopted in recent years (Dabla-Norris and Floerkemeir, 2006; Ramlogan, 2004). The chief advantage of using standard VAR is that only minimal restrictions need to be imposed. A VAR with *k* endogenous variables and *n* lags can be expressed as:

$$\Pi_0 y_t = \Pi_1 y_{t-1} + \Pi_2 y_{t-2} + \ldots + \Pi_n y_{t-n} + \varepsilon_t \qquad (1)$$

where, y_t is a *k* x 1 vector of endogenous variables, each $\prod$ is *k* x *k* matrix of standard parameters of the endogenous variables and ε_t is a *k* x 1 vector of structural disturbances.

The model uses a recursive, contemporaneous system, whereby it is assumed that the structural shocks ε_t are orthogonal and that each Π is lower triangular. If there is no contemporaneous feedback from the non-policy variable to policy variable, it is theoretically sound to place the policy variable first in the recursively ordered system. If the contemporaneous correlation among the shocks in the reduced-form VAR is high (Ramlogan, 2004), ordering becomes a matter of concern.

These are not the economic structural shocks. These relate to VAR methodology.

Data sources

The study on Samoa covers a 17-year period (1990–2006) and data are drawn from published sources. Table 1.7 presents selected indicators of annual growth rate and related monetary statistics. The study employs the quarterly data for all variables except real output (RGDP). Since there are no quarterly estimates of real GDP, a cubic-spline procedure is used for

generating quarterly times series. The monetary variables employed in the study are narrow money (M1) and bank credit (CRE), representing loans to private sector. In the absence of a consistent time series covering a 17-year period relating to short-term interest rate, the study was constrained to use the average lending rate charged by commercial banks (BR) for interest rate representing monetary policy stance.

The proxy rate for short-term interest rate, which in the industrialised countries is referred to money market rate, we use here is average lending rate. We are not examining the spread between lending and deposit rate. We have to use a proxy for undertaking an empirical study under severe data constraints.

Table 1.7 Samoa: growth rate and monetary statistics, 1985–2006

	Annual growth rate (%)	*M1 (mill tala)*	*M2 (mill tala)*	*CRE (mill tala)*	*CPI (Index)*	*E (tala/US$)*	*Ave. lending rate (%)*
1985–89 (ave)	2.4	26.7	76.9	32.8	55.5	2.2	18.0
1990–94 (ave)	-1.1	43.8	123.7	69.9	77.7	2.5	13.0
1995–99 (ave)	3.8	68.6	205.8	142.7	94.1	2.7	11.8
2000	6.1	93.3	289.9	233.0	100.0	3.3	11.0
2001	7.0	86.8	307.6	266.6	103.8	3.5	9.93
2002	1.0	95.6	339.0	294.7	112.2	3.4	9.75
2003	3.5	118.2	386.4	318.5	112.3	3.0	9.75
2004	3.7	124.9	418.5	358.7	130.7	2.8	9.75
2005	5.1	160.7	484.0	440.1	133.1	2.7	9.75
2006	3.5	170.1	550.6	538.5	138.1	2.8	9.75

The table shows the data series actually used in the econometric study.
Source: UNESCAP (2007); IMF (2007b)

In addition to monetary variables, price level and exchange rate are used as variables in the study. The price variable employed is the consumer price index (P). The consumer price index is used for representing price variables in the econometric study. We are not examining here the price indices and their calculation procedure. The exchange rate (E) refers to the domestic currency (tala) units per unit of foreign currency (US dollar). The data source for monetary variables, price index and exchange rate is *International Financial Statistics CD Rom* (IMF, 2007b), whereas the data source for annual real GDP data series is *the Key Indicators of Developing Asian and Pacific Countries 2007* (ADB, 2007).

The six variables, with the exception of interest rate (BR), are duly transformed into logarithmic form, and entered into VAR equation in the following order: narrow money (M1), bank credit to private sector (CRE), interest rate (BR), nominal exchange rate (E), RGDP and consumer price index (P).

The results

The unit root test results indicate that these variables are of I(1) processes. To test for the existence of a long-run equilibrium cointegration relationship between the economic variables, we employ the system-based method developed by Johansen (1988) and extended by Johansen and Juselius (1990). This is done to check the number of cointegration vectors. The lag length for the cointegration test used is 2. This is usually the period of lag employed. In our study we use annual data, so the econometric estimation procedure used here refers to lagging the relevant variable. Preliminary results reveal that logCRE is not significant. Further, its inclusion in the analysis has given rise to a serial correlation problem in the model. Therefore, it was considered appropriate to drop logCRE from the analysis. The monetary transmission model to be tested is:

$$Z = (\mathrm{M1}, BR, E, RGDP, P) \tag{2}$$

Long-term relationship

Cointegration tests showed the presence of a long-term relationship. The results indicate that the variables, money, bank rate, exchange rate and output, contribute to the long-term relationship. Normalising the coefficient of logRGDP, the restricted long-run relationship is expressed as:

$$\log RGDP = \underset{(0.05)}{0.39 \log \mathrm{M1}^{**}} - \underset{(0.01)}{0.02 BR^{**}} - \underset{(0.22)}{0.39 \log E^{*}} - \underset{(0.11)}{0.17 \log P} + 6.1$$

The figures in the parentheses are standard errors.

* indicates significance at 10 per cent level

** indicates significance at 5 per cent level.

The coefficients of log M1, BR, and log E have emerged with correct signs. Further, they are also found significant. However, coefficient of log P has been found to be non-significant.

Granger causality

Once the variables have been found cointegrated, the long- and short-run relations among the variables can be investigated by resorting to VECM.

$$\Delta Y_t = \mu_1 + \gamma_1 EC_{t-i} + \sum_{i=1}^{p0} \theta_{1i} \Delta LM_{t-t} + \sum_{t=1}^{p0} \delta_{1i} \Delta R_{t-i} + \sum_{i=1}^{p0} \rho_{1i} \Delta LE_{t-1} + \\ + \sum_{i=1}^{p0} \omega_{1i} \Delta Y_{t-1} + \sum_{i=1}^{p0} \tau_{1i} \Delta_{t-1} + \varepsilon_t \tag{3}$$

where $EC_{t\text{-}1}$ is the error correction term, γ, θ, δ, ρ, ω and τ are the estimated parameters, $p0$ is the lag length, and ε_t is assumed to be stationary random processes with mean zero and constant variance.

In the VECM equation with output as dependent variable, we find that the t-statistic of the error correction term (ECT) is not only negative but also statistically significant at

the 5 per cent level. This confirms that in the long run, all the variables – namely monetary aggregate, exchange rate, interest rate and price – influence output. In the short run, however, the Granger causality runs only from monetary aggregate and price to output, as F-statistics of these two variables are significant. In the equation with price as dependent variable, ECT has the required negative sign and is significant indicating that all the variables Granger-cause RGDP in the long run. However, in the short run, only monetary aggregate and output Granger-cause price.

All these terms are used econometrically; that is, they indicate the direction of causality.

Table 1.8 Vector error-correction model (VECM)

Dependent variable			*F-statistics*			*t-stat*
	Δlog RGDP	Δlog P	Δlog M1	Δ log BR	Δlog E	ECT*t*-1
Δlog GDP	–	82.33**	2.52*	0.39	1.70	-2.17**
Δ log P	9.22**	–	3.92**	0.06	0.41	-2.11**

Note: All variables except for the lagged error-correction terms (ECT*t*-1) are in the first difference, denoted by Δ. The ECT is generated from Johansen cointegration with the first cointegrating vector (i.e. the highest eigenvalue) which normalised on the LRGDP. The VECMs are based on 2 lags with constant term.
** and * indicate significance at 5 per cent and 10 per cent levels respectively.

Variance decomposition

On the basis of the estimated VECM equation, the study proceeded to obtain the variance decomposition and impulse response functions. It should be noted that the variables were entered in the following order: first the policy variables, log M1, BR and log E; and then the two goal variables, log RGDP and log P. The variance decomposition was calculated at forecast horizons of 2 through 20 quarters with ten time horizons, in which 2 and 4 quarters ahead are the short term; 6, 8 and 12 quarters ahead represent medium term while 14, 16, and 20 quarters ahead denote long terms. The column 'standard error' (SE) refers to the square root of the variance of the forecast error of the variable to be forecast at different quarters.

Panel A and panel B of table 1.9 present the variance decomposition for log RGDP and for log P respectively. Panel A clearly shows that the money and exchange rate channels are the most important among the three channels in the short, medium and long terms. Next in importance is the interest rate channel. In the short run, shocks in money and exchange rate account for about 14 per cent and 12 per cent respectively of the variance in output while in the long run they account for about 23 per cent.

The interest rate channel's role among all the channels is the least important, as it accounted for less than one per cent of variance in output in the short run. Similarly, over the medium and long terms the interest rate explains almost 2 per cent of the forecast error variance's case in output over the medium and long term. The conclusion here is that the interest rate is not the channel of transmission mechanism in Samoa.

Table 1.9 Samoa: decomposition of variance

Panel A: Variance decomposition of log RGDP						
Steps ahead	*SE*	*log M1*	*BR*	*log E*	*log RGDP*	*log P*
2	0.005	6.896	0.101	4.017	87.756	1.228
4	0.017	14.624	0.400	11.815	67.741	5.418
6	0.029	19.677	0.993	17.362	54.743	7.222
8	0.038	21.826	1.495	20.612	48.056	8.009
10	0.042	22.673	1.763	22.089	45.216	8.256
12	0.045	22.886	1.851	22.557	44.425	8.278
14	0.047	22.826	1.844	22.529	44.579	8.219
16	0.050	22.721	1.809	22.367	44.937	8.164
18	0.053	22.735	1.795	22.355	44.946	8.165
20	0.056	22.851	1.815	22.517	44.612	8.203
Panel B: Variance decomposition of log P						
Steps ahead	*SE*	*log M1*	*BR*	*log E*	*log RGDP*	*log P*
2	0.037	6.027	2.993	0.548	3.096	87.334
4	0.047	10.041	4.761	6.024	9.664	69.507
6	0.054	10.055	5.515	8.738	10.42	65.267
8	0.061	13.194	6.114	8.489	8.549	63.652
10	0.069	16.660	6.790	7.022	6.796	62.731
12	0.076	19.327	7.379	5.872	5.635	61.784
14	0.082	20.568	7.821	5.282	5.162	61.165
16	0.088	20.998	8.085	5.141	5.081	60.693
18	0.092	21.246	8.245	5.147	4.979	60.381
20	0.097	21.618	8.372	5.062	4.740	60.206

Variance decomposition of log P

Panel B of table 1.9 shows the variance decomposition of log P. The results indicate that the monetary aggregate channel is the dominant one among all the channels throughout the entire time horizon. The implication is that the policy variable should be monetary aggregate. Shocks in monetary aggregate in the short-run account for about 10 per cent of variability in prices. Its importance grows over the medium term to 19 per cent, and remains steady around 21 per cent in the long run. Next to the money channel, shocks in the interest rate (BR) play an important part. Shocks in interest rate explain the price variability to the extent of nearly 5 per cent in the short run. Over the medium term, the influence of interest rate grows to over 6 per cent but its influence remains steady over the long-term horizon. Our results show that, looking 20 quarters ahead, interest rate explains about 8 per cent of the forecast error variance in price.

Innovations in exchange rate are also important over the time horizon. Initially, shocks in exchange rate account for 6 per cent of variability in prices in the fourth year ahead of the time horizon. However, over the medium term, the influence of exchange rate on price increases to reach about 8 per cent, declining to about 5 per cent in the long run. Among all the channels, the exchange rate channel emerges to be the least important.

Impulse response analysis

The impulse response functions, reported for a horizon of five years (table 1.10, and figures 1.4 and 1.5), enable one to trace out the response of output and price to a shock in policy variables. The shock is represented by one standard deviation of the error term in the underlying structural model for the variable. Since all variables are measured in logs, the impulse response functions trace out a growth rate relative to the base period when the shock occurred. The first graph in figure 1.4 shows the response of output to shocks in monetary policy represented

Table 1.10 Impulse response functions

Panel A. Response of LRGDP to one SD innovations

Period	*LM1*	*BR*	*LE*	*LRGDP*	*LP*
2	0.001	0.000	-0.001	0.005	0.001
4	0.005	-0.001	-0.005	0.011	0.0031
6	0.008	-0.002	-0.008	0.012	0.005
8	0.008	-0.002	-0.008	0.009	0.005
10	0.006	-0.002	-0.007	0.007	0.004
12	0.005	-0.002	-0.005	0.006	0.003
14	0.005	-0.001	-0.005	0.007	0.003
16	0.006	-0.002	-0.006	0.008	0.003
18	0.006	-0.002	-0.006	0.009	0.004
20	0.007	-0.002	-0.007	0.009	0.004

Panel B. Response of LP to one SD innovation

Period	*LM1*	*BR*	*LE*	*LRGDP*	*LP*
2	0.009	-0.005	0.003	-0.006	0.019
4	0.007	-0.007	0.007	-0.009	0.014
6	0.007	-0.005	0.008	-0.006	0.014
8	0.011	-0.006	0.004	-0.002	0.016
10	0.013	-0.007	0.002	-0.000	0.017
12	0.013	-0.007	0.002	-0.002	0.017
14	0.011	-0.007	0.003	-0.004	0.016
16	0.010	-0.007	0.004	-0.005	0.016
18	0.010	-0.006	0.005	-0.004	0.016
20	0.011	-0.007	0.004	-0.0034	0.016

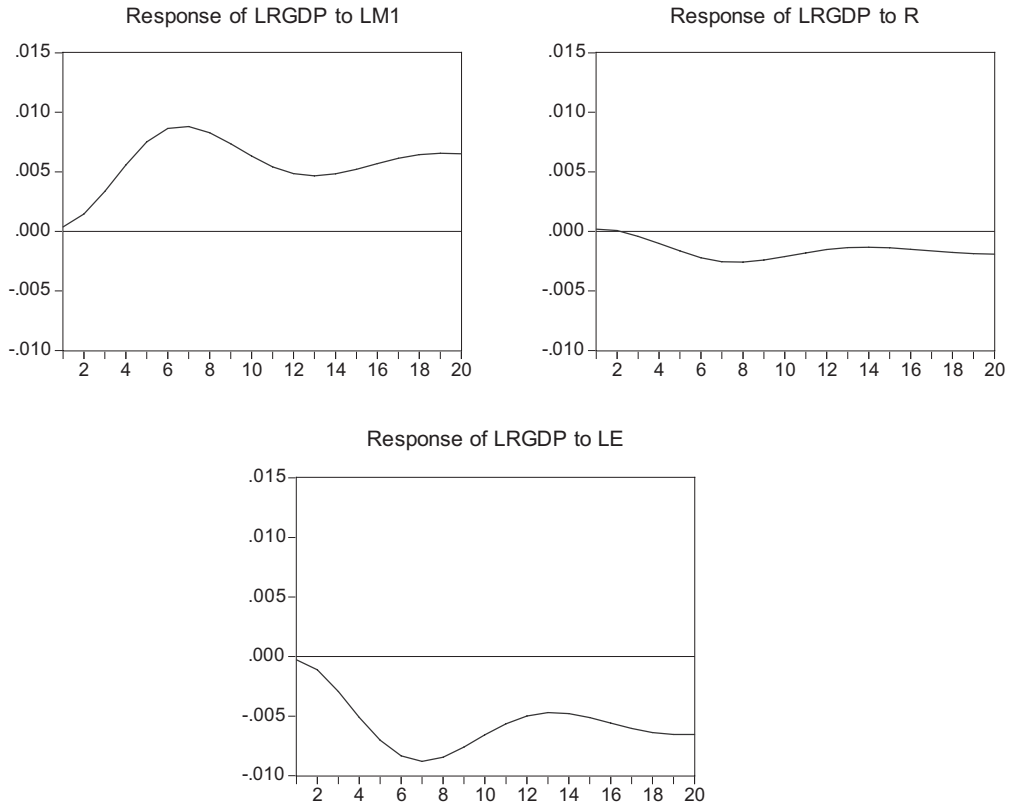

Figure 1.4 Response of prices (LRGDP) to one SD innovations

by one standard deviation of the monetary aggregate. A one-standard-deviation shock to the money stock has a positive effect on the level of output, with the peak occurring in the sixth quarter. However, the effect remains substantial and stabilises after about three years or twelfth quarter. Most of the fluctuations are evident during the first four years.

The shock to interest rate (BR) and exchange rate (LE) lead to long-term decrease in output. It is clear from the graphs of figure 1.4 and panel A of table 1.10 that shocks to money, among all the policy variables, have the largest positive impact on output.

In regard to price (panel B of table 1.10 and figure 1.5), one-standard-deviation shock to the money has a positive effect on price. The effect gradually increases and reaches the peak in the tenth quarter, after which it stabilises in the long run. The substantial role of money in the impulse response function for Samoa supports the significant role of money in its long-run cointegration relation with Samoa prices. Similarly, a shock to exchange rate also produces a positive impact on prices. At the beginning, price responds in an upward direction and reaches the peak by the third quarter. The effect, however, gradually decreases after the sixth quarter and begins to stabilise after twelfth quarter. This implies that exchange rate bears a long-term impact on Samoa prices. On the other hand, a shock to interest rate has a negative impact on prices. This means interest rate changes do have an impact on price level. After some

fluctuations in the next few quarters, the impact continues to be negative and stabilises in the long run. The study findings of variance decompositions and impulse response functions analysis provide additional support to our Granger causality analysis that those variables, money, interest rate and exchange rate Granger-cause Samoa output and prices.

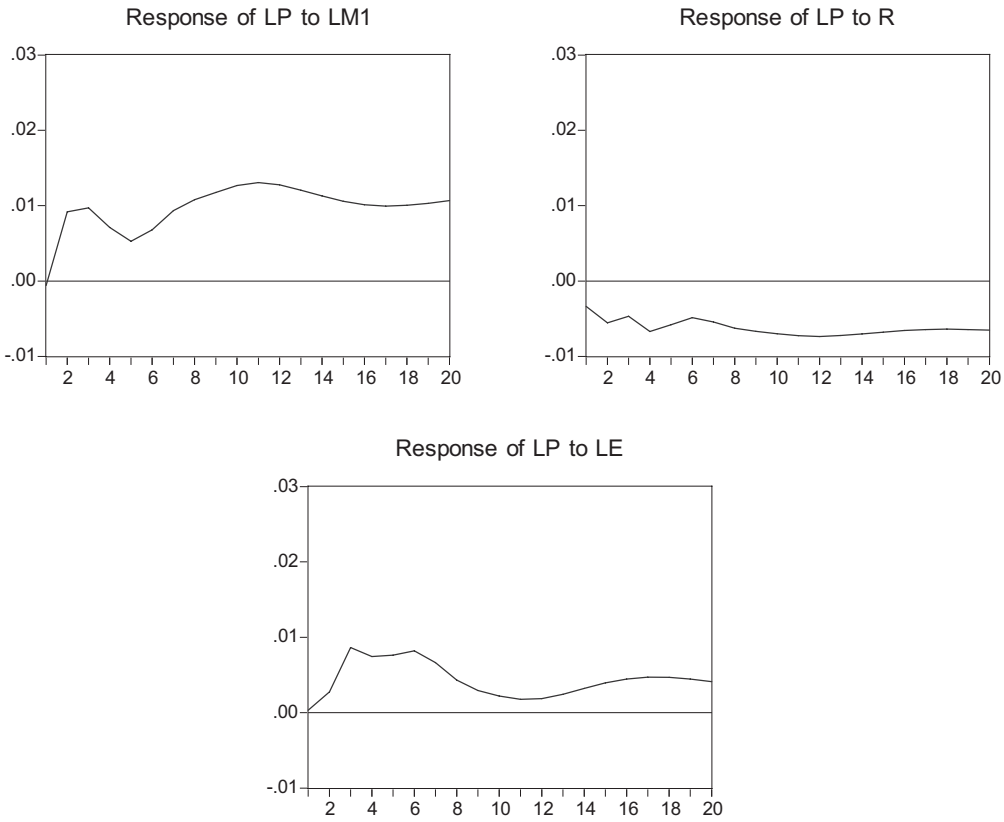

Figure 1.5 Response of prices (LP) to one SD innovations

Conclusions

The study results of the VAR analysis show that in Samoa the money and exchange rate channels are important channels in transmitting monetary impulses to the real sector. In regard to impact on prices, the money channel emerges as the most dominant influence. The interest rate channel has yet to become a principal conduit of monetary policy shocks, whereas money channel is the leading channel of transmission mechanism. Thus, the policy variable should be monetary aggregate for stabilising growth.

Solomon Islands[37]

The Central Bank of Solomon Islands (CBSI) does not use interest rates (neither treasury bill rate nor interest rate for deposit facility) to signify its monetary policy stance**.**

The CBSI employs LAR and Bokolo deposits for controlling growth in credit and money supply.

Modelling and methodology

For examining the transmission mechanism, two policy variables are chosen: monetary aggregate and interest rate. Monetary aggregate is represented by broad money. Interest rate is proxied by the average lending rate, since there is no consistent data series for short-term rate in Solomon Islands. The target variables are real output, which is represented by real gross domestic product *(RGDP),* and price level, represented by consumer price index (*P*). Besides these variables, the study includes the nominal exchange rate, to check whether it could be a channel of transmission mechanism. The nominal exchange rate is expressed as units of US$ per unit of SI$. The annual data for the empirical study are drawn from two sources: the monetary and exchange rate data from *International Financial Statistics* published by International Monetary Fund (IMF, 2008) and output data from Asian Development Bank (ADB, 2008) and UNESCAP (2008). Table 1.11 presents summary statistics.

Table 1.11 Solomon Islands: output and monetary statistics

Ave	*GR (%)*	*Inflation (%)*	*Interest rate (%)*	*Exchange rate US$/SI$*	*M1 (% of GDP)*	*M2 (% of GDP)*
1980–89	7.4	12.5	13.3	0.77	12.2	30.1
1990–99	2.9	10.7	16.2	0.30	14.2	28.5
2000–04	-2.1	8.2	14.5	0.16	15.9	26.6
2005	5.0	7.3	14.1	0.13	24.0	38.5
2006	6.2	11.2	13.9	0.13	27.5	42.6
2007	5.4	7.7	14.1	0.13	32.9	49.0

Source: IMF (2008); ADB (2008); UNESCAP (2008)

The data series covers a 28-year period (1980–2007). Since the annual number of observations is not large enough for estimating a long-run money and output model, the study resorts to the autoregressive distributed lag (ARDL) procedure developed by Pesaran et al. (2001). The ARDL bounds testing model is a general dynamic specification, which applies lags of the dependent variable and the lagged and contemporaneous values of the explanatory variables, through which short-run impacts can be directly assessed and the long-run relationship indirectly estimated. For econometric analysis, all variables are duly transformed into their natural logs.

Bounds testing with ARDL framework has several advantages: (i) it allows testing for the existence of a cointegrating relationship between variables in levels irrespective of whether the underlying regressors are I(0) or I(1) (Pesaran and Shin, 1999; Pesaran et al., 2001); (ii) it is more appropriate than Johansen-Juselius multivariate approach for testing the long-run relationship among variables when the data are of a small sample size (Mah, 1995; Tang and Nair, 2002); (iii) Pesaran and Shin (1999) show that estimators of the short-run parameters are consistent and the estimators of long-run parameters are super-consistent in small sample

sizes. Therefore, the ARDL model has become increasingly popular in recent years and the empirical analysis is done using this procedure.

There are two steps involved in estimating the long-run relationship between money, output and other variables. The first step is to examine the presence of a long-run relationship among all variables in the equation. Once the long-run relationship is confirmed in the model, the long-run coefficients are estimated using the associated ARDL model. To examine for cointegration by the bounds test proposed by Pesaran et al. (2001), the following models are constructed for estimation purposes.

$$\Delta LRGDP_t = \delta_1 + \beta_{11} LRGDP_{t-1} + \beta_{21} LP_{t-1} + \beta_{31} LM2_{t-1} + \beta_{41} LIR_{t-1} + \beta_{51} LER_{t-1} + \beta_{61} TREND + \sum_{i=1}^{p} \alpha_{11i} \Delta LRGDP_{t-i} + \sum_{i=0}^{p} \alpha_{21i} \Delta LP_{t-i} + \sum_{i=0}^{p} \alpha_{31i} \Delta LM2_{t-i} + \sum_{i=0}^{p} \alpha_{41i} \Delta LIR_{t-i} + \sum_{i=0}^{p} \alpha_{51i} \Delta LER_{t-i} + \varepsilon_{1t} \quad (1)$$

$$\Delta LP_t = \delta_2 + \beta_{12} LRGDP_{t-1} + \beta_{22} LP_{t-1} + \beta_{32} LM2_{t-1} + \beta_{42} LIR_{t-1} + \beta_{52} LER_{t-1} + \beta_{62} TREND + \sum_{i=1}^{p} \alpha_{12i} \Delta LRGDP_{t-i} + \sum_{i=0}^{p} \alpha_{22i} \Delta LP_{t-i} + \sum_{i=0}^{p} \alpha_{32i} \Delta LM2_{t-i} + \sum_{i=0}^{p} \alpha_{42i} \Delta LIR_{t-i} + \sum_{i=0}^{p} \alpha_{52i} \Delta LER_{t-i} + \varepsilon_{2t} \quad (2)$$

$$\Delta LM2_t = \delta_3 + \beta_{13} LRGDP_{t-1} + \beta_{23} LP_{t-1} + \beta_{33} LM2_{t-1} + \beta_{43} LIR_{t-1} + \beta_{53} LER_{t-1} + \beta_{63} TREND + \sum_{i=1}^{p} \alpha_{13i} \Delta LRGDP_{t-i} + \sum_{i=0}^{p} \alpha_{23i} \Delta LP_{t-i} + \sum_{i=0}^{p} \alpha_{33i} \Delta LM2_{t-i} + \sum_{i=0}^{p} \alpha_{43i} \Delta LIR_{t-i} + \sum_{i=0}^{p} \alpha_{53i} \Delta LER_{t-i} + \varepsilon_{3t} \quad (3)$$

$$\Delta LIR_t = \delta_4 + \beta_{14} LRGDP_{t-1} + \beta_{24} LP_{t-1} + \beta_{34} LM2_{t-1} + \beta_{44} LIR_{t-1} + \beta_{54} LER_{t-1} + \beta_{64} TREND + \sum_{i=1}^{p} \alpha_{14i} \Delta LRGDP_{t-i} + \sum_{i=0}^{p} \alpha_{24i} \Delta LP_{t-i} + \sum_{i=0}^{p} \alpha_{34i} \Delta LM2_{t-i} + \sum_{i=0}^{p} \alpha_{44i} \Delta LIR_{t-i} + \sum_{i=0}^{p} \alpha_{54i} \Delta LER_{t-i} + \varepsilon_{4t} \quad (4)$$

$$\Delta LER_t = \delta_5 + \beta_{15} LRGDP_{t-1} + \beta_{25} LP_{t-1} + \beta_{35} LM2_{t-1} + \beta_{45} LIR_{t-1} + \beta_{55} LER_{t-1} + \beta_{65} TREND + \sum_{i=1}^{p} \alpha_{15i} \Delta LRGDP_{t-i} + \sum_{i=0}^{p} \alpha_{25i} \Delta LP_{t-i} + \sum_{i=0}^{p} \alpha_{35i} \Delta LM2_{t-i} + \sum_{i=0}^{p} \alpha_{45i} \Delta LIR_{t-i} + \sum_{i=0}^{p} \alpha_{55i} \Delta LER_{t-i} + \varepsilon_{5t} \quad (5)$$

where Δ is the first difference operator, Δ_{it} are white noise error terms, *TREND* is the trend, or time variable. The joint significance of the lagged levels in these equations is examined by using the F-test, where the null and alternative hypotheses are expressed as follows:

For equations (1) to (5):

$H_0 : \beta_{1i} = \beta_{2i} = \beta_{3i} = \beta_{4i} = \beta_{5i} = 0$ (There is no long-run level relationship)
$H_1 : \beta_{1i} \neq \beta_{2i} \neq \beta_{3i} \neq \beta_{4i} \neq \beta_{5i} \neq 0$ (There is a long-run level relationship)

where $i = 1,2,...,5$

Narayan (2005) has generated a set of critical values for small sample size ranging from 30 to 80 observations. Since the sample size in our study is small, the critical values generated by Narayan (2005)[38] are used, as the critical values provided by Pesaran et al. (2001) are calculated on the basis of large sample sizes of 500 and 1,000 observations and 2,000 and 40,000 replications respectively. If the computed F-statistic is greater than the upper critical bound value, the null hypothesis of no cointegration is rejected irrespective of whether the variable is I(0) or I(1). In contrast, when the F-statistic is smaller than the lower critical bound value, the null hypothesis is not rejected, and the study concludes that there is no long-run level relationship between the variables. However, if the computed F-statistic lies inside the lower and upper critical bound values, there is inconclusive inference unless the order of integration of the series under consideration is clearly examined.

Granger causality test

If the variables are cointegrated, the next step is to perform the Granger causality test to examine the short-run dynamic causality relationship between variables. Equations (1) and (2) can be re-formulated into a vector error-correction model (VECM) framework in order to capture the short- and long-run effect of the cointegrating vector. Let Z_t be the vector of a set of endogenous variables; we can model Z_t as an unrestricted vector autoregression (VAR) model with optimum lag-length[39]:

$$Z_t = A1Z_{t-1} + A_2Z_{t-2} +...+ A_kZ_{t-k} + Ut \quad \text{where } U_t \sim IN(0, \sigma) \tag{3}$$

where Z_t is (5 × 1) vector comprised of *LRGDP, LP, LM2, LIR* and *LER*. Each of the A_t is (5 × 5) matrix of parameters. The 5-variable VAR model as shown in equation (3) is used, if there is no long-run relationship in the bound testing approach.

Nevertheless, if there appears a cointegration vector, then the following VECM will be used to examine the long- and short-run causality relationship between variables under study.

$$\Delta Z_t = \Gamma_1\Delta Z_{t-1} + \Gamma_2\Delta Z_{t-2} +...+ \Pi Z_{t-k} + U_t \tag{4}$$

where ΔZ_t = [*LRGDP, LP, LM2, LIR* and *LER*]', $\Gamma_1 = -(1 - A_1)$, $\Gamma_2 = -(1 - A_1 - A_2)$ and $\Pi = -(1 - A_1 - A_2 - A_3)$. Γ_i reflects the short-run relationship of the changes in Z_t. The (5 × 5) matrix of $(= \alpha\beta')$ contains both speed of adjustment to disequilibrium (α) and the long-run information (α) such that the term $\beta' Z_{t-3}$ embedded in equation (4) represents the *(n-1)* cointegrating relationship in the model.

Study results

Unit root tests reveal that the series are of I(1). The results of bounds tests suggest rejection of the null hypothesis of no cointegration and there is only one cointegrating equation, which is the equation with LRGDP as dependent variable, confirming the long-run equilibrium relationship between real output, prices, money variable (M2), interest rate, and exchange rate in Solomon Islands. The implication here is all the variables employed in the econometric study do have a bearing on real output. The long-run estimated equation by OLS for real GDP as dependent variable is shown as follows:

$$LRGDP_t = 7.269 - 3.222LP_t^{**} + 1.981LM2_t^{**} - 0.351LIR_t - 0.947LER_t^{*}$$
$$t = \quad (3.282) \quad (-3.967) \quad (4.181) \quad (-1.284) \quad (2.455) \qquad (5)$$

* and ** indicate significance at 10 per cent and 5 per cent levels, respectively.
Figures in parentheses are t-statistics.

As shown in equation (5), money variable (M2) has a positive effect on real output and it is statistically significant at the 5 per cent level. The interest rate, though with theoretically expected negative sign is not statistically significant.

Granger causality test results

Table 1.12 reports the long- and short-run dynamic casual relationship among real output, prices, money variable (M2), interest rate and exchange rate. In line with the findings of the cointegration test, money variable (M2), prices, interest rate and exchange rate Granger-cause real output significantly in the long run, as indicated by the significance of the error correction term (ECT). The magnitude of ECT indicates the speed of adjustment of any disequilibrium towards a long-run equilibrium, which is about 9 per cent within a year.

Table 1.12 Solomon Islands: results of Granger causality tests

Dependent variable	*F-statistics*					*ECT (t-statistics)*
	ΔLRGDP	*ΔLP*	*ΔLM2*	*ΔLIR*	*ΔLER*	
ΔLRGDP	–	0.4089	6.4967***	0.1331	6.1906***	-0.0914** (-2.2797)
ΔLP	9.3695***	–	10.8453***	1.4318	0.9382	-0.0342 (-1.7892)
ΔLM2	1.1753	0.5401	–	0.3376	0.2425	-0.3396 (-0.6994)
ΔLIR	0.4931	3.2884*	0.8072	–	0.6244	-0.0793 (-1.4212)
ΔLER	0.9387	4.7739**	1.2794	0.1722	–	-0.0544 (-0.7151)

Note: *, ** and *** indicate significance at 10 per cent, 5 per cent and 1 per cent levels, respectively.
Figures in parentheses are t-statistics.

However, ECT is not significant in all the other four equations, with price, money, interest rate and exchange rate as dependent variables. Thus, the long-run relationship exists in only one direction. The linkage runs only from money, interest rate, prices and exchange rate to output and not otherwise. This also confirms the results obtained from bound tests that there is only one cointegrating equation, which was the equation with output as the dependent variable. In regard to short-run relationships, there are two variables (that is, money and exchange rate) which Granger-cause real output, while price is Granger-caused by both real output and money variable.

Variance decomposition analysis

For variance decomposition analysis, the study orders policy variables first followed by target variables, namely: money variable (*LM2*), interest rate (*LIR*), exchange rate (*LER*), prices (*LP*) and real output (*LRGDP*). The results of decomposition analysis for real output are shown in table 1.13. Real output is very sensitive to its own shock and money variable. It is found that substantial variation in output (84 per cent) is explained by its own shock in the first year, which slowly decreases in the long-run to around 40 per cent (at 10-year horizon). Shock to money variable explains a large proportion of variation in real output for the whole time horizon. The effect of shock in money variable on real output increases until the sixth year, and achieved its peak with 50 per cent. It however, decreases from the seventh year onwards with steady momentum to reach about 43 per cent. In contrast, real output is not very responsive to price, interest rate and exchange rate (that is, less than 10 per cent of its forecast error variance explained by these three variables), either in the short or long run.

Table 1.13 Solomon Islands: variance decomposition analysis for real output

Period	*SE*	*LRGDP*	*LP*	*LM2*	*LIR*	*LER*
1	0.0586	83.9182	0.2976	10.8862	2.0304	2.8677
2	0.0827	56.3715	0.7662	34.7844	4.6803	3.3977
3	0.0959	43.9587	2.5653	45.1058	4.3621	4.0082
4	0.1053	38.0105	2.9755	46.0279	7.4523	5.5338
5	0.1142	33.1116	3.8758	49.5266	8.5331	4.9529
6	0.1177	31.1959	4.6940	50.0846	9.0002	5.0253
7	0.1204	32.9459	5.6179	47.9888	8.6177	4.8298
8	0.1270	38.3227	5.1371	44.3521	7.7702	4.4179
9	0.1350	41.8485	4.6052	42.6664	6.9236	3.9564
10	0.1444	42.2865	4.0729	43.1340	6.3524	4.1543

Notes: Cholesky ordering: LM2, LIR, LER, LP, LRGDP. The study has used different orderings of the variables concerned, but the findings are robust to changes.

As regards price (table 1.14), the analysis shows that more than 40 per cent of variation in price is explained by its own shock in the first year. However, the impact decreases in the remaining part of the time horizon. Money variable is the most important determinant in explaining the variation in price both in the short run and long run. Variation in price is explained by money to an extent of 31 per cent in the first year, rising in the medium term to around 47 per cent and in the long run to around 38 per cent. Although the variation in price is explained minimally by shock in the first year, the influence of output on price rises over the remaining period of the time horizon. Shock to interest rate has no significant impact on price, either in the short or long run. On the other hand, about 27 per cent of variation in price is explained by shock to exchange rate in the first year. Over the time horizon, the impact of exchange rate on price declines to about 17 per cent in the medium term and to around 11 per cent in the long run.

Table 1.14 Variance decomposition analysis for prices

Period	*SE*	*LRGDP*	*LP*	*LM2*	*LIR*	*LER*
1	0.0586	83.9182	0.2976	10.8862	2.0304	2.8677
2	0.0827	56.3715	0.7662	34.7844	4.6803	3.3977
3	0.0959	43.9587	2.5653	45.1058	4.3621	4.0082
4	0.1053	38.0105	2.9755	46.0279	7.4523	5.5338
5	0.1142	33.1116	3.8758	49.5266	8.5331	4.9529
6	0.1177	31.1959	4.6940	50.0846	9.0002	5.0253
7	0.1204	32.9459	5.6179	47.9888	8.6177	4.8298
8	0.1270	38.3227	5.1371	44.3521	7.7702	4.4179
9	0.1350	41.8485	4.6052	42.6664	6.9236	3.9564
10	0.1444	42.2865	4.0729	43.1340	6.3524	4.1543

Impulse response analysis

The impulse response function enables the researcher to trace out the response of output to a shock in policy variable. The shock is represented by one standard deviation of the error term in the underlying structural model for the variable. Since all variables are measured in log forms, the impulse response functions (IRF) trace out a growth rate relative to the base period when the shock occurred. Compared to Granger causality tests, IRF has an additional advantage, as it indicates whether the effect is positive or negative. For investigating IRF in regard to the output model by Cholesky decomposition, the order chosen is the policy variables first, followed by target variable: monetary aggregate (*LM2*), interest rate (*LIR*), exchange rate (*LER*), prices (*LP*) and real output (*LRGDP*).

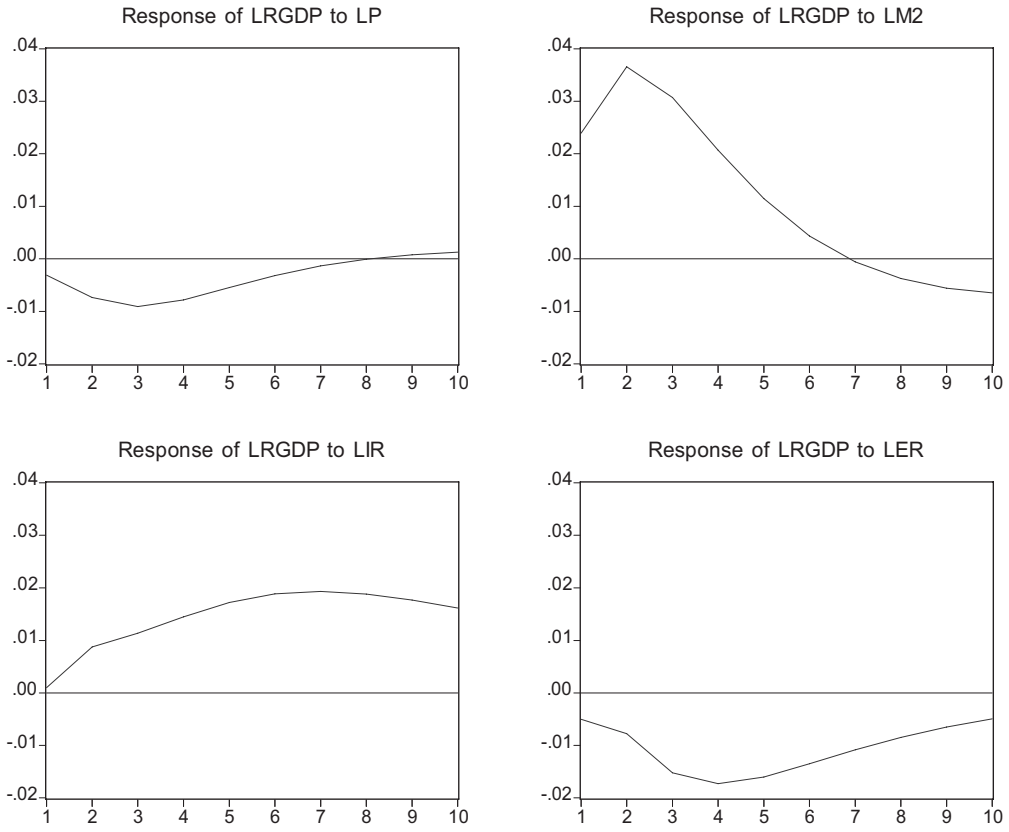

Figure 1.6 Results of impulse response function analysis (Cholesky one SD innovations) for real output

Figure 1.6 shows the response of output to shocks in monetary policy variables (M2, interest rate and exchange rate) and price. A shock to price exhibits a negative impact on real output. It decreases over time with a trough at the fourth year and then it rises slowly to its steady state at eighth year. The response of real output to shock in money variable increases substantially over the first two-year period, and decreases slowly thereafter. The response of real output to shock in exchange rate is negative. The effect is changing rapidly, reaching its trough in the fourth year and then slowly increasing to its steady state over the remaining time period.

The responses of price to shocks in M2, interest rate and exchange rate and real output are shown in figure 1.7. Price responds immediately to real output; that is, it decreases sharply in the first two years and then slowly steadies in the rest of the time horizon. Price is seen to be very sensitive to monetary shock in the first three-year period. Thereafter, the effect is decreasing over the time period. As to the shock in interest rate, the response of price is positive and rising during the entire time horizon. Price negatively responds steeply to shock in exchange rate. The response stabilises however after the fifth year.

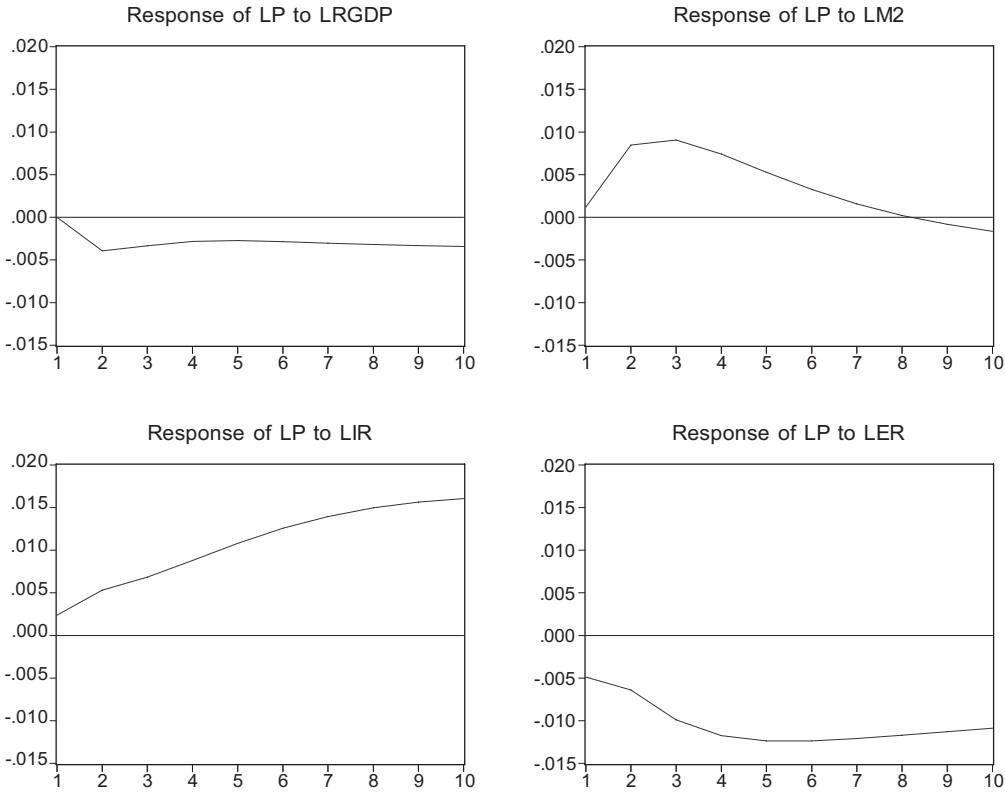

Figure 1.7 Results of impulse response function analysis (Cholesky one SD innovations) for prices

Conclusions

The study findings are: (i) there is long-run relationship between real output, price, monetary aggregate, interest rate and exchange rate; (ii) Granger causality test results show the existence of a significant uni-directional causal linkage from money and exchange rate to real output; and (iii) monetary aggregate is found to be significantly Granger-causing the price level. In other words, the causality linkage runs from money stock to price level. Finally, consistent with the long- and short-run findings, both variance decomposition and impulse responses function analyses show that the money variable is much more significant than other policy variables in explaining changes in real output and price level. As observed in other PIC studies, monetary aggregate changes have the impact on output and price level.

Vanuatu[40]

Since 1988, Reserve Bank of Vanuatu (RBV) has been conducting open market operations in its own short time securities, known as RBV Notes, of different maturities of 14 days, 28 days and 91 days, through a tendering process. This is primarily meant for mopping up excess liquidity in the banking system. The 91-day rate, which reflects short-term money market

conditions, serves the basis for determining the rediscount rate. It is also the bench market rate. However, rediscount window and repurchasing facilities (for which RBV Notes and government bonds are used as collateral) have been rarely used ever since their inception, due to the prevailing fairly high liquidity situation.

Modelling and methodology

As the study period (1980–2007) is short with the number of annual observations being less than 30, the modelling and methodology are simple. Accordingly, the autoregressive distributed lag (ARDL) procedure, developed by Pesaran et al. (2001), is adopted on the same lines as for Solomon Islands. Two policy variables were chosen, monetary aggregate and interest rate. Monetary aggregate is represented by broad money (M2), which includes currency, demand deposits and savings and time deposits in vatu as well as in foreign currency. Interest rate is proxied by average lending rate (IR), since there is no consistent data series for short-term rate in Vanuatu, as the RBV 91-day yield to maturity rate data series are available only from 1999.

The target variables are output, represented by real gross domestic product (*RGDP*), and price level, represented by consumer price index (*P*). Besides these variables, the study includes the nominal exchange rate, to check whether it could be a channel of transmission mechanism. The nominal exchange rate (ER) is expressed as units of US dollar per unit of domestic currency, vatu.[41] The annual data for the empirical study are drawn from two sources: the monetary and exchange rate data from *International Financial Statistics* published by International Monetary Fund (2008) and output data from Asian Development Bank (2008) and UNESCAP (2008). Table 1.15 provides a summary of monetary statistics.

Table 1.15 Vanuatu: selected output and monetary statistics

	Output growth (%)	*Inflation (%)*	*Interest rate (%)*	*ER (US$/ dom currency)*	*M1 (% of GDP)*	*M2 (% of GDP)*
1980–89 (ave)	8.8	8.8	16.7	0.010272	39.9	219.0
1990–99 (ave)	5.1	3.2	13.6	0.008522	31.1	218.0
2000–04 (ave)	0.6	2.5	7.9	0.007692	30.2	191.6
2005	6.5	1.2	7.5	0.009154	34.5	197.6
2006	7.2	2.0	8.3	0.009038	38.7	196.6
2007	6.6	3.9	8.2	0.009762	39.2	198.0

Source: IMF (2008d)

Results

Unit root tests established all variables are non-stationary at their first differences. The results of bounds tests show the existence of a long-run relationship between real output, price, money, interest rate and exchange rate.

The estimated long-run equation by OLS for real GDP (output) as a dependent variable is shown as follows:

$$LRGDP_t = 1.185 - 0.833LP_t^{**} + 0.885LM2_t^{***} - 0.008LIR_t - 0.339LER_t^{*}$$
$$t = \quad (2.421) \quad (-3.009) \quad (4.986) \quad (-1.736) \quad (-2.179)$$

*, ** and *** indicate significance at 10 per cent, 5 per cent and 1 per cent levels, respectively.
Figures in parentheses are t-statistics.

In the regression equation, the coefficient of the monetary aggregate variable (M2) has a positive sign, which is also statistically significant. The coefficient which indicates the magnitude of the long-run elasticity of output with respect to money is 0.885. The coefficient of price has the theoretically expected negative sign and is also significant. However, the coefficient of interest rate, although with the expected negative sign, is not statistically significant. Exchange rate (units of US$ per one unit of vatu) is significant with a negative sign confirming that a fall in exchange rate would positively affect output.

Granger causality tests

Table 1.16 shows the results of the Granger causality tests in regard to the significance of the policy variables (money, interest rate) in explaining the variations in both output and prices, both in the long and short run. In the long run, monetary aggregate, interest rate, price and exchange rate significantly Granger-cause the real output, as evidenced by the significance of the error correction term (ECT) in the equation with LRGDP as dependent variable. The magnitude of ECT indicates the speed of adjustment of any disequilibrium towards a long-run equilibrium, which is 47 per cent within a year. However, ECT is not significant in the other four equations with price, money, interest rate and exchange rate as dependent variables, indicating that the long-run relationship exists in only one direction. That is, the linkage runs from money, interest rate, price and exchange rate to output and not otherwise. This also confirms the results obtained from bound tests that there is only one cointegrating equation, which was the equation with output as the dependent variable.

In regard to the short-run relationship in the equation, with RGDP as dependent variable, money, prices and interest rate Granger-cause output, while interest rate does not.

Table 1.16 Vanuatu: Granger causality test results

Dependent variable	*F-statistics*					*ECT (t-statistics)*
	ΔLRGDP	*ΔLP*	*ΔLM2*	*ΔLIR*	*ΔLER*	
ΔLRGDP	–	44.8203***	8.3153***	1.3421	7.2601**	-0.4673*** (-8.8366)
ΔLP	12.8028***	–	1.7185	0.7721	1.3377	-0.1281 (-1.4359)
ΔLM2	0.1384	0.3136	–	0.0285	0.2861	-0.0117 (-0.0071)
ΔLIR	3.7845*	0.4593	2.4283	–	1.8409	-0.3570 (-1.0241)
ΔLER	4.0488**	3.5529*	1.1668	2.3707	–	-0.1405 (-1.0222)

Note: *, ** and *** indicate significance at 10 per cent, 5 per cent and 1 per cent levels, respectively.
Figures in parentheses are t-statistics.

Variance decomposition analysis

For undertaking variance decomposition analysis, the study enters policy variables first followed by target variables: monetary aggregate (*LM2*), interest rate (*LIR*), exchange rate (*LER*), prices (*LP*) and real output (*LRGDP*). Results of variance decomposition analysis (table 1.17) show that substantial variation in output (about 70 per cent) is explained by prices in the first year, which slowly decreases in the long run (at 10-year horizon) to almost 27 per cent. Shocks to monetary measure (M2) and exchange rate explain about 28 per cent of variation in output in the second year after rising from 2 per cent in the first year. Thereafter, the influence of shock in monetary aggregate on real output decreases until the sixth year. However, it rises from the seventh year onwards with steady momentum to reach about 28 per cent.

As regards interest rate, its role is minimal in the initial two years. However, shocks in interest rate explain more of the variation in output in the fifth year, steadying around 20 per cent in the long run. On the other hand, shock to exchange rate has a sizeable impact on output in the first year itself, as it explains about 14 per cent of output variation; over the rest of the time horizon, its influence rises to a close 25 per cent and steadies around 22 per cent in the long run.

The variance decomposition of price analysis shows that more than 50 per cent of variation is explained by its own shock in the first three years. However, a substantial variability of the variance of the forecast error of prices (say, after 3-year horizon) is explained by monetary aggregate (more than 50 per cent) and followed by exchange rate (increasing to 30 per cent over the 10-year horizon).

Table 1.17 Vanuatu: results of variance decomposition analysis

Period	*SE*	*LM2*	*LIR*	*LER*	*LP*	*LRGDP*
			Variance decomposition of LRGDP			
1	0.0394	1.7411	4.0231	14.3221	70.2789	9.6348
2	0.0489	27.6795	6.9032	9.2772	47.4095	8.7306
3	0.0670	24.8611	17.0920	19.3205	33.7016	5.0248
4	0.0770	23.4635	22.5420	20.6219	29.5600	3.8127
5	0.0875	18.9058	25.4943	23.0904	29.5521	2.9575
6	0.0974	15.6399	25.4657	24.6098	31.3660	2.9186
7	0.1027	18.0403	23.8122	24.3426	30.9708	2.8341
8	0.1061	21.8457	22.3430	23.7445	29.4079	2.6590
9	0.1089	24.6770	21.1884	23.2013	28.3464	2.5869
10	0.1117	27.9269	20.1720	22.4325	26.9697	2.4989
			Variance decomposition of LP			
1	0.0179	1.6717	0.9312	0.6091	96.7880	0.0000
2	0.0300	9.9919	1.0101	16.8183	68.6512	3.5285
3	0.0364	31.0180	0.6884	11.9644	53.5209	2.8083
4	0.0469	54.4840	0.4160	11.1192	32.2858	1.6950
5	0.0562	62.1602	0.4165	13.6157	22.5683	1.2393

6	0.0656	62.6715	0.8927	18.6682	16.7669	1.0009
7	0.0718	60.2949	1.7312	23.1151	14.0212	0.8377
8	0.0771	55.7217	3.6311	27.1417	12.7614	0.7441
9	0.0815	51.9242	5.4226	29.7421	12.1833	0.7278
10	0.0840	50.0239	6.4168	30.9191	11.9513	0.6889
			Variance decomposition of LM2			
1	0.0947	100.0000	0.0000	0.0000	0.0000	0.0000
2	0.1237	84.2520	0.4884	8.5442	6.7116	0.0038
3	0.1528	63.1533	2.2818	24.5961	9.9547	0.0141
4	0.1806	49.4413	6.8915	33.9653	8.8753	0.8267
5	0.1963	47.1924	9.0727	34.6192	8.4007	0.7151
6	0.2101	46.0117	9.4972	36.3577	7.5073	0.6263
7	0.2174	44.3214	9.8924	36.8642	8.1829	0.7391
8	0.2213	44.1149	9.8021	36.8627	8.4675	0.7528
9	0.2215	44.1651	9.7823	36.8108	8.4557	0.7861
10	0.2219	44.0470	9.7967	36.7179	8.6543	0.7841
			Variance decomposition of LIR			
1	0.0931	0.0781	99.9220	0.0000	0.0000	0.0000
2	0.1088	4.8529	76.9065	16.8480	0.4777	0.9150
3	0.1238	9.1771	61.3696	27.8342	0.7818	0.8373
4	0.1500	25.4814	44.4508	28.2438	1.2533	0.5707
5	0.1828	31.5253	33.0524	33.3332	1.1165	0.9726
6	0.2061	34.5757	26.7725	36.5500	1.1509	0.9510
7	0.2108	34.6654	25.7914	37.5120	1.1045	0.9268
8	0.2115	34.5732	25.6877	37.5286	1.2257	0.9847
9	0.2133	33.9668	25.6257	37.7409	1.6982	0.9683
10	0.2218	32.3557	25.1315	38.5325	2.9158	1.0645
			Variance decomposition of LER			
1	0.0646	0.2627	27.4617	72.2756	0.0000	0.0000
2	0.0922	0.1880	36.9327	60.1108	2.6967	0.0719
3	0.1139	3.1832	35.9770	56.4567	3.8932	0.4899
4	0.1202	3.6330	34.5591	56.8305	4.5124	0.4651
5	0.1231	3.5206	33.5715	55.7652	6.6230	0.5197
6	0.1241	3.7356	33.0522	55.1474	7.3733	0.6914
7	0.1279	3.5500	32.5265	55.9752	7.2422	0.7062
8	0.1341	3.5362	31.9610	55.8770	7.8133	0.8125
9	0.1381	3.9330	31.6361	55.8691	7.7832	0.7786
10	0.1410	4.2699	31.2601	55.4710	8.2061	0.7929

Notes: Cholesky ordering: LM2, LIR, LER, LP, LRGDP. The study used different orderings of the variables concerned, but the findings are robust to changes.

Impulse response analysis

The impulse response function (IRF) for a horizon of ten years, based on VECM model, enables us to trace out the response of output to a shock in policy variable. The shock is represented by one standard deviation of the error term in the underlying structural model for the variable. Since all variables are measured in log forms, the impulse response functions trace out a growth rate relative to the base period when the shock occurred. Compared to Granger causality tests, IRF has an additional advantage, as it indicates whether the effect is positive or negative. For investigating IRF in regard to the output model by Cholesky decomposition, the variables are entered in the same order as we did earlier: policy variables first followed by target variable: monetary aggregate (*LM2*), interest rate (*LIR*), exchange rate (*LER*), prices (*LP*) and real output (*LRGDP*).

Figure 1.8 shows the response of output to shocks in policy variables (monetary aggregate, interest rate and exchange rate) and prices. The response of real output to prices is 'hump-shaped', that is, output declines over time with a trough and then it rises to its steady state. The response of real output to monetary measure decreases significantly for the first two years and is negative until the sixth year. After that the response increases substantially to become positive, reaching the peak in the eighth year and it stabilises in the next two years until the end of the time horizon. The response of the real output to interest rate is negative and decreases for the first three years and is then stable for the remaining time horizon. The response of the real output to exchange rate, however, is rapid, reaching its peak in the third year and then slowly decreasing to its steady state over the remaining time period.

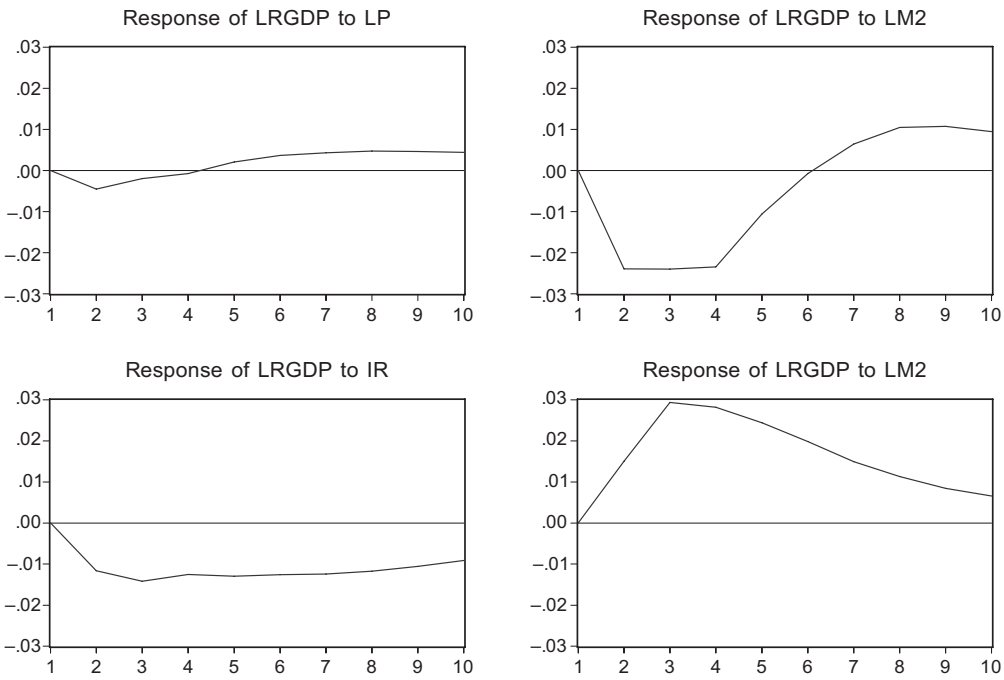

Figure 1.8 Vanuatu: impulse response function analysis for real output

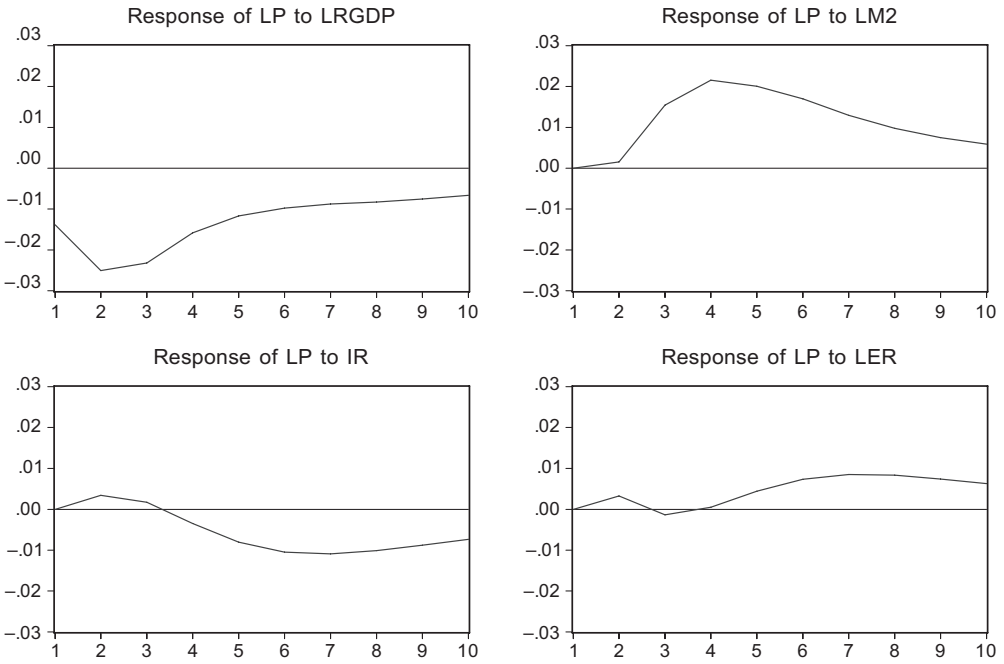

Figure 1.9 Vanuatu: impulse response function analysis for prices

Figure 1.9 shows the response of prices to shocks in policy variables (monetary aggregate, interest rate and exchange rate) and real output. Prices respond immediately to real output. It increases sharply in the second year and then slowly increases and eventually settling after seven years. As for the interest rate, the response is positive for the first two years. However, the response turns out to be negative and the trough occurs in the sixth year, and the magnitude of the response is small. Price is less sensitive to the exchange rate in the short run. The response increases, however, achieving its peak in the sixth year and remain stable over the remaining time horizon. The results are quite similar to the findings reported in the bounds test, Granger causality test and variance decomposition analysis.

Vanuatu's money market is shallow with a few players. It is dominated by government-issued treasury bills, just as the capital market is saturated with long-term government bonds. Further, there are no secondary markets for short- and long-term debt securities. Given these circumstances, the findings of the empirical study on Vanuatu are not surprising. The study findings are (i) although there is a long-run relationship between real GDP and policy variables, including monetary aggregate and interest rate, the linkage runs only from policy variables to target variable output; and (ii) interest rate has had no influence on RGDP either in the long run or in the short run. The conclusion is that monetary aggregate is more important than interest as a channel in transmitting impulses from the monetary sector to the real sector. The monetary policy transmission mechanism works through changes in money stock and interest rate changes have no role in determining the level of output.

Conclusions

Global economic downturn and PICs

The Pacific island countries are now experiencing the impact of the on-going Great Recession – a term coined by the United Nations to distinguish it from the Great Depression of the last century – which is the product of three crises (UNESCAP, 2009). These three crises are: (i) volatility in and surging food and fuel prices in early 2008; (ii) the financial crisis in the industrialised countries; and (iii) the climate change calamities. The first one precipitated rapid depletion of foreign exchange reserves of PICs, all of which are highly dependent on imports of food and fuel, with their limited export earning capacity confined to a narrow range of exports, with the exception of PNG. The financial crisis, which was in the first place ignited by the sub-prime mortgage loans in the US, then followed by loan defaults and burst of property prices bubble, all beyond the control of PICs and ultimately resulting in fall in economic activities and consequent decline in imports from PICs. The climate change calamities of early 2008, which included cyclones and flooding, inflicted severe damage to infrastructure and destruction of farms in PICs causing steep decline in production for subsistence living. The impact of global financial crisis on PICS is only through global recession. The latter led to fall in aggregate demand in all industrialised countries, which led to decline in demand for limited exports of PICs and tourism services, which are the mainstay of their foreign exchange earnings.

Growth forecasts

The growth forecasts for 2009 in the industrialised countries have been further revised downwards: contraction by 2.8 per cent in the United States, 1.4 per cent in Australia and 2.0 per cent in New Zealand (IMF, 2009). The declining number of jobs and employment opportunities and incomes in these countries, with whom PICs have trade relations, will have negative flow-on effects to the economies in the region (ADB, 2009). Aside from falls in exports to these rich countries, there will also be a fall in tourist arrivals. It was estimated earlier that there would be a decline in tourist arrivals in 2009 by 5.5 per cent for all PICs. However, the latest report by ADB (2009) reveals that on a year-on-year basis, total arrivals from Australia and New Zealand decreased by 13 per cent as of March 2009.

It is further forecast that Fiji may suffer a greater setback in tourism than initially expected, despite its recent devaluation of its currency by 20 per cent. Political developments in April 2009, which included sacking of judges, abrogation of the constitution and a clampdown on the press and other restrictions on individual freedoms, have been seen as serious impediments to growth in tourism. About 29.8 per cent decline in tourism is forecast for Fiji (ADB, 2009).

Vanuatu seems to have benefited from the diversion of tourist traffic away from Fiji in 2007 and 2008; however, the outlook is not encouraging. In the context of forecasted contraction in the two neighbouring countries of Australia and New Zealand, tourist arrivals as well as their spending are expected to decline. (Reserve Bank of Vanuatu, 2009)

As regards inward remittances the prospects for Samoa and Tonga, which contribute about 25 per cent of their GDP, are not bright due to deterioration in job markets in

USA, Australia and New Zealand. The US unemployment rate was high at 8.9 per cent in April 2009. In New Zealand, it reached a six-year high at 5.0 per cent in March 2009 and in Australia it was 5.7 per cent in March 2009. With the rise in joblessness, the overseas Samoan and Tongan residents are less likely to keep up the past tempo in remitting funds back home in months to come. The seasonal employment programmes for unskilled farm labour from Tonga and Vanuatu are, however, expected to alleviate the situation to some extent in these two PICs.

Decreasing exports and falling commodity prices

The global economic downturn with declining demand for mineral and non-mineral products has also ended the commodity boom. Two PICs benefited immensely from the high prices in the commodity market. It aided spectacular growth in GDP in PNG in 2007 (6.7 per cent) and in 2008 (7.3 per cent); and in Solomon Islands in 2007 (10.3 per cent) and in 2008 (7.0 per cent). While PNG's exports are more diversified with petroleum and gas and other mineral products along with agricultural exports including coffee, cocoa and tea (about 95 per cent of export earnings), Solomon Islands' exports were more in terms of timber (70 per cent of export earnings) and palm oil. With fall in demand for both mineral and non-mineral agricultural exports combined with drop in prices, both PNG and Solomon Islands would not be able to maintain the same level of export earnings and growth rates as experienced in the recent three years. In PNG, the kina export price index declined by 32 per cent in the final quarter of 2008 (ADB, 2009). Fall in log export price in Solomon Islands is likely, as signs of contraction in log importing industrialised counties are clear.

It was once held that since the financial sectors in PICs are insulated from the global financial crisis, PICs could possibly escape the impact of crisis. The second and third round effects of the global downturn are now fully felt, resulting in aggregate demand and fall in incomes in the originating economies being transmitted to the rest of the world. The PICs are no exception. Table 1.18 presents the forecasts for Fiji, PNG, Samoa, Solomon Islands, Tonga and Vanuatu.

Employment figures are not available.

Table 1.18 PICs: forecast for 2009

Country	*Growth rate % Forecasts*	*Trade balance % of GDP 2008*	*Import cover months 2009–Q1*	*Budget balance (% of GDP) 2009*
Fiji	-0.5	-35.8	2.7	-3.0
PNG	4.0	32.5	10.9	-2.9
Samoa	-1.0	-43.1	4.8	-5.5
Solomon Islands	2.2	-20.5	2.5	-3.7
Tonga	-2.0	-52.3	4.7	1.0
Vanuatu	3.5	-43.3	5.4	0.9

Source: ADB (2009)

Response to the crisis

Response to the decline in aggregate demand depends upon whether the country concerned has got any scope for expansionary policies, fiscal or monetary. The greater challenge is to ensure that spending on social protection is not compromised. While developed countries can consider and strengthen their social safety-nets, which include both unconditional and conditional cash transfers to poor households, and public works programmes (Ravallion, 2008), there is limited scope in developing countries, since they have little fiscal or current account leeway (Hostland, 2008). Further, many developing countries are facing much higher inflation rates, pressure on exchange rates to depreciate, and an outflow of international capital (Naude, 2009). The PICs are no exception.

The expansionary policies, in terms of fiscal stimulus and monetary easing, cannot be exactly replicated in PICs, since not all of them have any leeway for expansionary monetary or fiscal policies. There are limitations, which stem from the already entrenched constraints to macroeconomic management in PICs.[42] Except PNG and Vanuatu, all PICs have been running budget deficits in the last five years. Any attempt to raise domestic aggregate demand by running fiscal deficits with a view to offsetting declines in external demand will have disastrous effects and can only be inflationary, unless there is effective trimming of their budgets.

Fiscal stimulus: fear of twin deficits

Fiscal stimulus efforts will only widen prevalent trade deficits. They will exercise further pressures on exchange rates by a resulting drain on limited international reserves level, unless there are supportive measures in place. These are: (i) undertaking more vigorous revenue collection efforts; (ii) effecting changes in the current expenditure composition by cutting wasteful expenditures and ambitious projects; and (iii) diverting the saved resources towards labour-intensive and quick-yielding projects including rehabilitation and upgrading of infrastructure. While effecting these critical changes, governments should continue to keep in mind the interests of the already affected vulnerable section of the society.

Policy-makers should be aware of the need for fiscal restraint, when planning to spend the resources saved for a rainy day. PNG learnt the bitter lessons from the boom-bust cycle of the 1990s and has now had its windfall gains from commodity boom invested in trust accounts; there is optimism that the history of the 'lost decade' would not be repeated (Kamit, 2009). Vanuatu pursued wise budget policies, which yielded budget surpluses in a row during 2004–08. However, the fears of wastage are always present, when governments become enthusiastic with an eye on winning the next elections and get tempted to pursue expansionary policies of doubtful quality, as compensatory policies to promote domestic aggregate in the face of a fall in foreign demand. The note of caution struck by PNG's central bank governor is timely, which deserves full attention of the finance ministries in all PICs.

Borrowing options

In most of the PICs, major investment projects are being funded either by bilateral grants or multilateral grants from European Union and other donors and by loans on concessional

terms from Asian Development Bank and World Bank. The bilateral funding in greater amounts might not be readily forthcoming in the current circumstances, as the advanced economies are themselves in a resource constrained situation.[43]

Supplementing domestic resources with external borrowing is certainly an option open to all PICs, whose external debt levels are relatively low. ADB has already announced a scheme of financial assistance by way of short-term loans to its member countries[44] (ADB, 2009). All PICs, except Fiji are eligible to borrow on concessional terms from international lending agencies. Fiji, which is not eligible for loans on concessional terms as it belongs to lower middle income country, floated its first ever international bond for US$150 million. It was a successful issue as it was oversubscribed, thanks to a then favourable rating by Standard and Poor's and Moody's. In the changed circumstances of today, a repeat of the same effort would not be possible.[45]

On the other hand, PNG and Vanuatu have built up a fairly high level of international reserves through commodity boom in the case of PNG and through prudent fiscal policies in the case of Vanuatu. It is estimated that PNG's and Vanuatu's international reserves are equivalent to an import cover of 10.9 months and 5.4 months respectively. Additionally, PNG has been carefully managing its finances with low fiscal deficits (below 3 per cent of GDP); and Vanuatu's budgets have been running surpluses in a row since 2004. Consequently, therefore, both PNG and Vanuatu can afford to embark upon some fiscal initiatives of their own, However, they have been well advised by their respective central banks that any payouts in terms of wage rises should be avoided, as it only encourages consumption, which normally spills over into demand for foreign goods and assets.[46]

Monetary policy

Options for an easy money policy, either on their own or in combination with an expansionary fiscal policy, are clearly ruled out in all PICs. Although food and fuel prices fell in the later part of 2008, providing much relief to consumers and policy-makers as overseas inflation rates fell, the ever likely volatility in prices cannot be ruled out. Secondly, all PICs, including PNG, which has a managed float, target international reserves. Specifically, monetary policies of the five PICs other than PNG target nominal exchange rate as an anchor. Expansionary monetary policies would only aggravate inflationary pressures. Rise in private sector credit in Fiji, Solomon Islands and PNG was responsible for overheating the economy until late 2006. Although PNG has a flexible exchange rate regime, it does not rely on exchange rate as the only adjustment mechanism readily available to all flexible exchange rate regimes. A stable exchange rate or even preferably appreciation of exchange rate would be a buffer against inflation.

Secondary role

Monetary policy at its best can play only a secondary role in PICs, as they have to be watchful of their reserves. Any easing of monetary conditions by reducing interest rate for promoting private sector activities, without reference to the impact of fiscal spending, would fan growth in credit and result in higher imports, leading to widening trade deficits. Reserves of all

five PICs are below targeted levels: Fiji: import cover of 2.7 months against targeted level of 4 months; Solomon Islands: import cover of 2.1 months against the targeted level of 3 months; Tonga: 4.7 months of import cover against the target of 5 months. Only in Samoa, import cover of reserves equivalent was slightly higher by February 2009 at 4.3 months against the targeted level of 4 months.

Aside from the level of reserves, inflation provides another guiding indicator. Only if inflation is below the normally targeted level of 3 to 4 per cent could any monetary expansion be thought of. Already inflation is high in all countries: 10.2 per cent in PNG; 12.4 per cent in Samoa; 17.8 per cent in Solomon Islands; and 5.8 per cent in Vanuatu. In Tonga, there has been a rapid fall in inflation: from 12.8 per cent in May 2008 to 2.5 per cent in May 2009. It was mainly due to weaker New Zealand dollar, the main source country for Tonga's imports and fall in oil price. In Fiji, although inflation in regard to all items was less than 1 per cent in May 2009, prices of food items were recorded at 5.5 per cent (ADB, 2009; RBF, 2009).

Cautious monetary policy stance

Three PICs (PNG, Solomon Islands and Tonga) recently decided to continue their cautious monetary stance of not relaxing the conditions they adopted in 2008. In PNG, the central bank noted the clear signs of risks. These included a larger than expected depreciation of the kina exchange rate; delays in the passing through of low import costs to domestic prices by businesses; a rebound in international food and fuel prices; excessive government expenditure and a fast drawdown of trust account funds; a significant increase in consumer demand in the event of fresh wage increases, besides other unforeseen external and domestic shocks.

Consequently, the Central Bank of PNG (BPNG), in its latest monetary policy statement of March 2009, felt that despite signs of lower inflation overseas in 2009, the full impact of the global downturn on the country was uncertain. In the light of expected falls in export receipts exerting downward pressure on the exchange rate, the effect of potential depreciation of the kina combined with continued very strong domestic demand would only contribute to inflationary pressures in 2009. Therefore, BPNG decided to adopt a tight monetary policy stance in the first half of 2009, suggesting a similar tight fiscal policy (BPNG 2009). Further, cautioning that the magnitude of Government expenditure and its impact on banking system liquidity would be of particular concern, BPNG advised the government to reduce liquidity in the banking system by immediately transferring all trust account funds from the commercial banks to BPNG.

As regards monetary policy stance in Solomon Islands, noting that the current level of reserves was below the Bank's desired level sufficient to cover the predicted next three months of imports, the central bank in its May 2009 monetary policy statement announced that it would continue its past tight monetary policy, as it 'would prevent a hemorrhaging of reserves' (CBSI, 2009).

Tonga's central bank (NRBT) in its May 2009 press release as well as in its monetary policy statement clearly recognised the vulnerability of the economy to external shocks such as oil price increases, adverse weather conditions, and high dependence on imports

and remittances. It emphasised the importance of promoting exchange rate stability and therefore overall price stability. Although the country's reserve position has improved thanks to lower prices of imports facilitated by the weakening of New Zealand dollar, NRBT (2009) made it clear that any relaxation of monetary stance would only lead to 'a re-acceleration of credit growth which would put pressure on domestic resources, potentially leading to more inflation, higher imports and lower foreign reserves.'

The NRBT also took note of the increased incidence of loan defaults and wanted to maintain the financial health of the banking system. The NRBT indicated its past stance of maintaining tightened conditions by 'closely monitoring growth in lending and foreign payments obligations' and continuing the issue of NRBT Notes when necessary to ensure financial stability.' (NRBT, 2009)

Proactive policies

In Vanuatu, Reserve Bank of Vanuatu (RBV) tightened monetary conditions in 2008 in the face of inflation, which exceeded the targeted rate of 4 per cent. The RBV raised its rediscount rate by 25 basis points in September 2008 to 6.25 per cent. However, in the second half of 2008 RBV had to relax its policy stance, as the liquidity situation became a matter of concern with bank excess reserves falling to low levels. Accordingly, RBV reduced its rediscount rate to 6.00 per cent in December 2008 and took further steps to alleviate the tight liquidity conditions. These included reductions in liquid asset requirement from 8.0 per cent to 7.0 per cent and in the statutory reserve deposit (SRD) ratio from 8.5 per cent to 8.0 per cent in November 2008. The SRD ratio was further reduced to 5.0 per cent in January 2009.

By February 2009, Vanuatu's foreign reserves were at a comfortable level of 5.4 months of import cover, above the minimum import cover of 4 months. However, in the Monetary Policy Statement which was released in March 2009, RBV indicated a downward trend in tourism and export earnings. Consequently, a widening of current account deficit would exercise downward pressure on the stock of foreign exchange. The central bank decided not to relax the monetary policy stance any further.

Both Fiji and Samoa decided to ease monetary conditions in the first quarter of 2009. First, Fiji preferred to effect an exchange rate adjustment by devaluing the currency by 20 per cent on the ground that its exchange rate was out of alignment with the economic fundamentals. As there was a rapid decline in international reserves, Fiji felt it appropriate to devalue the currency.[47] Resorting to a change in nominal exchange rate led to rise in domestic inflation, as prices of all imported items went up. The reserves after revaluation went up to F$641 million in May 2009 compared with F$429 million at the end of March 2009.

As Fiji's reserves declined, money supply decreased and liquidity conditions became tight. The Reserve Bank of Fiji (RBF) lowered its statutory reserve ratio to 5 per cent from the previous ratio of 6 per cent imposed as part of monetary tightening in mid-2007. In addition, RBF successfully persuaded banks to freeze the lending rate at the December 2008 level and keep a spread of not more than 4 per cent, which actually resulted in raising deposit rates.

For easing monetary conditions, the Central Bank of Samoa (CBS) reduced its lending rate to the commercial banks from 7.8 per cent to 5.0 per cent, effective from February 2009. The term for such lending was increased from 7 days to 30 days. Further, the range of collateral instruments was extended to include a relatively wide range of acceptable assets. The CBS would be reviewing the situation once again when the new budget would be approved by the legislature.

That brings us to discussion of the renewed emphasis on co-ordination of fiscal and monetary policies at this critical juncture, when PICs face the impact of global downturn.

Need for co-ordination

By the enactment of the Central Banking Act 2000, BPNG has been given greater independence in choice of instruments. In the case of other central banks in PICs, the degree of autonomy varies from interference to obtaining approval of cabinet in changing the SRD ratio. Regardless of the autonomy question, what is now critically needed is frequent consultation between central banks and the ministries of finance. In the past, central banks were called upon at a later stage, when the economy used to get overheated with expansionary fiscal policies, often ending up with rise in public debt and sometimes in the monetisation of deficits, to perform the fire-fighting exercise to put down inflationary pressures.

PNG's central bank governor Kamit put it thus: 'Experience of the 1990s show that when there is excessive Government spending there can be downward pressure on the exchange rate and high inflation. And monetary policy is burdened with the task of restoring macroeconomic stability. That is, monetary policy could become preoccupied with the Government's debt management' (Kamit, 2009).

To conclude, BPNG's Monetary Policy Statement of March 2009 reflected the concerns of every central bank governor in the South Pacific region:

> 'The objective of economic stability will not be achieved by monetary policy alone. It also requires prudent management of fiscal policy by the Government within the budget framework and its medium term policies. Should export tax receipts be lower than projected, expenditure should be adjusted accordingly to avoid a reckless budget blowout. It should also avoid excessive recurrent expenditure and direct its expenditure effectively on the priority areas of health, education, law and order, and physical infrastructure, and reducing debt in line with the Medium Term Debt Strategy. Efforts should be made to improve implementation capacity for development expenditure and removal of other impediments to investment consistent with the medium term development, fiscal and debt strategies so that economic growth is sustained in the medium term'.

The conclusions from the monetary policy transmission mechanism studies conducted in PICs clearly shows that monetary aggregate has the dominant role in determining the output level. Hence monetary authorities have to work in close co-ordination with ministries of finance which are responsible for fiscal policies so that fiscal deficits should be at sustainable levels. At any rate monetisation of deficits is out of question at this critical juncture.

1.4 Financial sectors in PICs

Fiji

Fiji's financial sector (table 1.19) comprises the banking system, insurance industry and non-bank financial institutions. The banking system had a major setback in 1995–96, when the state-owned National Bank of Fiji (NBF) failed. The failure of NBF, which once accounted for one-third of total bank credit, was a wake-up call for the nation. Improvements in bank supervision and regulatory reforms were quickly undertaken. There are three non-bank licensed credit institutions (LCI), which cater to the credit needs of the private sector in various areas, including consumer credit, real estate, transport and storage, wholesale and retail trade. The insurance industry covers life insurance and general insurance. There are two life insurance companies, eight general insurance companies, and five insurance brokers with a large number of insurance agents.

Table 1.19 Fiji: financial system structure

	Assets (Fiji $ million)	*Percentage in total assets*	*Number of institutions*	*Percentage of GDP*
Commercial banks	4,007	41.7	5	81
Non-bank financial institutions	1,097	11.4	7	22
Offshore banks	–	–		–
Insurance companies	803	8.4	10	16
Pension funds	3,696	38.5	1	75
Total	9,603	100.0	23	194

A major proportion of assets of insurance institutions are invested in government securities as well as in term deposits with commercial banks. In addition to these institutions, there is a state-sponsored pension institution, known as Fiji National Provident Fund (FNPF), which collects a stipulated percentage of the salaries of employees in the formal sector matched by a similar contribution from the employers. The FNPF's investments are concentrated in fixed income securities, the bulk of which is in long-term government and government-guaranteed bonds issued by various state enterprises. The FNPF's short-term funds are kept with commercial banks as deposits of varying duration or invested in government short-term treasury bills, as the government and public enterprises have been the only source of financial securities. Fiji's stock market is at a nascent stage, handling a limited number of privately issued equity stock. There is no secondary market in these securities. Therefore, most of the holders of debt securities hold them until their dates of maturity.

Samoa

Samoa's financial sector is small, consisting of four commercial banks, two of which are subsidiaries of foreign banks, with a market share of about 80 per cent of total banking system assets. The other two banks, which are locally owned, have yet to establish themselves.

The non-bank financial institutions include a few foreign-owned insurance companies and locally owned credit unions, beside the state sponsored pension fund institution, known as Samoa National Provident Fund. Due to inadequate private sector initiatives, mainly hampered by lack of collateral, the pension funds are invested in government's treasury bills and public sector projects. The banking and non-banking institutions are supervised by the monetary authority, CBS. There is no stock market. Further, the only financial securities issued are those of the government, comprising short-term treasury bills and long-term bonds of different maturities. There is no secondary market in which these securities can be traded, so bond holders hold them until their maturity.

Table 1.20 Samoa's financial system structure

	Assets (millions in domestic currency)	*Percentage in total assets*	*Number of institutions*	*Percentage of 2008 GDP*
Commercial banks	751.1	49.8	4	65.1
Central Bank of Samoa	184.0	12.2	1	15.9
Development bank	129.7	8.6	1	11.2
Insurance companies	63.3	4.2	2	5.5
Pension funds (NPF)	346.9	23.0	1	30.1
Samoa Housing Corpn	21.1	1.4	1	1.8
Total	1,496.1	100	10	129.6

As banking activities are largely confined to the urban centres in which formal sector activities are concentrated, the deepening process of the financial sector over the period, as reflected in the ratios of narrow and broad money, has been slow. As the country has no vibrant bond and equity markets, there are no attractive financial assets other than savings and time deposits for savers to invest in.

Solomon Islands

As of December 2008, Solomon Island's financial sector consists of five institutions: CBSI, three commercial banks comprising one domestic bank (National Bank of Solomon Islands) and two foreign commercial banks (Westpac and ANZ), and one state-owned pension fund, the Solomon Islands National Provident Fund (SINPF) – see table 1.21. A few credit unions and a small insurance sector complete the financial sector.

Table 1.21 Solomon Islands: financial system structure (2008)

	Assets (millions in SI$)	*% in total assets*	*Number of institutions*	*% of 2008 GDP*
Commercial banks	1,841.5	65.7	3	45
Credit unions	31.4	1.1	8	1
Insurance companies	74.2	2.6	3	2
Pension funds (SINPF)	856.6	30.6	1	29
Total	2,803.7	100.0	15	77

As banking activities are largely confined to urban centres, in which formal sector activities are concentrated, the deepening process of financial sector over the period, as reflected in the ratios of narrow and broad money, has been slow. In the absence of vibrant bond and equity markets, there are no other attractive financial assets than saving and time deposits for savers to invest in.

Tonga

As of December 2008, Tonga's financial sector consists of five institutions: the NRBT, three commercial banks, and one state-owned development bank (table 1.22). Until 1993 only two banks operated in Tonga, including a state-owned development bank established to promote rural development by investing resources obtained mainly from external borrowing. Another of the commercial banks established in 1993 was a branch of a foreign bank; the other was a locally incorporated bank. A small insurance sector completes the financial sector.

Table 1.22 Tonga: financial system structure

	Assets (millions of pa'anga)	*% in total assets*	*Number of institutions*	*% of GDP*
Commercial banks	200.4	81.6	3	72.3
State-owned development bank	45.1	18.4	1	16.3
Insurance companies	n.a.	n.a.	6	n.a.
Total	245.5	100.0	10	88.6

Vanuatu

Vanuatu's financial sector includes RBV, four commercial banks (a government-owned bank, a locally owned bank and two foreign banks namely Westpac and ANZ), a number of trust and insurance companies, the Vanuatu National Provident Fund (VNPF), and several smaller financial institutions (table 1.23). In 2001, following a merger, the number of commercial banks dropped to four. At present, the largest bank has almost 70 per cent of total assets of the banks.

Table 1.23 Vanuatu: financial system structure

	Assets (billions of vatu)	*% in total assets*	*Number of institutions*	*% of GDP*
Commercial banks	43.1	11.2	5	147.2
of which: State controlled	2.7	0.7	1	8.5
Offshore banks	337.5	87.9	36	1,061.3
Insurance companies	0.5	0.1	3	1.6
Pension funds	3.1	0.8	1	9.7
Total	384.2	100.0	45	1,219.8

Vanuatu's OFC includes 24 offshore banks with offshore banking licences, and 16 insurance companies. Offshore banks are regulated by the International Bank Act (2002) and are supervised by the RBV, as are domestic banks. Offshore banks are not allowed to accept local deposits from, or make loans to, residents in Vanuatu. Prior to 2002, offshore banks were supervised by the Financial Services Commission.

Given the restrictions which apply to the ability of the offshore banks to deal in domestic currency and to do business with domestic banks, the commercial banks play a dominant role in the domestic financial system and the offshore banks have no direct impact on the conduct of monetary policy.

The activities of the offshore banks, nevertheless, are likely to have an indirect impact on monetary conditions. The 'trust funds' accepted from non-residents are usually deposited with one of the domestic banks. The banks, in turn, deposit the funds with banks abroad, primarily with their European or Asian offices. However, a small segment leaks into the domestic system, which then becomes part of the money supply. Domestic banks sometimes make loans in foreign currency to residents, mainly for expatriates and local businesses engaged in foreign trading, but the amount of foreign currency loans is small.

Notes

1. The 14 PICs are: Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. These 14 PICs, together with Australia and New Zealand, form the regional intergovernmental organisation known as the Pacific Islands Forum.
2. The crawling peg denotes adjustments by small amounts at a fixed rate or in response to changes in selective quantitative indicators, such as past inflation differentials vis-à-vis major trading partners.
3. A horizontal band is where the value of the currency is maintained within certain margins of fluctuations of at least +/- 1 per cent around a fixed central rate or where the margin between the maximum and minimum value of the exchange rate exceeds 2 per cent. A crawling band is where the currency is maintained within certain fluctuation margins of at least +/- 1 per cent around a central rate (or the margin between the maximum and minimum value of the exchange rate exceeds 2 per cent) and the central rate is periodically adjusted (IMF, 2008a).
4. This also raises the question of inconsistency among the objectives, if they include growth and high level of employment.
5. The requirements are: (i) there should be a mandate to pursue an inflation objective including sufficient central bank autonomy to set monetary instruments accordingly and transparency in policy formulation and implementation; (ii) inflation target will not be subordinated; (iii) country should have stable external position; (iv) the country should have maintained low inflation; (v) the financial system should be developed so that monetary policy is not sidetracked by concerns about the health of financial institutions; (vi) financial markets are well developed such that monetary policy is implanted with indirect instruments; (vii) there should be a clear understanding of the link between monetary policy stance and inflation so that appropriate instruments can be effectively implemented; (viii) exchange rate objectives must be clearly subordinated to inflation target; (ix) fiscal policy and public debt management should be co-ordinated in support of inflation target; (x) there should be a clear separation between money creation and government funding need (Carare et al., 2002).

6. Central banks in PICs aim at low inflation, not exceeding 3 to 4 per cent, and a stable exchange rate, within the allowable band of plus or minus of some reasonable magnitude. Tonga has larger amplitude with the band, not exceeding 7 per cent.

7. These include RBF Notes in Fiji, central bank bills in PNG, CBS bills in Samoa, Bokolo bills in Solomon Islands, NRBT bills in Tonga and RBV Notes in Vanuatu.

8. The Central Bank of Samoa (CBS) set an acceptance range for the tender rate, which was lower than the commercial banks lending rate, since the CBS securities are risk free. In the second half of 2005, when the economy got overheated due to a surge in domestic credit and increase in construction of government buildings and activities prior to South Pacific Games, and led to a rise in imports, reducing reserves to a precarious level, CBS issued its bills for absorbing liquidity. As the tender rate was less than the prevailing commercial bank lending rate, there were no bidders. The intended OMO did not take place and CBS could not succeed in its efforts to guide a rise in short-term interest rates (IMF, 2008).

9. The reason behind this suggestion was that CBS had to seek approval of the Cabinet for changing SRD ratio. This brings us back to the question of instrument independence.

10. The fiscal adjustment measures include: (i) effective expenditure control and budget monitoring; (ii) efficient revenue system; (iii) improved measures for responding to frequently variable non-tax revenue receipts and volatile aid inflows; (iv) re-directing aid moneys into capacity building investments by streamlining civil service and reducing recurrent expenditures; (v) careful debt management; and (vi) improving foreign earnings from a limited range of exports and services including tourism, by maintaining a competitive real exchange rate so that external debt servicing does not pose problems in the long run.

11. Section 4 of the Reserve Bank of Vanuatu Act of 1980 and further amended in subsequent years says:

    The principal objectives of the Reserve Bank of Vanuatu shall be:

    (a) to regulate the issue, supply, availability and international exchange of money;
    (b) to supervise and regulate banking business and extension of credit;
    (c) to advise the Government on banking and money matters;
    (d) to promote monetary stability;
    (e) to promote a sound financial structure; and
    (f) to foster financial conditions conducive to the orderly and balanced economic development of Vanuatu.

    Section 4 of the Central Bank of Solomon Islands Act of 1976 and amended subsequently lays down:

    (a) to regulate the issue, supply, availability and international exchange of money;
    (b) to advise the Government on banking and monetary matters;
    (c) to promote monetary stability;
    (d) to supervise and regulate banking business;
    (e) to promote a sound financial structure; and
    (f) to foster financial conditions conducive to the orderly and balanced economic development of Solomon Islands

12. The objectives of BPNG are laid down by the Central Banking Act 2000 in Section 4:

    (a) to formulate and implement monetary policy with a view to achieving and maintaining price stability;

(b) to formulate financial regulation and prudential standards to ensure stability of the financial system in Papua New Guinea; and
(c) to promote an efficient national and international payments system; and
(d) subject to the above, to promote macro-economic stability and economic growth in Papua New Guinea.

13. BPNG Deputy Governor Bakani (2009) specifically observed that while monetary expansion in the form of credit growth contributed to some extent to aggregate demand and therefore to inflation, the most influential factors on inflation in 2008 were increased food and fuel prices in 2007 and the first half of 2008 and their lag effect, and strong domestic demand.

14. While the currencies of Fiji, Samoa and Vanuatu are pegged to a basket of currencies of major trading partners, the exchange rate regime of Solomon Islands dollar is a crawling peg and Tonga's is within horizontal band of plus or minus 5 per cent (Creane et al., 2006). Solomon Islands has been following a de facto exchange rate pegged to the US dollar to keep inflation under control. Fiji's exchange rate until its devaluation by 20 per cent on 10April 2009 was allowed to move within the existing band from +/- 0.07%, which was once reportedly considered for expansion to +/- 2%.

15. A recent survey on monetary policy implementation conducted by IMF (Buzeneca and Maino, 2007) introduced six categories: (i) direct instruments, narrowing the focus on interest rate controls and limits on bank lending; (ii) reserve requirements, including practice of averaging reserve holdings and remuneration; (iii) statutory liquidity requirements in terms of liquid assets; (iv) central bank standing facilities in terms of short-term credit to banks, rediscount credits and deposit facilities; (v) discretionary monetary instruments, which cover open market operations in primary and secondary markets, including instruments such as foreign exchange swaps, credit auctions and deposit facilities.

16. 'The principal purposes of the Reserve Bank shall be:
(a) to regulate the issue of currency, availability and international exchange of money;
(b) to promote monetary stability;
(c) to promote a sound financial structure; and
(d) to foster credit and exchange conditions conducive to the orderly and balanced economic development of the country.'

17. There is no announced target by RBF for inflation; however, the government in the 2009 national budget has a target of 0–3 per cent.

18. Trimmed mean or underlying inflation is calculated using 70 per cent of the CPI basket. That is, 15 per cent of extreme price increases and 15 per cent of extreme price reductions are taken out of the CPI basket.

19. The underlying measure of inflation is also referred to as core inflation. This measure of inflation eliminates temporary price fluctuations and reflects permanent price changes that are mainly caused by supply side factors. In other words, high variance components are excluded from the aggregate inflation measure. Commonly, excluded components include wheat products, cereals, fresh fish, vegetables and root crops, preserved fruits, fruit, fruit juice, *yaqona*, dairy products and spices.

20. Inflation calculated using the overall CPI basket.

21. The RBF's OMO in RBF Notes has been discontinued since December 2006, as money supply was declining due to reduced level of international reserves.

22. The changes in PIR are expected to affect other interest rates in a number of ways. First, changes in PIR are expected to affect the money market rate (MMR), the interbank lending rate, and other short-term as well as capital market interest rates. Since the primary source of non-bank financial institutions is

through issuance of securities in the market, a change in PIR affects the cost of funds, which are raised through the issue of securities and accordingly their lending rates. Changes in non-bank financial institutions' lending rates affect commercial bank rates as they compete in the same market. The RBF Notes provide an alternative investment avenue for investors, as the latter can park their funds in. Therefore, commercial banks would find it imperative to offer a competitive rate for attracting/ retaining depositors. Thus, changes in PIR are transmitted to changes in deposit rates. Lending rates are thereafter adjusted in order for banks to maintain the interest rate spread between lending and deposit rates.

23. The RBF tightened its monetary policy stance in 2006. Following the first hike in October 2005 (by 50 basis points to 2.25 per cent), the policy indicator rate was raised by 100 basis points in February 2006 to 3.25 per cent and the MLR was raised to 4.25 per cent. In June 2006, PIR was further raised by 100 basis points to 4.25 per cent.

24. As PNG's currency was pegged to the Australian dollar, external stability was primarily achieved through stability of the exchange rate. When PNG switched on to a floating exchange rate regime the objectives had to be revised. The Central Banking Act of 2000 lays down 'maintaining the PNG international payments' as one of the objectives.

25. The pa'anga was pegged to the Australian dollar until 1991. The Asian crisis and the sharp drop in reserves in 1997–98 led the authorities to introduce a 2 per cent band in March 1998. In 2000, the band was widened to 5 per cent and the Japanese yen was included in the currency basket since Japan became more important as a trading partner.

26. Section 4 of the Act lays down that the principal objectives of the Bank shall be to
    (i) maintain internal and external monetary stability;
    (ii) promote a sound and efficient financial system.

    Subject to subsection (1), the Bank shall conduct its activities in a manner that supports macro-economic stability and economic growth. The principal functions of the Bank shall be to (a) issue currency; (b) formulate and implement monetary policy; (c) regulate as required the supply, availability and international exchange of money; (d) hold and manage the external reserves of the Kingdom; (e) provide advisory services to the Minister on banking and monetary matters; (f) be the principal banker, fiscal agent and depository of the Government; (g) undertake banking business, in Tonga or elsewhere, subject to the provisions of the Act; (h) regulate and supervise financial institutions; and (i) oversee and promote the efficient, sound and safe functioning of the payment system.

    Section 4 of NRBT Act of 1988.

27. During the financial crisis in 1998, the RBV issued a guideline that it would sell foreign exchange to the banks for current transactions only. In addition, in June 2001, the RBV enforced a regulation that it would sell foreign exchange to the banks in minimum amounts of US$1.0 million per client. In September the amount was lowered to US$250,000.

28. Under the fixed exchange rate regime, monetary conditions are influenced by net capital inflows. If net inflows persist, sterilisation to prevent the economy from overheating, though an option, is an expensive proposition (IMF, 2007), as consequent operational costs and interest payments would be a big drag on central bank finances. Further, when there is excess liquidity in economies with shallow financial markets with a small number of participants, OMO in government issued securities or the central bank's own paper would result in overshooting of interest rates and market volatility (IMF, 2004; IMF, 2005a). Therefore, the more effective way appears to be using rules-based instruments for containing credit growth to ensure that aggregate demand does not outpace the sluggish supply capacity in the short run.

29. In Samoa, the central bank has to seek cabinet approval for changing SRD ratios.
30. IMF (2005a) observes that there were insufficient market instruments for liquidity management, noting the then existing excess reserves were several times the stock of securities.
31. The study used monthly data (2001–06). Monetary data and price indices were available on a monthly basis for the period. In the absence of monthly data for GDP, a statistical procedure was used to generate the data.
32. This is a condensed version of Jayaraman and Choong (2009a).
33. The RBF decided to discontinue OMO in RBF Notes in December 2006, as the liquidity situation in Fiji became tight following a drop in net foreign assets. The RBF is expected to resume OMO when the situation changes.
34. The changes in PIR are expected to affect other interest rates in a number of ways. First, changes in PIR are expected to affect the money market rate, the interbank lending rate, and other short-term as well as capital market interest rates. Since the primary source of non-bank financial institutions is through issuance of securities in the market, a change in PIR affects the cost of funds, which are raised through the issue of securities and accordingly their lending rates. Changes in non-bank financial institutions' lending rates affect commercial bank rates as they compete in the same market. The RBF Notes provide an alternative investment avenue for investors, as the latter can park their funds in. Therefore, commercial banks would find it imperative to offer a competitive rate for attracting/retaining depositors. Thus, changes in PIR are transmitted to changes in deposit rates. Lending rates are thereafter adjusted in order for banks to maintain the interest rate spread between lending and deposit rates.
35. Broad money (M2) was also tried instead of M1, but it was found that the results were not sensible.
36. This is a condensed version of Jayaraman and Dahalan (2008).
37. This is a condensed version of summary of Jayaraman and Choong (2009b).
38. See Table 5 in Narayan (2005) for these critical values.
39. The optimum lag length is chosen based on the Akaike's information criterion.
40. This is based on Jayaraman and Choong (2009c).
41. The reason for using the nominal exchange rate, instead of real exchange rate, is that one can isolate changes in the nominal exchange rate on real economic activity separately from changes in prices, since the real exchange rate is already adjusted for changes in prices and using this variable would make it difficult to isolate price changes (inflation) from exchange rate changes (Dabla-Norris and Floerkemeir, 2006).
42. The Monetary Policy Statement of Central Bank of Solomon Islands (CBSI) released on 17 May 2009, indicating the monetary policy stance for next six months, duly recognised the limitations. The CBSI Governor made it clear thus: 'It would not however be appropriate for Solomon Islands to implement such a program at this juncture as the cost would be prohibitive, it would encumber the nation with further debts and provide very little boost to the economy given the supply constraints of the economy and the dependence on foreign demand' (CBSI, 2009).
43. The World Bank President called on industrialised countries to earmark 0.7 per cent of their fiscal stimulus packages to developing countries and contribute to a fund administered jointly by the World Bank and other regional development banks.
44. In May 2009, ADB announced establishing a US$3 billion Countercyclical Support Facility (CSF) that will provide short-term loans faster, and cheaper special program loan facilities, aiming at supporting

its member countries' fiscal spending to counter the crisis, if they lack the financial means to do so amid tight global credit conditions and a sharp increase in funding costs. Additionally, it will also make available a further $400 million under Asian Development Fund (ADF) Facility for providing concessional loans to poorer member countries, which include all PICs except Fiji being a middle-income country. The ADF resources are available to eligible countries through loans and grants. The resources will provide crucial budget support and funds to finance key development projects in poorer countries that are among the most fiscally constrained in responding to the crisis.

45. The international rating of Fiji has since become unfavourable due to a combination of factors, including political uncertainties and abrogation of its constitution on 9 April 2009.

46. Recalling the adverse effects of past spending spree during the 'lost decade' of the 1990s, PNG's central bank deputy governor warned his government: 'We have to avoid this. We may be going through this cycle again' (Bakani, 2009). The monetary policy statement issued by Central Bank of Solomon Islands (CBSI) in May 2009 also stressed the need for fiscal restraint (CBSI, 2009).

47. The pros and cons of devaluation of the currency as a likely remedy to halt the fall in international reserves during the current global crisis have to be carefully evaluated. If the exchange rate is out of line with macroeconomic fundamentals, the immediate option that could be thought of is correcting the fundamentals, such as reducing fiscal deficit by cutting of non-essentials, including overseas travel, and limiting growth in private sector credit.

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2

Fiscal Policy Frameworks in Pacific Island Countries

Paresh Narayan

2.1 Introduction

Historically, economic growth in the PICs has been relatively weak compared with other small island states, such as Mauritius. The economic growth rates for 1996–2005 are presented in table 2.1. Average growth rates over the last decade are below 5 per cent per annum; detailed socio-economic data are provided in appendix 2. In fact, economic growth rates in Fiji, Nauru, Vanuatu, the Solomon Islands and Tonga, have been less than 2.5 per cent per annum.

Table 2.1 Economic growth rate for PICs, 1996–2005

	Fiji	*Nauru*	*Tuvalu*	*PNG*	*Vanuatu*	*Kiribati*	*Samoa*	*Solomon Islands*	*Tonga*
1996	4.8	-7.3	-7.1	6.6	2.5	-6.6	7.3	2.5	0.0
1997	-2.2	-7.3	5.6	-6.3	8.6	6.8	0.8	-0.6	-3.2
1998	1.3	-1.9	19.7	4.7	4.3	15.3	2.4	1.0	3.5
1999	8.8	-1.9	-0.5	10.1	-3.2	7.0	2.2	-0.2	2.3
2000	-1.7	-0.1	13.4	–	2.7	4.0	6.1	-14.2	5.4
2001	2.0	0.6	5.9	2.7	-2.6	4.4	7.0	-8.2	7.2
2002	3.2	0.8	1.2	-0.2	-7.4	2.7	1.0	-2.7	1.4
2003	1.0	–		2.2	3.2	-1.5	3.1	6.5	3.1
2004	5.3	–		2.7	5.5	2.3	3.4	8.0	1.1
2005	0.7	–		3.3	6.8	2.5	5.2	5.0	-2.2
Average	2.34	-2.44	5.45	2.86	2.04	3.68	3.84	-0.31	1.86

Source: Asian Development Bank, 2007

The PICs have also failed to achieve a sufficient level of private investments to generate economic activity and employment. The successive national development plans of the PICs have stated their objective as achieving private investments of around 20–25 per cent of GDP in order to achieve an economic growth rate of 5 per cent per annum.

In terms of net foreign direct investment, plotted in figure 2.1 for selected PICs over the period 1988–2006, except for Vanuatu which achieved an average net foreign direct investment of around 9 per cent of GDP, for the rest of the PICs this performance is relatively poor. Unfortunately, the average private investment over the last decade has been less than 10 per cent per annum. The other downside of low investment levels is the loss of tax revenue.

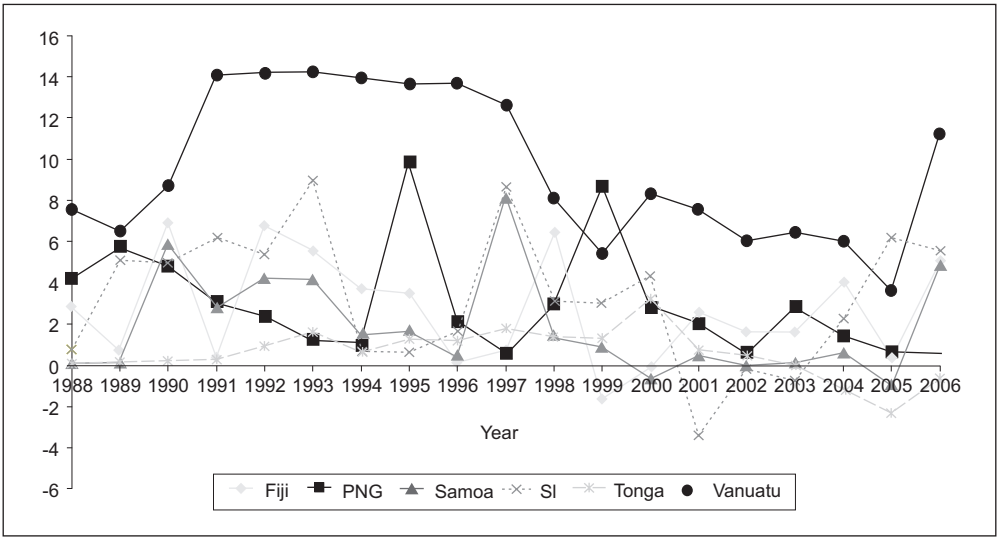

Figure 2.1 Foreign direct investment, net inflows (percentage of GDP)

It is clear that low investments, which in turn contribute to low economic growth, deprive PICs of additional revenue. This has implications for their fiscal policies. The goal of this chapter is to identify some of the key fiscal policy issues and challenges facing the PICs.

In the section 2.1, we outline the key issues and lessons learnt from the fiscal stance of the PICs. In section 2.2, we present an overview of the fiscal policies and strategies of the PICs. In 2.3 we discuss some country specific fiscal strategies adapted by the PICs. In the final section we provide some concluding remarks and policy recommendations.

2.2 Key issues and lessons learnt

Some of the main issues that impact on PICs fiscal policies and the success of such policies can be summarised as follows.

- Slow economic growth rates: historically PICs' economic growth performance has been poor, and over the most recent decade the annual average growth rate has been around 3 per cent. This has not attracted any meaningful private investments, depriving PICs of tax income.
- Persistent budget deficits: in the face of growing demand for public services and a stagnant revenue base, the PICs have had to rely on borrowing to finance their budget deficits. This has led to escalating debts, which have been a drain on fiscal policies and their success.
- Increasing civil service wage bill: this has been a growing concern for many decades. The bulk of government expenditures in many of the PICs goes to paying wages and salaries for the civil servants. In the absence of alternative sources of employment PIC governments, for political as well as social and economic reasons, have traditionally attempted to absorb the labour force into the civil service sector. This has led to a growing civil service. This again affects fiscal policies and their success.
- Political instability and democracy: over the last decade, a number of PICs have experienced political instability in the form of civil unrest and coups. Political instability is a fiscal cost to the PICs. There is loss of economic activity and loss of government revenues from political instability.

Given the issues identified above, it is clear that any success on the fiscal policy front will need to address the issues of slow economic growth, expanding budget deficits and national debts, excessively large civil service, and growing political instability.

2.3 Fiscal policy strategies in the PICs

The proliferation of trade agreements since the early 1990s has been notable and poses a number of interesting and difficult questions for the small PICs. An important feature of international trade arrangements between countries has been a significant expansion of regional trade agreements (RTAs) across the global economy. A number of acronyms, such as the WTO, the APEC, the FTAs, the IPPAs, the PICTA, the PACER and the Pacific REPA, have emerged. Some of these agreements are simply free-trade agreements, which involve a reduction in current tariff and non-tariff import barriers so as to liberalise trade in goods and services between countries. The most sophisticated agreement, namely the RTAs, goes beyond traditional trade policy mechanisms to include regional rules on flows of investment, co-ordination of competition policies, agreements on environmental policies, and the free movement of labour.

Although regional and international trading arrangements aim to promote economic integration and allow the members to reap benefits from specialisation, there is also the impact from structural and fiscal adjustment which cannot be avoided. The regional countries are heavily dependent on tariffs as a source of revenue for their government. However, under the regional and international initiatives, for countries to move towards free trade requires gradual removal of tariffs on imports and possibly zero rates of tariff in future. This implication is a fall in the government's revenue base. There is serious concern among regional governments that this tariff removal may place significant financial

adjustment costs on their respective fiscal systems. This has not motivated the PICs to speed trade liberalisation mechanisms.

In table 2.2 we present some data on customs and import duties and on taxes on international trade for three countries (Vanuatu, PNG and Fiji) for which data is available. In the first panel of table 2.2, evidence suggests that: (i) over the 1990–2006 period, import duties as a percentage of total revenue have declined for all the three countries; and (ii) customs duties still represent a significant share of total revenue: 41 per cent in Vanuatu and 24 per cent in PNG. A similar trend is noticeable in the cases of taxes on international trade. However, in the case of PNG, taxes on international trade have increased over the period 1990 to 1999. All in all, the data here suggest the historical reliance of PICs on import duties and more generally on taxes on international trade.

If revenue shortfalls occur, however, countries with sound administrative capacity will often be able to recover the losses by strengthening domestic indirect taxes, broadening the tax base, and increasing the efficiency of raising funds for the government (Keen and Ligthart, 2001).

Table 2.2 Customs and import duties, and taxes on international trade

Import/customs duties as % of tax revenue	*Vanuatu*	*PNG*	*Fiji*
1990	66.0	29.3	34.5
1999/2002/2006	41.1	24.4	16.9
Taxes on int. trade as % of tax revenue	*Vanuatu*	*PNG*	*Fiji*
1990	51.3	19.5	31.6
1999/2002/2006	33.6	26.4	15.9

Source: World Development Indicators, 2007

For the countries that are heavily reliant on tariff revenue, there is likely to be a serious negative effect on gross domestic product as government spending falls in line with the revenue loss, therefore impacting economic and social growth in the PICs.

To minimise the serious social and economic effects of a fall in revenues, the PIC governments need to undertake serious fiscal reforms in order to minimise fiscal disruptions. Baunsgaard and Keen (2005) stress that low-income countries, and particularly the least developed countries (LDCs), frequently lack adequate administrative capacity and a well functioning domestic tax system. They tend to rely heavily on trade taxes as sources of government revenue. Lowering or eliminating tariffs on trade with regional partners, therefore, can constitute a significant risk to a country's fiscal position. One solution available is to amend and restructure the tax and customs system which is perhaps one of the major fiscal adjustments to undertake in order to develop alternative sources of revenue and thus reduce the dependence on tariffs for revenue purposes.

It should be noted that in the PICs, the mechanisms for income tax (both individual and business) collections are weak. A number of studies have highlighted this to be the case and point out that current tax collections are perhaps only 60 per cent of the total

taxes owed to governments. It follows that one avenue for boosting governments' total tax revenue is to reform the tax collection mechanisms. In Vanuatu, for example, the IMF (2007a) estimates that lost revenue from taxes in 2006 was over 3.5 per cent of GDP.

The PIC governments will be required to implement either a valued added tax (VAT) or some other broad-based consumption tax as a means of broadening their revenue base. Narsey (2003) echoed similar sentiments and recommended the main strategies to the government as: conversion of key import duties to excise taxes (so-called 'sin' items such as alcohol and tobacco taxes, health taxes, and equity taxes); the broadening of the tax system by introducing (where they do not currently exist) consumption-based taxes (such as VAT), income tax (corporate and personal) and compensatory development finance in order to minimise the tax revenue loss from removal of tariffs.

Any increase in taxes or introduction of new taxes may result in, or be perceived to result in, some increase in the cost of living. Moreover, Scollay (1998) reported that 64 per cent of total tax revenue in Kiribati, 57 per cent in Vanuatu, and 46 per cent in Tuvalu came from tariffs; therefore, this considerable amount of revenue through tariffs. The restructuring of the tax system, including the introduction of value-added tax, would incur significant adjustment costs in order to carry out these fiscal reforms.

The revenue resource base is narrow in all PICs. Fiscal revenue in PICs is subject to volatility, particularly with respect to non-tax revenue (for some countries) and grants (for most countries) (see Borgne and Medas, 2007).

Non-tax revenue fluctuates widely as its base is subject to large shocks. Kiribati and Tuvalu are subject to higher volatility as their non-tax revenue as percentage of GDP is significantly larger than for other PICs. The share of non-tax revenue ranges from 50 to 54 per cent of GDP. In 2006, fishing licence fees accounted for 87 per cent of Kiribati's non-tax revenues in 2006 and 43 per cent of government's total revenues. Since the fishing licence fee changes from year to year, we notice high fluctuations in government revenue of Kiribati.

For most of the PICs (including Kiribati, Solomon Islands, and Samoa), half their public financing relies on grants. However, over the past five years, several of these countries have experienced significant rise and fall in grants, so there is a degree of uncertainty with respect to using grants for implementing fiscal policies.

Tax revenue tends to be more stable, but the size of the taxable private sector is often too small to compensate for the large volatility of other revenue sources. Direct tax revenue of PICs averaged about 17 to 25 per cent of GDP over the last decade. In most of the PICs, except for PNG, direct taxes contribute less than 10 per cent of total revenue. Vanuatu does not have direct taxation of any kind, either on personnel or corporate income or real estate duty. Hence, Vanuatu has depended only on indirect taxes.

The personal income tax and corporate income tax rates for selected PICs are provided in table 2.3. PNG has the highest income tax rate at 47 per cent followed by the Solomon Islands (40 per cent). There is relatively more consistency in the maximum corporate tax rate: in most countries it is 30 per cent, with Kiribati having the lowest corporate tax rate (25 per cent). The final column of table 2.3 reports the sales or VAT rates. Again, there seems to be more consistency among the PICs for using sales tax as a means of boosting government

Table 2.3 Tax rates in selected PICs

	*Personal income tax**	*Corporate income tax*	*Sales or VAT*
Solomon Islands	40	30**	15***
Fiji	32	30	12.5
Kiribati	35	25	0
PNG	47	30	10
Samoa	29	29	12.5
Vanuatu	–	–	12.5
Tonga	10	30	15

Notes: * denotes highest income tax bracket; ** denotes corporate tax rates for non-residents is 35 per cent; and *** denotes that the sales tax rate for rice is 5 per cent and for other consumption goods it is 10 per cent.
Source: IMF (2005)

revenues, with Tonga and the Solomon Islands having a sales tax of 15 per cent and Fiji, Samoa and Vanuatu charging 12.5 per cent. Kiribati is the only country which does not have any sales tax.

The tax systems of the many PICs are complex (including the multiplicity of tax incentive schemes), sometimes regressive, and reliant on trade-related revenues that are likely to decline. These could put pressure, over the medium term, on tariff revenue. Countries such as Kiribati, Solomon Islands and Tonga are most at risk because of their reliance on these types of revenue sources.

Many of the PICs have shifted to VAT from other indirect taxes, such as tariffs and trade taxes. VAT is a tax on consumption, rather than investment, and many orthodox economists supported the shift to VAT because they believe it would not distort incentive to invest as other types of taxes do. Yet VAT is also a tax on the formal sector. It is, therefore, not as effective in countries with large informal sector. This encourages many firms to remain informal while the development of the formal sector remains sluggish.

In addition, tax administrative capacity and compliance are often weak in the PICs, which poses long-term revenue sustainability concerns. The resource base revenue is also likely to decline in some of the PICs. For example, overfishing has gradually reduced revenue from fishing licence fees in Tonga and Kiribati, which in the later case declined from 54 per cent of GDP in 2001 to 28 per cent of GDP in 2006. Similarly, tax concessions and resource depletion are projected to reduce revenue from resource-based sectors, such as mineral and petroleum, in PNG. In some cases, PICs that are dependent on grants are further likely to be constrained as key donors have indicated their intention to cut down budgetary support over time.

The PICs, as a whole, have faced direct and indirect fiscal policy shocks. The direct shock results from the power of trade unions and a weak political economy, leading to large one-off wage settlements. For example, in Fiji the civil service unions were able to negotiate a wage increase of 10 per cent in 2006, and a one-off payment for retroactive pay adjustment. As a result, the civil service wage bill increased by 15.5 per cent in 2006. In

Kiribati, civil service wages increased by 8.3 per cent in 2005 after a five-year wage freeze. In Samoa, the government increased civil service wages by 42 per cent over a three-year period beginning in 2005. In Vanuatu, after a ten-year wage freeze government increased wages by 20–25 per cent beginning in July 2006.

The growth in wages and salaries has contributed to the growing salary bills in the PICs. In table 2.4, we present a comparison of regional wage and salary expenditures for selected PICs. We notice that the public sector wage bill as a percentage of GDP in the PICs has been almost double that in Asia and middle-income countries, like Malaysia, Mauritius and South Africa (see last two columns of table 2.4). A second observation we make is that the wage bill expenditure as a percentage of GDP is the highest in Vanuatu (12.1 per cent) followed by Fiji (11.5 per cent), the Solomon Islands (9.7 per cent), and PNG (9.2 per cent).

The indirect effect has roots in political instability. Several of the PICs have experienced intermittent periods of political instability. For example, over the period 1990–2006, Vanuatu has undergone 11 changes in government, followed by PNG, which has undergone six changes in government, Solomon Islands with five changes in government, and Fiji which has undergone three changes in government (see table 2.5). The final column of table 2.5 also reports the number of governing parties over the 1990–2006 period, and there is a similarly high frequency of changes. The implication of this government instability, which is effectively a measure of political instability, is the creation of an environment that is not conducive for private investments. Private investments in PICs has been weak; over the last decade (1996–2005), it has averaged less than 10 per cent of GDP against expectations in most PICs for private investments of around 20–25 per cent of GDP. The inability of PIC governments to attract meaningful investments has led to low economic growth rates. A sustained period of low economic growth rate has deprived PICs of the opportunity to expand their revenue base.

Table 2.4 Regional comparison of wage and salary expenditure

	Public wage bill % of GDP	*Public wage bill as % of total expenditure*	*Public employment as % of total employment*
Vanuatu	12.1	53.0	26.9
PNG	9.2	29.4	–
Samoa	8.3	24.5	–
Solomon Islands	9.7	24.5	27.9
Fiji	11.5	40.6	28.2
Asia	5.3	20.0	17.2
Middle-income countries	6.0	22.1	–

Source: IMF (2005, 2007a)

In fact, the gap between government revenues and expenditures in PICs has widened over the last decade. In other words, there has been an escalation of government deficits (see figure 2.2). Except for Kiribati, which has experienced budget surpluses (see figure 2.3), the rest of the countries have experienced persistent deficits over the period 1989–2005.

Table 2.5 Political environment, 1990–2006

	Number of changes in government	*Number of changes in governing parties*
Fiji	3	4
PNG	6	6
Samoa	2	0
Solomon Islands	5	6
Vanuatu	11	5

Source: IMF (2007b)

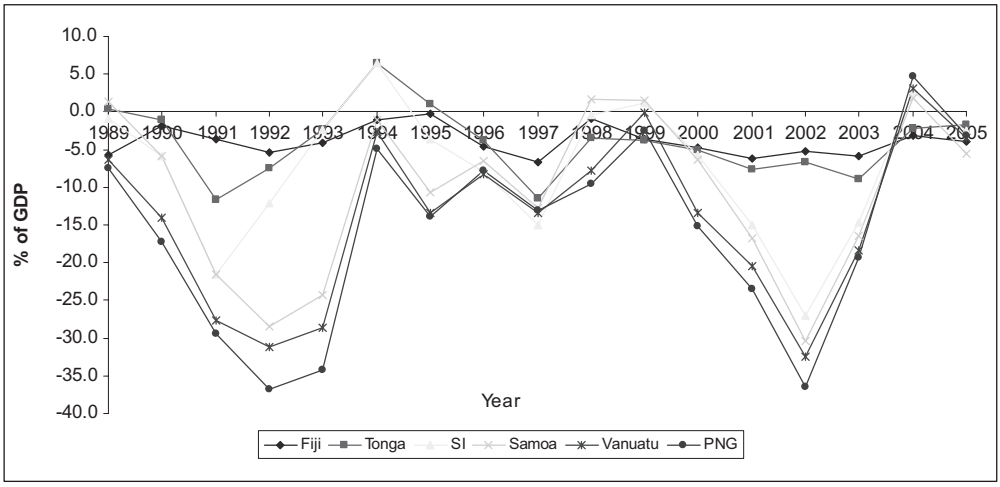

Figure 2.2 Government deficits as a percentage of GDP, 1989–2005

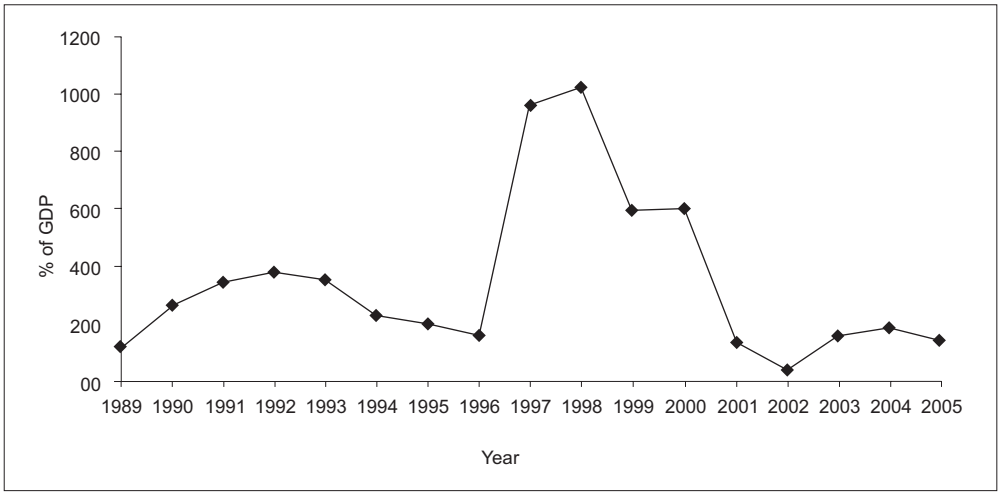

Figure 2.3 Government deficit as a percentage of GDP for Kiribati, 1989–2005

The fiscal space of PICs is greatly hampered by lack of economic activities, as reflected in their low private investment and low economic growth rates. Among the key reasons behind low private investments, apart from political instability as highlighted above, are the high cost of doing business in PICs and the absence of rule of law. Some selected indicators of business cost and rule of law are presented in table 2.6.

Table 2.6 Selected indicators of business costs and governance constraints

	Starting a business (cost as % of income per capita)	*Dealing with licences (cost as % of income per capita)*	*Enforcing contracts (rank out of 175)*	*Kaufman's rule of law index (from -2.5 to 2.5)**
New Zealand	0.2	27.2	15	1.93
Australia	1.8	13.8	7	1.83
Palau	4.9	6.8	151	0.77
Mauritius	8.0	13.7	109	0.82
Seychelles	9.1	51.3	73	-0.03
Tonga	10.3	174.6	126	0.18
Marshall Islands	18.1	37.6	103	-0.22
Fiji	25.8	41.7	86	-0.09
PNG	28.2	110.0	88	-0.76
Samoa	45.5	105.1	54	0.84
Kiribati	50.0	545.2	136	0.36
Solomon Islands	68.9	501.1	102	-1.01
Micronesia	135.9	21.3	139	0.44

Notes: *Minus 2.5 is the lowest and 2.5 the highest score.
Source: IMF (2007c)

The performance of PICs is weak relative to both developed countries in the region such as Australia and New Zealand and developing countries such as Mauritius. For example, the cost of starting a business in Fiji is three times higher than Mauritius and over five times more expensive than Mauritius in Samoa, Tonga, Kiribati, PNG, and Solomon Islands. In terms of enforcing contracts, PICs are ranked very low. Obtaining licences for business are equally expensive in PICs and they perform poorly on the rule of law index.

Environmental and economic vulnerability

The role of economic vulnerability arising from natural disasters is eloquently discussed in Adrianto and Matsuda (2002). Briguglio (1995) discusses a wide range of issues that make small states including PICs economically vulnerable; these factors include small size, limited endowment of natural resources, narrow export base, limited scope to exploit economies of scale, monopolies in key economic and service sectors making domestic firms and suppliers

inefficient and costly; proneness to natural disasters which affects commodity (particularly agricultural) supply commitments, lack of human capital, among others (see also Hein, 1990). Of the limited natural resources that these small states posses, there is a danger of resource depletion. Briguglio (1995) points out the cases of resource depletion in Fiji (gold), Vanuatu (manganese), Nauru (phosphate), and Trinidad and Tobago (oil). The implication for fiscal policy and indeed success is clear here. Natural resources, by virtue of making up a significant proportion of exports, are a source of government revenue. A decline in government revenue through resource depletion has negative implications for fiscal expenditures; see table 2.7 for the vulnerability index for selected PICs.

Table 2.7 Vulnerability of small states

Country	*Output volatility index*	*Rank*	*Composite vulnerability index*	*Rank*
Vanuatu	3.61	90	13.29	1
Tonga	13.18	4	10.44	3
Fiji	6.84	32	8.89	8
Solomon Islands	11.21	9	8.34	11
Samoa	6.92	30	7.37	20
Kiribati	16.6	1	5.08	59

Source: Commonwealth Secretariat (2000: table 2)

The fiscal space of PICs is impacted by the inherent environmental vulnerability of Pacific island states. Changes relating to the atmosphere and the ocean, triggered in large part by the El Nino phases, are particularly damaging for island countries. In the Pacific, Pelling and Uitto (2001) report that El Nino events have resulted in water shortages and drought in PNG, Marshall Islands, Micronesia, American Samoa, Samoa, Tonga, Kiribati, and Fiji.

Moreover, they argue that islands such as Tuvalu, Tonga, Samoa, the Cook Islands, and French Polynesia are more prone to cyclones. The greater degree of environmental vulnerability is a burden to the fiscal space of PICs. PICs already faced with fiscal imbalances are unable to respond effectively to challenges posed by environmental vulnerability. In some countries, the need to address environmental vulnerability is diverting key resources away from capital investments, thus further straining fiscal space of PICs.

Tisdell (2008) argues that while all Pacific island nations and territories will be adversely affected by sea-level rise, the extent and nature of its impact will vary with their geographical features. He points out that Kiribati and the Marshall Islands are most at risk of becoming uninhabitable as a result of sea-level rise. Tisdell (2008) convincingly argues that Pacific island states which have reasonably raised atolls or consist of high islands, such as Samoa and Tonga, are likely to be less affected by sea-level rise. Some countries, such as Fiji, PNG, the Solomon Islands, and Vanuatu, he argues, have enough high raised islands to relocate people from land lost to sea-level rise. However, he points out that in many of these countries, the low-lying areas are areas of high population density and economic activity. It follows that

from a fiscal policy point of view, this sea-level rise and the ensuing loss of productive land will be a further fiscal constraint (see also Mimura, 1999).

Impact of poverty on fiscal space

In tables 2.8 and 2.9 we report some social indicators for PICs. Based on data on HDI and HPI, they show that PICs have performed poorly. This is further reflected in poverty figures reported in table 2.9. Poverty levels are relatively high in the PICs. This implies that a lot of resources are needed to fight poverty and low standards of living in the PICs. This is a strain on government's budget and often social development in terms of fighting poverty and improving health and education status in the PICs is given less emphasis, mainly due to lack of financial resources. In large part, much of the development work relating to social development is contingent on donor assistance and NGO work.

Table 2.8 HDI and HPI indicators for Pacific island countries

	HDI			*HPI*	
Country	*1980s*	*1998*	*rank*	*1998*	*rank*
Palau	0.635	0.861	1	108	8
Cook Is	–	0.822	2	6.1	3
Niue	–	0.774	3	4.8	1
Fiji	–	0.667	4	8.5	6
Nauru	–	0.663	5	12.1	9
Tonga	–	0.647	6	5.9	2
Samoa	–	0.590	7	8.6	7
Tuvalu	0.495	0.583	8	7.3	4
FSM	–	0.569	9	26.7	12
Marshall Is	–	0.563	10	19.5	11
Kiribati	0.279	0.515	11	12.6	10
Vanuatu	–	0.425	12	46.6	13
Solomon Is	0.179	0.371	13	49.1	14
PNG	0.224	0.314	14	52.2	15
Tokelau	n.a	n.a	n.a	7.6	5

Table 2.9 Poverty headcount ratio (% of population below the national poverty line)

Country	*MDGI 1b: % of population below basic needs poverty line*			
	National	*Urban*	*Rural*	*Year & source*
Cook Islands	12.0	–	–	1998 HIES
Fiji	25.5	27.6	24.3	1990/91 HIES
	34.4	31.8	38.1	2002/03 HIES
Kiribati	50.0	51.0	50.0	1996 HIES
Marshall Is	20.0	–	–	1999 Census
FSM	27.9	29.5	32.9	1998 HIES
PNG	37.5	–	–	1998 HIES
Samoa	20.3	23.3	17.9	2002 HIES
Solomon Is	22.7	32.2	18.8	2005/06 HIES
Tonga	22.3	23.6	22.8	2001 HIES
Tuvalu	29.3	23.7	23.4	1994 HIES
	25.9	29.8	24.7	2004/05 HIES
Vanuatu	40.0	–	–	1998 HIES

Source: Secretariat of the Pacific Community (2004)

In a very detailed study of the challenges facing small states, Winters and Martins (2004) argue that on average micro and very small economies face huge competitive challenges. They point out that the environment in these countries is weak to the extent that these economies are unsuitable for industrial and in some cases tourism development. While some policy responses have been geared towards subsidising business investments in these countries in order to obviate the cost disadvantages of smallness, Winters and Martins (2004) argue against such a policy option. Their alternative is to search for another source of income, preferably from donors, which is likely to improve and make efficient infrastructure and utilities. They point out, however, that this is part of the challenge. The much broader challenge is rooted in higher shipping costs and thin markets for skills. Their solution for circumventing this is to allow small countries' exports to sell at tariff inclusive prices in industrial country markets rather than at world market prices. In sum then, the work of Winters and Martins (2004) provides a very clear picture of the situation in the PICs: the cost of doing business is relatively high. This coupled with intermittent political and or economic policy uncertainty is a constraint on government budgets, thus rendering a fiscal policy burden.

The role of fiscal policy in the PICs is large and challenging. Chowdhury and Vidyattama (2007) argue that in light of poorly developed infrastructure and lack of human resources, the role of governments in economic development in PICs is large, implying the importance of fiscal policy. Fiscal policy, through reductions in taxes (both private and corporate – direct and indirect), are used to stimulate consumption and investment. However, the impact of

tax policy is relatively mild given that most PICs suffer from weak investment and, generally speaking, unstable macroeconomic environment. These are not conducive for tax policies to prosper. Hence, generally speaking, taxation policies aimed at boosting investments and economic growth have failed. That fiscal policy is predominant in the region and that it has failed to achieve economic growth has come at a cost, that being high budget deficits which have resulted in escalating national debts.

One feature of urban development in PICs is urbanisation. With structural reforms in the PICs, and with greater emphasis on cash income, rural to urban migration has taken place. The speed of urbanisation has increased with globalisation. This has seen a shift away from agricultural production towards manufacturing and in particular service sectors, of which tourism is the key sector. Now, tourism has become one of the main sources of employment and income for many PICs. Urbanisation has exerted pressure on local and central governments for urban management of not only roads and utilities but also of housing. Generally speaking, there has been a lack of success on the part of the state to provide appropriate housing for rural to urban migrants, sparking an expansion in squatter settlements. This has put pressure on governments' scarce resources.

The advent and indeed growth of squatter settlement has been to a large extent responsible for the growth of the informal sector. The informal sector in the PICs is growing and in some countries, such as Fiji, it is large. In Fiji, for instance, Chand (2002) reports that in 1996 almost 37 per cent of the economically active population was engaged in the informal sector. In 1996 national poverty rate was amount 20 per cent, by 2007 it had reached 40 per cent. Given that poverty gives rise to the informal sector, it is reasonable to assume that over 50 per cent of Fiji's population is engaged with the informal sector. In addition, Reddy et al. (2006) report that informal sector employment is around 51 per cent of total employment.

2.4 Country case studies

Several PICs have sought to reduce their public finance by implementing difficult structural reforms. For example, starting in 1994, Samoa embarked on a politically difficult but highly effective and sustainable expenditure-led fiscal consolidation (combined with reform aimed at improving the efficiency of the tax system and revenue collection) coupled with structural reforms (including privatisation). Likewise, the Fiji government beginning in 1988 took a number of initiatives such as corporatisation and privatisation of public enterprise activities as a primary approach to reducing public outlays for quasi-commercial activity. In 1996, the government established the public enterprise and public sector reform. The primary objective of this unit was to facilitate the implementation of the public enterprise reform programmes as well as monitor the performance of the public enterprises. The government introduced a performance management system to replace the system of cost of living adjustments. Under this new system, employees were to be rewarded based on their performance rather than receiving an automatic annual pay increase. However, the unions have opposed the implementation of the scheme. In 2004, the government also abolished all permanent secretary posts of the government ministries and introduced chief executive (CEO) positions on a

contract basis. In 2007, fiscal consolidation measures were implemented and included: (a) a reduction of the operating expenditure through trimming the number of ministries and departments from 36 to 16, (b) cutting wages and salaries of civil servants by 5 per cent across the board; and (c) downsizing the civil service by lowering the retirement age and freezing all vacant civil service positions.

In 1997 the Vanuatu government approved an overarching programme of public sector reform to stabilise the budget while improving the quality of governance: the former was to be achieved via downsizing of the public sector, while the latter was to be achieved by increasing transparency and accountability in public sector management.

Similar reform policies were adopted by the Tongan government. In 2004, heads of the departments were placed on contracts with associated performance indicators. Reforms of the public enterprise were also undertaken.

Papua New Guinea and Solomon Islands are examples of countries that partly reduced vulnerability by undertaking fiscal adjustments. Some of the reforms introduced by Papua New Guinea government in the post-1980 period were as follows:

- The 1982/83 retrenchments (redundancies), and the Public Service (management) Act 1986, which redefined the role and powers of the Public Service commission, then created the department of personnel management, increased delegation of responsibilities to the department heads, introduced contracts for senior staff, and created a system of performance management;
- The abolition in 1986 of the national public expenditure planning system and introduction of the medium-term development strategy (MTDS) and public investment programme (PIP) system including the project cycle process;
- The 1987 resource management system (RMS); and
- The 1999 functional and expenditure review and a public service retrenchment programme associated with the 1999 budget.

Similarly in Solomon Islands, public service reform: the programme instigated by the government since 1997 has resulted in the trimming of the civil service. In 1998, the government made commitments to its debt servicing, ensuring that there were no interest arrears.

Since 1995, the Tuvalu government has also undertaken reform of the public sector including the corporatisation and privatisation of the government business.

With the escalation of public debts over the years, governments of the PICs understand the critical importance of having effective debt management strategies in place to both reduce the size of debt and maintain consistency in debt serving obligation.

For instance, the Fiji government is committed to pursuing its debt levels target of 45 per cent of GDP over the medium term. This will be achieved through consistent reduction in deficits with the ultimate aim of registering a balanced budget in the medium term. Debt policy is committed to improving the issuance of domestic and foreign debts to reduce loan servicing cost. The government is working towards strengthening its cash flow management in order to provide a more transparent and systematic approach to borrowing. With better and enhanced cash flow techniques, government should be able to borrow within the approved ceiling and also ensure sufficient support for contingencies and priority

expenditures. External debt management strategies are refined regularly to reduce exchange rate losses and other costs associated with borrowing abroad.

A similar approach is taken by the Vanuatu government. Since the capital market is shallow, any rollover of domestic debt could theoretically represent a fiscal risk to cash management. The government is making efforts to retire any domestic debts. For example, in 2003, the government used cash surplus to retire one domestic debt and eliminate its overdraft at the reserve bank of Vanuatu. In other words, Vanuatu used its savings to reduce the debt burden.

Other debt management strategies undertaken by PICs are: making commitments to debt repayment, assuring that there are no arrears on interest rates, and setting fiscal benchmark to achieve fiscal consolidation.

2.5 Financial crisis and the PICs

The global economic and financial situation has worsened to the extent that it is, among some analysts at least, considered worse than the 1930s' Great Depression. The credit crisis, which started from the USA, has spread to other developed countries, and this is affecting trade and other economic relationships between developed countries and their trading partner countries.

In terms of where the PICs stand relative to the global financial crisis, it is still early days yet since the impact of the full crisis has not yet flowed on to small island countries. The impact may come sooner rather than later since most of the PICs' major trading partner countries, such as the USA, Western Europe, Japan, and New Zealand, are already in recession. If the recession persists then the following impacts are likely to be felt by the PICs.

Tourism: the PICs, most of them, depend in large part on tourism as their main export activity. For these PICs the main source of tourists is the industrialised world: Australia, New Zealand, the USA, Japan, and Europe. And, since most of these countries are in recession, as the real impact of these recessions is felt, residents of these countries will reduce their travel for leisure. This will reduce the number of tourists visiting the PICs, thus negatively affecting foreign reserves, employment and incomes in the PICs (table 2.10).

Remittance: remittances have grown steadily for the PICs. In Tonga, remittances make up around 39.3 per cent of GDP. Remittances as a percentage of GDP are significant for Samoa (25.5%) and Kiribati (15%). For almost all PICs, remittances as a percentage of GDP have increased over the 1997–2005 period. A plot of the trend in remittances is presented in figure 2.4. Except for Vanuatu, an upward trend in remittances (measured in US dollars) is noticeable.

Aid: the PICs have a history of dependence on aid, both cash and in-kind, to fund a range of development activities. The official development assistance (receipts) for selected PICs is reported in table 2.11. Two observations are worth making. First, the ODA over the period 1997 to 2003 has increased for all countries except for PNG and Tonga, although in the case of Tonga only a marginal decline is observable. In 2002, the latest year for which consistent data are available, ODA per capita was highest for Niue at close to US$5,000 per year, followed by Nauru (around US$1,600). A large proportion of the ODA receipts

come from Australia and New Zealand. That Australia and New Zealand, as a result of the financial crisis, are in a recession does not argue well for the PICs. In light of this recession, the donors are likely to cut back on ODA to the PICs. This is likely to negative impact development work in the region.

In terms of policy reactions to the financial crisis, the PICs have not acted yet. This is not surprising. The full impact of the crisis has not been felt yet. Most importantly, the stimulus packages that have been implemented by countries like the USA and Australia will have implications for PICs. The hope is that these fiscal measures adopted by the major trading partner countries of the PICs will negate the negative repercussions of the crisis.

Table 2.10 Selected statistics on tourism, 2007

	*Ranking**	*Contribution to GDP*	*Employment (% of total employment)*
Solomon Islands	117	3.1	7.7
Fiji	19	10.3	24.5
Kiribati	156	5.4	4.4
PNG	159	5.3	4.3
Tonga	53	13.8	12.0
Vanuatu	10	38.8	34.9

Notes: * relative contribution to national economies

Table 2.11 ODA receipts from all sources for Pacific island countries (US$ million per annum)

Country	*1997*	*2000*	*2003*	*ODA per capita (2002; US$ per annum)*
Cook Islands	10.1	4.0	5.8	321.7
Fiji Islands	44.5	29.0	51.1	65.9
Marshall Islands	62.9	57.0	56.5	967.5
Nauru	2.6	4.0	16.1	1599.6
Niue	5.3	3.0	8.9	4977.6
PNG	346.4	272.0	220.8	42.53
Samoa	27.4	27.0	33.0	186.74
Solomon Islands	41.8	68.0	60.2	147.2
Tonga	27.6	19.0	27.5	281.23
Vanuatu	27.2	46.0	32.4	173.6

Source: PIFS (2005)

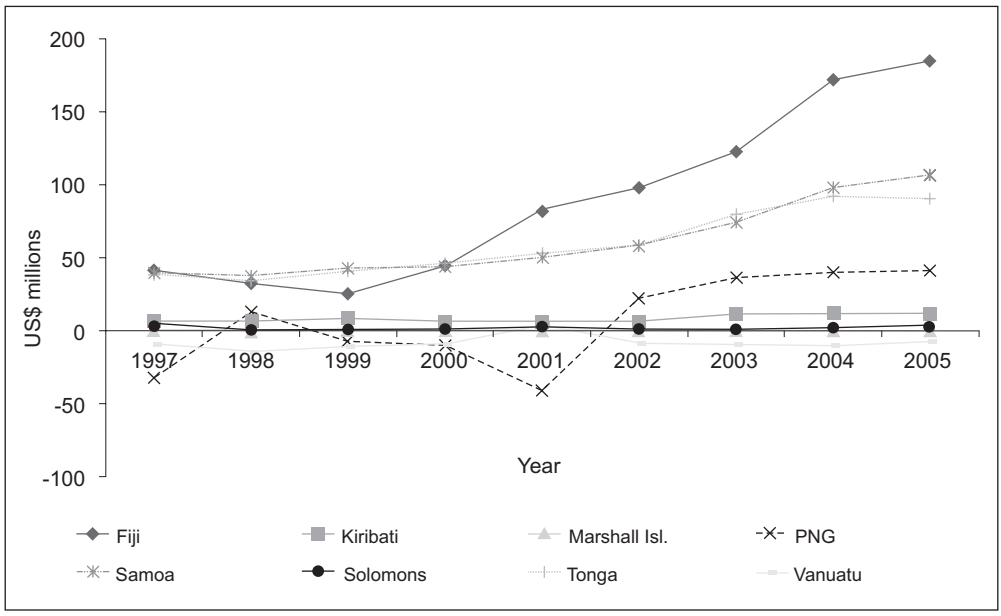

Figure 2.4 Trends in remittance for selected PICs, 1987–2005
Source: Data extracted from Browne and Mineshima (2007)

2.6 Conclusions and recommendations

There is a need to develop additional revenue sources. At present, given constraints for private investments, the PICs are unable to reap revenues from a wide range of sources. Developing appropriate incentives for export-oriented products including service sector activities, such as information, communications and technology, will increase business activity, provide employment for locals, and together will increases government's revenues from both corporate and individual income taxes and from production and consumption related taxes such as the VAT.

There is a need to ensure financial stability. It is true that the PICs have performed poorly in terms of a sustained period of low economic growth. It is equally true that much of this growth has been consumption driven, which is perceived to be unsustainable. Since the bulk of consumption goods are imported, the bulk of the spending on consumption goods is not on locally produced goods. This means that despite high consumption expenditures, government is only able to collect revenue from import duties. With trade liberalisation, there is a serious concern that income from import duties will decline; this has already started taking place, putting fiscal strain on the PICs. One way out of this situation is to encourage domestic production of those goods in which PICs have a clear comparative advantage, including stimulating their tourism and related service industries. This will minimise the impact of revenue loss from import duties and boost government's revenues from the local economy through fiscal measures (income tax and VAT collections).

There is a need to build fiscal space. With growing demand for social services and a stagnant revenue base, the PIC governments' budget deficits have persisted for a long time period. To meet their spending obligations, the PIC governments have relied on domestic and external funding, thus leading to large and escalating debt levels, which in the PICs stands between 40–70 per cent of GDP. There is a need for more prudent expenditure allocation, away from consumption-based activities to capital investments. This will create fiscal space for higher development spending.

The high and rising civil service wage/salary bill needs to be reduced. For over a decade, calls have been made, both from domestic policy-makers and international organisations such as the International Monetary Fund and the Asian Development Bank, for reforms of the civil service sector. The bulk of governments' expenditures go to civil service wages and salaries, and there is a need to control wage and salary bills to provide fiscal space for expenditure allocations to capital projects.

There is a need to improve public financial management. Corruption, poor governance, lack of accountability and transparency are crucial issues in the PICs management of public finance. On any ratings on corruption and governance, the PICs perform poorly. Mismanagement of public finances is common. The PICs need to implement stringent measures to deal with mismanagement of public finances. This will ensure more efficiency in not only revenue collections but also in project implementation and outcomes. This will ensures greater fiscal space and capacity.

The trade agreement initiatives by regional countries is often seen as beneficial to the trading partners but most regional trade agreements do not foresee or implement provisions for revenue sharing or revenue loss compensation. This often has an adverse impact on their fiscal balance as they cannot rely on designated resources from regional partners; therefore, to cope with the revenue shortfalls complementary policy reforms have to be undertaken. Reforms in the areas of customs collection through better compliance with existing regulations is one way to offset the revenue losses or a more comprehensive reform measures such as broadening of the tax base to shift revenue generation away from trade taxes is the other option. Such fiscal reforms are not easy to design and implement because these fiscal reforms come at a serious adjustment costs. The cost aspect needs to be considered thoroughly.

There is a need to build a stable political environment and respect for rule of law which will ensure an environment conducive for economic growth. A stable political environment with respect for rule of law will boost fiscal space of the PICs.

Finally, a key determinant of fiscal space is the cost of doing business. Our analysis revealed that starting a business in PICs is extremely costly compared with neighbouring developed countries and other developing countries. It follows that there is a need to reform institutions that have the responsibility of dealing with investors.

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3

Macroeconomic Performance in Six Pacific Island Countries

TK Jayaraman

3.1 Introduction

The six Pacific island countries (PICs) under study are members of the Pacific Community, which comprises 22 political entities. Eight of these are territories of and administered by major powers, including United Kingdom. There are 14 independent states and eight territories. The territories are administered by major powers. The 14 independent states are the members of the intergovernmental organisation known as the Pacific Islands Forum.

The Pacific Community straddles both the International Date Line and the equator, ranging from the Republic of Marshall Islands in the north to Tonga in the south, and from Papua New Guinea (PNG) in the south-western Pacific to Cook Islands in the south-eastern Pacific. They have a combined total land area of 0.53 million square kilometres (sq. km), most of which is accounted for by PNG (0.46 million sq.km). The smallest territory is Tokelau (12 sq.km). PNG has the largest population in the region with close to 6 million people and the territory of Pitcairn has the lowest population of 60.

Private sector development in all PICs has been seriously hampered by the communal land tenure system, unique to all Pacific islands in terms of the communally held land which cannot be freely bought by or sold to any private individual for land-based activities. The commercial banks find it difficult to lend to any land-based activities, including hotel and resorts, in the absence of land as collateral. Among the 14 members of Pacific Island Forum, six of them have independent currencies and are the focus of this book. While PNG switched from a two-decade-old fixed exchange rate regime to a floating exchange rate in 1994, the other five – Fiji, Samoa, Solomon Islands, Tonga, and Vanuatu – continued with their fixed exchange rate regimes, with periodical adjustments in nominal exchange rates, adopted soon after their independence in the 1970s.

The six Pacific island countries display a high degree of diversity in terms of land area, natural and human resource endowments, manufacturing base and export capacity. Among the six PICs, PNG has mineral resources of substantial range and nature, including petroleum and gas, which none of the other five can boast of. Vanuatu is the tax haven in the region, with flourishing offshore financial institutions. Fiji and PNG are the only two

Table 3.1 Pacific island countries: macroeconomic statistics, 1996–2008

	1995	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Real GDP growth rate (%)														
Fiji	2.1	4.8	-2.2	1.3	8.8	-1.6	1.9	3.2	0.9	5.5	0.6	3.4	-6.6	-1.2
Papua New Guinea	-3.3	6.6	-6.3	4.7	1.9	-2.5	-0.1	-0.2	2.2	2.7	3.7	2.6	6.7	7.3
Samoa	6.6	7.3	0.8	2.4	3.1	7.1	8.1	1.8	3.1	3.4	5.2	2.6	6.1	3.3
Solomon Islands	5.4	1.9	-1.7	3.2	-1.6	-14.2	-8.2	-2.8	6.5	8.0	5.0	6.1	10.3	7.0
Tonga	2.9	-0.5	-3.2	3.5	2.3	5.4	7.2	1.4	3.4	1.1	-3.3	4.4	-0.3	1.0
Vanuatu	4.7	7.2	8.6	4.3	-3.2	2.7	-2.6	-7.4	3.2	5.5	6.5	7.2	6.6	5.7
Inflation (%)														
Fiji	0.3	4.9	3.4	5.7	2.0	1.1	4.3	0.8	4.2	2.8	2.4	2.5	4.3	7.5
Papua New Guinea	17.3	11.6	4.0	13.6	14.9	15.6	9.3	11.8	14.7	2.2	1.8	2.4	0.9	10.6
Samoa	-2.9	5.4	6.9	2.2	0.3	1.0	3.8	8.0	0.1	16.3	1.8	3.7	5.6	6.5
Solomon Islands	9.8	11.8	8.1	12.3	8.0	7.1	7.7	9.4	10.0	7.1	7.3	11.2	7.7	15.1
Tonga	-0.5	2.7	2.0	3.0	3.9	5.3	6.9	10.4	11.1	11.7	9.9	7.3	5.1	10.0
Vanuatu	2.2	0.9	2.8	3.3	2.0	2.5	3.7	2.0	3.0	1.4	1.2	2.0	3.9	4.5
Budget balance (% of GDP)														
Fiji	-0.2	-4.7	-6.5	5.0	-0.3	-3.2	-6.5	-5.7	-5.8	-3.1	-3.4	-2.9	-1.3	-1.5
Papua New Guinea	-0.5	0.5	0.2	-1.8	-2.4	-1.8	-3.0	-3.3	-1.0	1.6	0.0	3.1	2.5	1.0
Samoa	-7	1.4	2.2	2.0	0.3	-0.7	-2.2	-2.0	-1.3	-0.8	0.3	1.1	-0.3	
Solomon Islands	-4.6	-4.3	-4.2	-1.6	-3.7	-7.5	-12.3	-10.3	0.2	5.1	2.5	1.5	-1.1	NA
Tonga	1.2	0.9	-4.8	-2.4	-0.2	-0.4	-1.8	-1.4	-3.1	0.9	2.4	1.5	1.5	-1.0
Vanuatu	-2.7	-1.7	-0.5	-9.4	-1.5	-7.0	-3.7	-2.2	-1.8	1.2	2.1	1.2	-0.3	NA
Current A/C balance (% of GDP)														
Fiji	-0.9	3.1	4.3	4.8	2.2	-6.9	-7.0	-1.2	-6.1	-13.6	-14.0	-22.6	-15.5	-21.3
Papua New Guinea	18.3	5.6	-5.4	0.9	2.8	8.5	6.5	-1.0	4.5	2.2	4.2	2.9	4.3	3.3
Samoa	NA	NA	7.2	6.6	2.3	4.4	-2.7	1.9	-0.5	-7.1	-6.6	-10.8	-4.6	-7.8
Solomon Islands	3.7	3.1	-5.3	-1.7	6.9	-10.1	-9.4	-6.5	-9.1	-23.5	-9.8	5.6	-2.8	-6.8
Tonga	-11.3	-6.1	-0.9	-10.9	-0.6	-6.2	-9.5	5.1	-3.1	4.2	-2.6	-9.7	-10.4	-10.4
Vanuatu	-2.2	-2.3	-1.0	2.5	-4.9	2.0	2.0	-5.4	-6.6	-5.0	-7.4	-5.7	-9.9	-11.4
Change in money supply (%)														
Fiji	4.5	0.9	-8.7	-0.5	13.6	-1.5	-3.1	7.8	25.0	10.5	15.1	20.2	10.3	4.9
Papua New Guinea	13.7	30.7	7.7	2.5	9.2	5.0	6.2	7.3	-4.4	14.8	29.5	38.9	27.8	21.6
Samoa	24.4	6.3	15.2	2.5	15.7	16.3	6.1	10.2	14.0	8.3	15.6	13.7	11.0	6.9
Solomon Islands	9.2	15.3	6.7	2.5	7.0	0.6	-13.6	6.0	25.4	17.5	38.0	26.0	23.6	9.7
Tonga	0.7	5.3	6.6	14.8	12.0	18.7	14.3	8.3	14.5	13.9	22.1	5.4	13.5	10.1
Vanuatu	13.3	10.1	-0.3	12.6	-9.2	5.5	5.5	-1.6	-0.9	9.9	11.8	7.0	16.0	12.8

Source: UNESCAP (2009, 2008)

PICs which have some significant manufacturing activities. Tourism has been the major foreign exchange earner for Fiji and Vanuatu, while remittance inflows (from citizens who are employed overseas) are the dominant contributor to gross domestic output (GDP) of Tonga and Samoa. All PICs depend on annual official development assistance. In recent years, in terms of percentage of GDP, Solomon Islands has been the highest recipient of foreign aid.

Growth in PICs has been historically low at about 2 to 3 per cent per year in past decades. During the last eight years, improved performance was recorded by most of them (table 3.1). While world commodity boom until mid-2008 mostly benefited PNG, implementation of reforms in various sectors helped all PICs record better macroeconomic performance. However, lack of diversification in export sector with high commodity concentration on one or two items such as sugar and fish, and discontinuance of preferential treatment for traditional exports such as sugar and withdrawal of quota arrangement for garments, have had adverse effects on balance of payments in most of the PICs. Inflation has been kept low, mainly because their imports are sourced from Australia and New Zealand, whose monetary policies have been targeting inflation. Official development assistance and private remittance inflows provided considerable support to their balance of payments. Macroeconomic performance of each of the six PICs is reviewed in the next section.

3.2 Fiji

Fiji (population 853,000), whose key indicators are given in table 3.2, is the leading economy in the South Pacific region. It shares many commonalities with the rest of the PICs including communal land tenure, under which land is not an economic good as it cannot be freely sold and bought, and proneness to natural disasters, including droughts, cyclones and floods affecting one part or another of the country every year (Jayaraman and Choong, 2006a). Fiji's leading position among all PICs is due to its significant manufacturing base, a relatively large endowment of skilled labour and trained professionals and a thriving services sector, encompassing tourism and commercial activities, both retail and wholesale. Manufacturing activities include production of sugar, traditionally meant for exports under preferential trading arrangements with European Union, and consumer goods such as biscuits, detergents and cooking oil for domestic consumption as well as export to other island countries. Being centrally located in the regional map with better airline connections, Fiji has had a clear head start in South Pacific tourism, right from the early days of air travel, attracting far greater foreign direct investment in hotel and resort activities than other island countries in the region.

Fiji has a fixed exchange rate regime, which has served the country well. Since most of the imports have been sourced from Australia and New Zealand, domestic inflation has remained low. With no mineral resources, Fiji is heavily dependent on imports ranging from wheat flour, rice and other items of food and beverages, to fuel and capital and transportation machinery and equipment. Fiji's exports have been sugar, garments, *kava*, a non-narcotic beverage root crop, spices and gold. Export earnings have been far less than imports with the result that trade balance always remained negative. However, tourism earnings and

Table 3.2 Selected key indicators in Fiji

Land area (sq.km.'000)	18.3
Population (2006: '000)	853
Per capita GDP (US$) current prices: 2006	3,306
Aid per capita in US$ (2006)	65
Aid as % of GDP (2006)	1.8
Human development ranking (2006)	106
Annual growth rate in % (2001–07)	1.3
Annual growth rate inflation in % (2001–07)	3.0
Overall budget balance as % of GDP (2001–07)	-4.1
Current account balance as % of GDP (2001–07)	-11.4

Source: ADB (2008), UNESCAP (2008, 2009)

in recent years, remittances have provided substantial support to country's current account balance, minimising pressures on the fixed exchange rate regime.

Fiji's economic growth since its political independence in 1970 until 1986 was steady despite the adverse effects of annual natural disasters. In the first decade of its independence (1970–79), the annual average growth rate was a close 6 per cent. Following the two military coups in 1987, economic growth was on the decline, as tourism was adversely affected while the country remained isolated by the world community and the investment environment became unattractive to overseas investors. In order to prevent capital outflows following the deterioration in political climate, the interim government imposed severe exchange controls on various transactions. The government took another major step: it devalued the Fiji dollar in two steps, totalling about 33 per cent. Further, there was a shift in emphasis on economic strategy. It deregulated the economy to bring domestic prices in line with world prices by abolishing subsidies with a view to encouraging Fiji's external competitiveness.

Although democracy returned with elections in 1990, the atmosphere was one of uncertainties all around until 1997 when a new constitution was adopted, paving the way for recovery. However, much damage had been done by then, as out-migration of skilled workers had reduced Fiji's human capital (D'Hoore, 2006). The continued state of weak investment climate and political sanctions against Fiji affected capital inflows. Consequently, current account in the balance of payments suffered serious deficits. In 1998, in the wake of the Asian financial crisis, the authorities resorted to devaluation of the currency by about 10 per cent, adversely affecting export earnings.

Following the adoption a new constitution in 1997, fresh elections were held in 1999. Before the newly elected government could settle down, investor confidence was given yet another jolt in 2000, this time by a civilian coup. Once again, the international community applied sanctions against Fiji, which included suspension by the Commonwealth. As a result, tourism earnings decreased and FDI inflows became scarce. Economic growth declined by 3 per cent in 2000. The central bank, Reserve Bank of Fiji (RBF), imposed credit ceilings

on bank lending, raised its lending rate and clamped exchange controls with a view to conserving foreign reserves, as the exchange rate came under pressure.

Order was restored when fresh elections were held in 2001. With the guidance of a coalition government, the next five years witnessed steady recovery. Economic sanctions were lifted and the country was readmitted to the Commonwealth. Tourism boomed again and the newly emerged garment industry flourished as exports to USA and EU under quota arrangements grew. However, the sugar industry lagged behind, as leases had expired without renewal. Poor management of sugar mills also contributed to fall in exports. Despite the decline in the pre-eminence of sugar as a major export earner, the economy grew thanks to expansionary fiscal policies. The latter gave rise to annual budget deficits during each of the five years until 2006. The fiscal deficit was 6.5 per cent of GDP in 2001, 5.7 per cent in 2002 and 5.3 per cent in 2003 and continued to be around 3 per cent in each of the next three years.

Private sector confidence also returned, accompanied by an unprecedented credit boom (Jayaraman and Choong, 2007a). As fiscal deficits and growth in bank credit stepped up aggregate demand, which spilled over into demand for imports, annual current account deficits began to widen each year (Jayaraman and Choong, 2007b) during this period rising from 1.2 per cent of GDP in 2002 to 22.6 per cent of GDP in 2006 (UNESCAP, 2008). The sugar industry was already on the decline. With the expiry of garment export quota arrangements with USA effective January 1, 1995, and as there were no new sources of exports, pressures were soon felt on exchange rate (Jayaraman and Choong, 2008). The RBF applied the brakes, raising the statutory reserve deposit ratio to 7 per cent from 5 per cent and imposed credit ceilings in regard to credit for certain sectors.

Fiscal deficits were financed by public borrowing (Jayaraman and Choong, 2006b), most of which was done by selling bonds to a captive institution, the Fiji National Provident Fund. As government felt that domestic borrowing sources were drying up and that it would be preferable to take advantage of good credit standing, it floated in July 2006 the very first international bond for a total of US$150 million. Overseas private borrowing helped the country's international reserve position by adding equivalent foreign exchange, further reinforcing exchange rate stability. As it helped to add to the real resources of the country, inflation was kept low as well.

An uninterrupted growth for a five-year period, which no doubt resulted in the overheating of the economy by fiscal deficits and private sector credit boom, was halted by a military coup in December 2006 before the completion of the full five-year term of the elected government. Since January 2007, the economy has been in a downward spiral. Tourism was the major victim, though it made a slight recovery in later months. The economy, which grew at annual rate of 3.4 per cent in 2006, plunged in 2007 to a record negative growth rate (-6.6 per cent). The estimated growth rate in 2008 was 1.2 per cent (RBF, 2008).

The interim government since 2007 followed a sensible fiscal policy by reducing the deficit to 1.5 per cent of GDP. However, as world economic conditions deteriorated in mid-2008, Fiji's economy came under fresh stress, this time induced by factors beyond its control. With exports declining and tourism sector stagnating, the predominant concern has been with protecting foreign reserves, which were at F$832 million in December 2008,

adequate to cover just about three months' imports. As the global oil price plummeted from the peak of US$145 per barrel to below US$50 per barrel, there was some relief on the inflation front. Domestic inflation fell from 20-year high at 20 per cent in September 2008 to 7.5 per cent in December 2008.

The monetary policy statement of December 2008 notes that, 'the primary focus of the monetary policy in the medium term will continue to be on protecting our foreign reserves position. The credit ceiling remains the key instrument in alleviating the pressures on foreign reserves by dampening credit to non-priority sectors, particularly for consumption activities' (RBF, 2008).

In 2009, with the officially declared recession in Australia, New Zealand and the USA, prospects of any economic recovery through exports of goods and tourism services were becoming less promising. Added to these worries, the political situation was also getting worse. In April 2009, as a judicial pronouncement turned against the interim government, judges were dismissed and the Constitution was abrogated. One of the first decisions immediately after the abrogation of the Constitution was the devaluation of the Fiji dollar by 20 per cent. The devaluation was defended on the ground that the nominal exchange rate had been out of line for some time in the past, as it was overvalued and it was expected that devaluation would improve the competitiveness of Fiji's exports and export earnings from both goods and services including tourism. One immediate result was the foreign reserves were revalued at the new exchange rate and at the end of April 2009, they rose to F$631 million, as against F$429 million in March 2009 (RBF, 2009).

3.3 Papua New Guinea

Papua New Guinea, which attained independence in 1975, is the biggest of all PICs with the largest land area (463,000 sq.km) and highest population (almost 6 million). The country has abundant natural resources, notably mineral resources, including copper, petroleum and gas, which none of the other PICs has. The export base is not only well diversified in terms of mineral exports, including copper in early years and petroleum and natural gas in the late 1990s and early 2000s, but also in terms of tree crop exports such as coffee, cocoa and tea, which makes PNG an outlier for all purposes.

PNG has had a larger share of natural disasters affecting the lives of people in the region, including major volcanic eruption and two cyclones in 1997–98, El Nino drought in 1997–98, besides difficulties arising from human activities including closure of Bougainville copper mine in 1989 and the Asian financial crisis of 1997. PNG's economic growth since independence in 1975 has centred on its mineral exports performance.

About 85 per cent of the population is living in rural areas in 600 islands, predominantly in the mountainous areas. The government has been dependent on mineral exports and related export levies and royalty incomes. Earnings from copper exports in the 1980s and petroleum boom in the 1990s were however frittered away by expansionary fiscal policies, which consisted of wasteful government expenditures, ending in fiscal deterioration and external imbalances. As macroeconomic adjustments were needed, the government approached International Monetary Fund (IMF). Two stand-by arrangements during

1990–92 and a third in 1995 rescued the country from the brink. However, subsequent falls in mineral exploration activities, deterioration in physical infrastructure in rural areas, the 1997 drought and the closure of copper mines, contraction in external demand for exports, and law and order problems put the economy in poor shape. As private capital outflows increased, the domestic currency, kina, depreciated despite central bank intervention (Marciniak, 2006). Inflation soared to 20 per cent in 1998. Yet another, fourth IMF stand-by arrangement in 2000–01, this time with a view to stabilising the economy through fostering private-sector-led growth, was implemented. However, economic recovery failed to follow (Marciniak, 2006).

Table 3.3 PNG: selected key indicators

Land area (sq.km.'000)	463
Population (2006: '000)	5,995
Per capita GDP (US$) current prices: 2006	943
Aid per capita in US$ (2006)	47
Aid as percentage of GDP (2006)	6.7
Human development ranking (2006)	145
Annual growth rate in per cent (2001–07)	2.5
Annual growth rate inflation in per cent (2001–07)	6.2
Overall budget balance as per cent of GDP (2001–07)	-1.7
Current account balance (% of GDP) (2001–07)	3.4

Source: ADB (2008), UNESCAP (2008, 2009)

To revive the economy in the second half of 1990s, government adopted expansionary policies. These included tax reductions and provision of agricultural export subsidies and regular transfers to unviable state-owned enterprises. As a result there were massive annual budget deficits. Government debt rose to 60 per cent of GDP in 1996 from 45 per cent in 1990. Balance of payment crises ensued and international reserves dwindled at one point to a half-month of non-mineral imports (Marciniak, 2006). Events forced PNG to resort to a floating exchange rates regime, which brought in a measure of external stability, though only for a short period. A sharp contraction in exports due to drought in 1997 and the Asian financial crisis caused another current account crisis. Budgetary reforms introduced in 1999 restored some stability. However, in the months leading up to the 2002 elections, the familiar fiscal excesses were once again indulged in by the incumbent government to re-capture power, which led to deterioration of both budget and current account balances. Reviewing a 25-year economic growth, IMF noted economic performance since independence in 1970 had fallen short of potential with per capita income in 2004 hardly above its 1975 level. There were three years of negative growth following the election of a new government in 2002 (Marciniak, 2006).

The economy began to pick up in 2005, as growth was aided by sensible fiscal and monetary policies as well as by an export boom. The budgets were brought under control

and monetary tightening followed. Inflation was brought down. Higher mineral revenue and greater aid inflows helped to materialise the turnaround in the economy. Budget savings were used to retire public debt, which was brought down to 50 per cent of GDP. International commodity boom and lower non-mineral imports contributed to a rise in international reserves by 2005. A massive rise in mineral revenue boosted government revenues from 28 per cent of GDP in 2002 to 36 per cent of GDP in 2006 and debt was reduced to 35 per cent of GDP. Inflation fell to 5 per cent.

In 2007, aside from mineral boom, there was strong growth in non-mineral sectors, including construction, telecommunication and agriculture. After decades of stagnation, formal sector employment grew by a quarter in 2005–07. The commodity boom continued and PNG's growth rate rose from 6.7 per cent to 7.3 per cent in 2008. However, declining production was expected to lower the contribution from the petroleum sector in 2010.

The fall in global commodity prices due to the onset of recession in industrialised countries since mid-2008 is expected to affect all the commodity-export-based economies. PNG will be no exception. The resilience of such economies is tested on the basis whether during the prosperity phase, the government invested the boom revenues in physical infrastructure and human capital, or frittered away valuable resources on unproductive and wasteful projects including a huge rise in salaries and wages to civil servants.

Past experiences in the boom–bust cycle have shown the economy of PNG grew when the commodity boom contributed to prosperity all around: government expenditures increased, including wages and salaries of civil servants and other recurrent expenditures, leaving less for capital expenditures. When the world-wide recessionary conditions led to a large downturn in the prices of exports of PNG's mineral and non-mineral commodities, including coffee, tea and cocoa, government revenues and GDP were affected as government did not have resources to maintain the earlier levels of expenditures. One such boom–bust phase was in the 1990s, which is called 'the lost decade' of PNG. During the boom phase of the 1990s, mineral and non-mineral export receipts grew but government managed its revenues poorly. In the words of the central bank governor Kamit (2009), the nation was deprived of 'an opportunity to set the stage for progress and growth'.

Unlike the record of previous booms, PNG set aside the windfall gains from high commodity prices in 2006–08 in various trust accounts, which would be spent during the bust phase of the business cycle on key priority areas including infrastructure, health and education (Kamit, 2009). Sensible fiscal policies pursued since 2004 have put the government finances in good shape. The government has also succeeded in reducing its debt. The debt ratio, which in 2001 was 71 per cent of GDP, was reduced to 30 per cent in 2008. Debt servicing expenditure has been reduced, leaving greater savings for investment. Using these carefully saved resources, PNG can beat the recessionary conditions by maintaining the boom levels of expenditures. Further, as the kina appreciated against the US dollar as well as the Australian and New Zealand currencies, inflation would also be kept down.

3.4 Samoa

Samoa's main activities are subsistence agriculture and fisheries. The commercial banks find it difficult to lend to any land-based activities, including hotel and resorts, in the absence of land as collateral. Although the country has several attractive tourist locations with beaches, the hotel and resort sectors have not progressed well mainly because of customary land tenure system.

The country's exports have been copra and copra products such as coconut milk and coconut cream and fish. Agricultural activities are mainly subsistence oriented and surplus is sold in local markets, which provide incomes to families who own the land communally. Samoa is prone to frequent cyclones. The country depends upon private remittances from its former citizens and residents overseas, and these remittances are estimated to be equivalent to about 25 per cent of GDP. While remittances help families to finance their domestic consumption, generous annual transfers from governments of Australia and New Zealand assist government to bridge its annual budget deficits. Most of the investment projects such as roads, jetties and ports are externally funded.

During a 30-year period (1970–2000), when some of the newly independent Pacific island countries progressed with sound demand management policies, Samoa presented a contrasting picture (Leigh, 2006). Weak fiscal management and poorly performing state-owned enterprises contributed to the decline of the Samoan economy, which was also battered by two cyclones in 1991 and 1992, destroying the country's physical infrastructure.

Table 3.4 Samoa: selected key indicators

Land area (sq.km.'000)	2.8
Population (2006: '000)	186
Per capita GDP (US$) current prices (2006)	2,277
Aid per capita in US$ (2006)	254
Aid as percentage of GDP (2006)	11.2
Annual growth rate in % (2001–07)	3.1
Annual growth rate inflation in % (2001–07)	5.3
Overall budget balance as % of GDP (2001–07)	-0.7
Current account balance as % of GDP (2001–07)	-4.3

Source: ADB (2008), UNESCAP (2008, 2009)

Fiscal adjustment measures including downsizing the public sector and closure of non-viable state enterprises and financial sector reforms, which began in the late 1990s, brought about much-needed economic transformation. It enabled Samoa to outperform other Pacific island countries during the next five years (2000–05), with solid economic growth as well as improvements in public finances, fall in inflation and reduction in debt levels (KVAConsult Ltd, 2007; Leigh, 2006). The financial sector reforms which began in late 1990s consisted of dismantling of all quantitative credit controls and removal of ceilings on interest rates charged by commercial banks, and encouragement of competition in the

banking sector by granting licences for new banks to enter. Further, the CBS launched new policy initiatives.

Although growth in 2006 was low (1.8 per cent) due to a fall in exports as well as scaling-down of Yazaki Samoa (which produces automotive harness products for Australian automobile industry) and slowdown in agricultural production, the economy picked up during 2007. The economy was estimated to have grown by 6.1 per cent, led by expansion in agricultural sector and tourism and as well as construction of public sector projects and hotels in preparation for the South Pacific Games held in September 2007. However, with the slowdown in construction activities in 2008, the growth was reduced to 3.3 per cent and, with the global economic recession, tourist arrivals were expected to be lower than forecast and expansion of tourism-based construction activities was expected to be slow.

3.5 Solomon Islands

Solomon Islands (population 489,000), whose key indicators are given in table 3.5, share many commonalities with rest of the PICs. The country's manufacturing base is very small, confined to tuna canning, palm oil, coconut oil, soaps and detergents, and biscuits and breads. Solomon Islands is heavily subsistence oriented, providing livelihood to 80 per cent of the population.

Table 3.5 Solomon Islands: selected key indicators

Land area (sq.km.'000)	28.0
Population (2006: '000)	489
Per capita GDP (US$) current prices: 2006	684
Aid per capita in US$ (2006)	418
Aid as % of GDP (2006)	47.8
Annual growth rate in % (2001–07)	3.6
Annual growth rate inflation in % (2001–07)	8.6
Overall budget balance as % of GDP (2001–07)	-2.1
Current account balance as % of GDP (2001–07)	-9.5

Source: ADB (2008), UNESCAP (2008, 2009)

The country's fixed exchange rate regime has served the country well. Small countries' economies, with a high degree of openness in terms of percentage of imports and exports, have benefited from a fixed exchange rate regime. Since most of the imports are sourced from Australia and New Zealand, whose central banks have been targeting inflation, Solomon Islands' inflation has been kept low in recent years despite expanding domestic fiscal deficits. Although much better endowed with large land and marine resources than other PICs, with the exception of Papua New Guinea, Solomon Islands' economic progress has been disrupted several times in the past by frequent government changes as well as volatile political uncertainties.

Economic structure has remained stagnant during the last three decades, characterised by a large public sector and a small private sector with modest activities. The country's exports have been timber, tuna and palm oil. The country is heavily dependent on imports ranging from food and beverages to fuel and capital and transportation machinery and equipment. Steady aid inflows in the past and more in recent years after the Regional Assistance Mission to Solomon Islands (RAMSI), which was mounted in 2003 to restore law and order, have been a great source of support to the country's current account balance, minimising pressures on exchange rate.

For Solomon Islands the 1980s were a difficult period. Falls in trade and withdrawal of annual budgetary support by the United Kingdom, put the country's finances in poor shape. Aside from the decline in international prices of copra, palm oil and timber, which resulted in lower export earnings, cyclone *Namu* in 1986 led to reduction in export volumes as well, as it uprooted the country's copra and oil palm plantations. The adverse impact of the cyclone lingered on export earnings for three years. Solomon Islands had to seek help from the International Monetary Fund (IMF) to tide over the shortage in foreign exchange. Two Stand-by Arrangements, one in 1981 and the second in 1983 came to the country's rescue. However, as the authorities could not fully meet conditionality requirements, the full amount envisaged under the second stand-by arrangement of 1983 could not be disbursed (Ginting and Porter, 2006).

The next decade witnessed a spurt in export earnings, thanks to controversial log export policies, which were questioned by international agencies from environmental protection point of view. As timber exports to Japan, Korea and Malaysia reached new highs, there was a boom during the 1990s. Annual economic growth during the first half of the 1990s was around 8 per cent. However, exports to Asian countries came to a sudden halt in the late 1990s as the Asian financial crisis of 1997–98 abruptly reduced the demand for log exports. Further, in addition to fall in export earnings, the ethnic crisis which exploded in 1999 severely affected the economy, as physical infrastructure and private sector shops in the capital town, Honiara, were destroyed in the riots. The GDP declined throughout the next six-year period. All export-oriented projects were closed and international reserves were at a minimum level until 2003, when RAMSI arrived to restore law and order in the country. In the meanwhile, the Solomon Island dollar was allowed to gradually depreciate by 30 per cent and inflation reached the peak at 16 per cent.

The end of ethnic conflict encouraged private sector activities. Export trade in timber resumed in earnest. Many of the suspended foreign investment projects were revived to put the economy on the path to growth. Annual growth rate during 2003–07 averaged at 7 per cent. Substantial aid inflows averaging around 49 per cent of GDP helped the country to reduce current account deficit, from around 24 per cent of GDP in 2004 to a sustainable level of 3 per cent in 2007. Government's fiscal surpluses during 2003–06 were also due to aid inflows, besides growth in revenues, mainly from export taxes and royalties from log exports.

In 2007, the economy grew at an impressive 10.3 per cent, the highest annual growth in 15 years. The growth was due to expansion in logging activities during the year, as the forestry sector represents 16 per cent of total GDP. Export of round logs rose by 25 per cent.

The expansion of logging on an unsustainable scale brought closer the imminent decline of the forestry sector, now forecast to begin as early as 2010 and exports becoming negligible by 2014.

Further, volatility in fuel and food prices in the early months of 2008 had already exposed government's weaknesses, especially in its fiscal management and its ability to resist demand for rise in public sector wages. In 2008, GDP growth rate fell to 7 per cent, the second highest in the region, next only to Papua New Guinea which was benefiting from the mineral boom. As fiscal expenditure rose and with continued increases in private sector lending, both budget balance and current account balance deteriorated (Central Bank of Solomon Islands (CBSI), 2008).

Annual fiscal deficits have been posing major problems for monetary authorities, as their monetisation in the past led to excess liquidity in the system. Further, inflows of aid money and a credit boom, reflected in the high annual growth rate of 60 per cent during 2005–07 have compounded the problem. The CBSI and finance ministry have to co-ordinate their efforts with a view to reducing inflationary pressures.

3.6 Tonga

Tonga (population 102,000), whose selected key indicators are given in table 3.6, shares many commonalities with the rest of the PICs. The country's manufacturing base is small and is confined to processing coconut-oil-based soaps and detergents, biscuits and breads. Tonga's economy is heavily subsistence oriented, providing livelihood to 80 per cent of the population.

Tonga's fixed exchange rate regime has served the country well. Since most of the imports have been sourced from Australia and New Zealand, whose monetary policies have been targeting inflation, inflation has been kept low. Being a small country with no mineral resources and limited commercial agriculture and no manufacturing basis, Tonga is heavily dependent on imports ranging from food and beverages to fuel and capital and transportation machinery

Table 3.6 Tonga: selected key indicators

Land area (sq.km.'000)	0.7
Population (2006: '000)	102
Per capita GDP (US$) current prices: 2006	2,176
Aid per capita in US$ (2006)	211
Aid as percentage of GDP (2006)	8.8
Human development ranking (2006)	55
Annual growth rate in per cent (2001–07)	1.9
Annual growth rate inflation in per cent (2001–07)	8.9
Overall budget balance as per cent of GDP (2001–07)	0.04
Current account balance as per cent of GDP (2001–07)	-3.7

Source: ADB (2008), UNESCAP (2008, 2009)

and equipment. Exports have been bananas, squash, copra and fish. Export earnings have been far less than imports with the result that trade balance had always remained negative. However, remittances from Tongans resident in New Zealand, USA and Australia, tourism receipts, and regular aid inflows have been a great source of support to the country's current account balance, minimising pressures on the exchange rate.

While the 1970s were characterised by relatively favourable macroeconomic conditions, economic situation deteriorated in the 1980s and mid–1990s. As Australia and New Zealand liberalised their imports of vegetables from rest of the world, Tonga ceased to enjoy the special treatment accorded to its exports of bananas and copra. However, emergence of squash exports to Japan as an off-season crop brought a sustained level of export earnings in the next few years. In the 1990s, Government announced its strategy of promoting manufacturing through tax holidays and tariff preferences. However, despite an initial rise in domestic production, exports did not take off. The second half of the 1990s and early years of 2000 witnessed a weakened budget discipline and policy slippages and poor governance threatened macroeconomic stability. Losses in the US stock market due to risky management of investments led to depletion of the Tonga Trust Fund, which was built through country's official reserves, amounting at one time to 20 per cent of GDP (Singh, 2006).

With limited monetary policy instruments, Tonga relied primarily on movements in foreign exchange reserves as indicators of the appropriateness of monetary policy. The National Reserve Bank of Tonga (NRBT) resorted to moral suasion and persuaded the commercial banks to restrict lending. However, political developments since early 2000 slowed down economic growth, while adverse terms of trade shocks as well as rises in fuel and food prices contributed to increase in inflation. Pro-democracy riots that led to the burning and looting of the capital in November 2006 were estimated to have resulted in losses of nearly US$60 million or about 30 per cent of GDP. Despite a modest recovery following a rise in tourism and remittances and aid-funded construction activities, the economy shrank in 2007 by 3.5 per cent (AusAID, 2008). Although expansionary measures including fiscal deficits and monetary easing were appropriate to revive the economy in 2007, there were inflationary pressures lurking around the corner.

In mid-2008, worldwide increases in food prices and fuel and subsequent volatility in fuel prices exposed government weaknesses in handling the unforeseen impact on balance of payments. Along with inflation, decline in reserves was causing concerns. Although real exchange appreciated by 13 per cent during 2003–07 due to domestic inflation relative to inflation in trading partners, government was not keen to adjust the nominal exchange rate, as there was no visible advantage in depreciation of the currency. Already exports of squash to the niche market in Japan had weakened and Tonga's exports were just 10 per cent of total imports. Thus, containing inflation was a priority rather than promoting competitiveness of limited exports. Further, depreciation of nominal currency would only raise prices of imports of fertilisers and insecticides and other inputs, which go into the production of vegetables, fruits and squash, aside from increasing landed prices of all critical imports.

The policy actions now require co-ordination between finance ministry and monetary authorities to contain fiscal deficits by resisting any temptation to yield to pressures from

the civil service for wage rise and to minimise deficit financing needs so that the objectives of monetary and exchange rate stability are within reach.

3.7 Vanuatu

Vanuatu's economy is heavily subsistence oriented, dominated by root crops and commercial ranch and fishery activities to a small extent, which provide livelihood to 80 per cent of the 215,000 population. The country's manufacturing base is small, which is confined to processing coconut-oil-based soaps and detergents, and biscuits and breads. However, Vanuatu has been historically an open economy with offshore financial institutions (OFC) inherited from the days of the joint Anglo-French condominium rule. The country also provides flag-of-convenience registration of ships. Additionally, absence of all forms of direct taxation, including personal and corporate income taxes, estate taxes, death duties and gift taxes, have made Vanuatu a pure tax free haven in the South Pacific. Thus, the services sector of Vanuatu comprising financial and tourism activities, has been a major support to Vanuatu's economy. Selected key indicators are given in table 3.7.

Table 3.7 Vanuatu: selected key indicators

Land area (sq.km.'000)	12.2
Population (2006: '000)	215
Per capita GDP (US$) current prices: 2006	1,799
Aid per capita in US$ (2006)	227
Aid as % of GDP (2006)	13.4
Human development ranking (2006)	118
Annual growth rate in % (2001–07)	2.7
Annual growth rate inflation in % (2001–07)	2.5
Overall budget balance as % of GDP (2001–07)	-0.5
Current account balance as per cent of GDP(2001–07)	-5.4

Source: ADB (2008), UNESCAP (2008, 2009)

These developments have indeed given rise to the emergence of a dual economy, with OFC institutions in Port Vila, the country's capital on Efate, the main island, and commercial tourism, confined to Port Vila and the big island of Santo. The rest of the country's scattered numerous islands continue to be characterised by subsistence agriculture.

Vanuatu has a fixed exchange rate regime and this has served the country well. Most imports are sourced from Australia and New Zealand, whose monetary policies have been targeting inflation, so inflation has been kept low. As a small country with no mineral resources and limited commercial agriculture, Vanuatu is heavily dependent on imports ranging from food and beverages, to fuel and capital goods and transportation machinery and equipment. Vanuatu's exports have been beef, copra, cocoa and *kava*, a non-narcotic beverage root crop. Export earnings have been far less than imports with the result that

trade balance always remained negative. However, tourism earnings, steady aid inflows and in recent years, remittances in particular, have provided substantial support to country's current account balance, minimising pressures on the fixed exchange rate regime.

Vanuatu's economic progress during the first ten years of independence has been uneven. Soon after independence in 1980, there were departures of skilled expatriate residents, consequent to a rebellion in the outer islands. After normality returned, three cyclones during 1985–98 inflicted severe damage to standing crops and coconut plantations. In 1986, as a foreign airline discontinued its services to the country, tourist traffic plunged and exchange earnings fell. Domestic inflation rose, closely tracking the exchange rate developments and it averaged 9 per cent.

With bilateral grants falling from 80 per cent of public sector expenditure in 1980 to nearly 50 per cent in 1983 and 21 per cent in 1989, government had to restrict expenditures and increase revenues mainly through indirect taxes, which included fees, charges and import duties. Government gave up its conservative stand and began borrowing from international agencies, including Asian Development Bank (ADB) on concessionary terms, which are available to lower-income countries for development projects. These included international telecommunication network and airport runway extension. These helped to augment tourism receipts by allowing larger aircrafts to land. As the domestic currency, the vatu appreciated, inflation moderated. A comprehensive reform programme was also launched in 1998 with ADB funding for improving economic and financial management.

Although gross domestic product grew annually at 4.25 per cent during the period 1991–95, there were several unanticipated shocks, which resulted in a deterioration of overall macroeconomic performance. In 1998, loss of trust in the state-sponsored Vanuatu National Provident Fund (VNPF) led to a run on the institution and riots in Port Vila, which prompted government to permit unconditional withdrawals of retirement savings of VNPF members. The payouts of funds by VNPF led to a sharp rise in liquidity in the banking system. There were capital outflows as well, as confidence in the domestic currency had already been shaken in the process. There was also an unsuccessful attempt by Reserve Bank of Vanuatu (RBV) to devalue the vatu, which only caused further large capital outflows.[1] Because of the VNPF crisis, the official reserves of the RBV decreased dramatically, from the equivalent of around six months of imports to less than three months of imports. Fresh monetary policy initiatives were undertaken in 1998. They included introduction of open market operation in the central bank's own short-term securities, known as RBV Notes for liquidity management, which helped to stabilise the economy.

Political instability has taken its toll on the economy. However, fiscal consolidation since 2001, which was supported by strong recovery in exports and rise in export prices of key crops, including copra and *kava*, expansion in airline capacity and greater number of flights, helped the economy to perform well. The pegged exchange rate regime helped to keep inflation low and the vatu remained stable. Improved economic performance (rate of growth was 6.5 per cent in 2005; 7.2 per cent in 2006; and 6.6 per cent in 2007) and better governance won the grant assistance of US$66 million from the US Millennium Challenge Corporation which would enable the government to improve physical infrastructure including ports, roads and jetties in outer islands for moving agriculture produce

to the urban centres on two major islands and to the largest harbour on Santo, which would promote exports.

The assessment by IMF (2008) shows that with the strong growth in the tourism and construction sectors and increased aid inflows, real GDP grew 6.6 per cent in 2008. Inflation rose from 4.1 per cent in 2007 to 5.8 per cent in 2008, reflecting the effects of higher international prices of food and fuel, higher credit growth, and rise in government spending. Despite higher spending, fiscal surplus increased to 2.3 per cent of GDP due to significant overperformance on revenues, mainly VAT, reflecting buoyant economic activities and improved tax compliance.

The RBV, which relaxed its monetary stance in December 2008 (RBV, 2008), now has to face the impact of global slowdown in Australia and New Zealand, the largest sources of tourism revenues and foreign direct investment (FDI). There are indications that new construction activities funded by large capital inflows from Australia, and to a lesser extent from New Zealand, have begun to slow. Although tourist arrivals continued to remain strong, spending by tourists has been on the decline. A further relaxed monetary policy and an accommodative fiscal stance for 2009 should help to cushion the impact on growth. GDP growth was expected to be in the 3–4 per cent range in 2009 and to recover thereafter. Lower commodity prices would halt rising inflation and rising international reserves supported by aid inflows would be able to finance imports (IMF, 2009).

Note

1. In the aftermath of the Asian financial crisis in 1998, several countries such as Papua New Guinea, Fiji and Solomon Islands devalued their currencies by 20 per cent. Shortly afterwards, because of the VNPF crisis, the RBV followed suit. However, the government immediately revoked the RBV decision on the grounds that the devaluation could have a potentially high cost if it were to spark an inflation–wage spiral.

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Appendix 1. Monetary Policy Instruments: Chronological Developments

Table A1 Fiji. Monetary policy instruments: chronological developments and changes, 1984–2008

Year	*Statutory reserve requirement*	*Discount lending rate (%)*	*OMO RBF note 91-day rate*	*Re-purchase rate (%)*	*Direct credit controls*	*Interest rate ceiling*	*Moral suasion*	*Secured advance facility*
1984	SRD increased from 5 to 6%	Increased from 10.5 to 11% on 31 May		None	None	Yes	None	–
1985	No change	11%		None	None	Yes	None	–
1986	No change	Reduced to 8% on 4 Nov		None	None	Yes	None	–
1987	No change	Increased to 11% on 14 Sept		None	Yes	None	None	–
1988	No change 6%	11%	Intro-duced	None	Yes	None	None	–
1989	No change 6%	Lowered to 8% on 1 May	rate 4.28	–	Till May	None	None	–
1990	No change 6%	8%	5.07	–	None	None	None	–
1991	No change 6%	8%	5.83	–	None	None	None	–
1992	No change 6%	Reduced to 6% on 6 Nov	3.41	–	None	None	None	–
1993	6%	6%	2.41	–	None	None	None	–
1994	No change 6% Introduced unimpaired liquidity ratio at 16%	6.00	3.32	None	None	None	None	None
1995	No change in SRD ratio No change in ULAR	6.00	3.50	None	None	None	None	None
1996	No change in SRD ratio No change in ULAR	6.00	2.81	None	None	None	None	None
1997	No change in SRD ratio	1.89	1.39	None	None	None	None	None

Year	*Statutory reserve requirement*	*Discount lending rate (%)*	*OMO RBF note 91-day rate*	*Re-purchase rate (%)*	*Direct credit controls*	*Interest rate ceiling*	*Moral suasion*	*Secured advance facility*
	No change in ULAR	The minimum lending rate (MLR) was linked to the RBF policy indicator rate– plus a margin of 50 basis points						
1998	SRD ratio reduced to 5% ULAR reduced from 16% to 10%	2.50	2.00	None	None	None	None	None
1999	ULAR abolished No change in SRD ratio	2.50	2.00	None	None	None	None	None
2000	No change in SRD ratio	8.00 MLR raised to 15% in May 2000, and then reduced to 10% in Sept 2000 and then further reduced to 8% in Oct 2000	2.53	None	None	None	None	None
2001	No change in SRD ratio	1.75 MLR reduced to 6% in March 2001. In October the MLR was linked to the RBF policy indicator rate plus 50 basis points	1.25	None None	None None	None None	None None	None None
2002	No change in SRD ratio	1.75	1.25	None	None	None	None	None
2003	No change in SRD ratio	1.75	1.19	None	None	None	None	None
2005	No change in SRD ratio	2.75	2.25	None	None	None	None	None
2006	SRD increased from 5 % to 7%	5.25 In May 2006, the MLR was the RBF Indicator rate plus 100 basis points	4.25	15.25	Yes	None	None	None
2007	SRD reduced from 7% to 6%	9.25	No issue	9.25	Yes	None	None	Yes
2008	No change in SRD ratio	6.32	No issue	6.32	Yes	None	None	Yes
2009	SRD reduced to 5%		No issue					

Table A2 Papua New Guinea. Monetary policy instruments: chronological developments and changes, 1994–2009

Year	*Minimum liquid asset ratio MLAR (%)*	*Cash reserve requirement (%) (a)*	*Kina auction facility rate (%) (b)*	*Kina facility rate (%)*	*Repurchase rate (%)*	*Lender of last resort (%)*
1994	Introduced from 1974 15% of total deposits increased to 26.00%					36.50%
1995	MLAR decreased to 32.0%	–	Discount facility replaced by KAF KAF rate official rate signifies monetary policy stance KAF rate 18.00% (buy side only)			36.50%
1996	MLAR decreased to 27.0%	–	KAF rate reduced to 10.3% (buy side only)			36.50%
1997	MLAR decreased to 20.0%	–	KAF rate reduced to 10.20% (buy side only)			36.50%
1998	MLAR decreased to 0.0%	0.0%	KAF rate increased to 18.5% (buy side only)			36.50%
1999	MLAR increased to 25.0%	CRR increased to 5.0%	KAF rate reduced to 12.80% (buy side only)			36.50%
2000	MLAR no change remains at 25.0%	CRR no change remains at 5.0%	KAF rate reduced to 4.41% (buy side only)			36.50%
2001	MLAR no change remains at 25.0%	CRR no change remains at 5.0%	KAF rate increased to 11.25% (buy side) KAF rate increased to 12.75% (sell side)	Kina facility introduced KFR signals monetary policy stance KFR 12%	Introduced Kina repurchase agreement Buying at a margin 100 basis points above KFR	36.50%
2002	MLAR no change remains at 25.0%	CRR reduced to 3.0%	KAF rate increased to 13.25% (buy side) increased to 14.75% (sell side)	KFR increases to 14%	Buying at a margin 100 basis points above KFR	36.50%
2003	MLAR no change remains at 25.0%	CRR no change remains at 3%	KAF was abolished April replaced by repurchase agreement	KFR no change remains fat 14%	Buying at a margin 150 basis points above KFR	36.50%

Year	*Minimum liquid asset ratio MLAR (%)*	*Cash reserve requirement (%) (a)*	*Kina auction facility rate (%) (b)*	*Kina facility rate (%)*	*Repurchase rate (%)*	*Lender of last resort (%)*
2004	MLAR no change remains at 25.0%	CRR no change remains at 3%		KFR decreases to 7%	Buying at a margin 300 basis points above KFR	36.50%
2005	MLAR no change remains at 25.0%	CRR no change remains at 3%		KFR decreases to 6%	Buying at a margin 300 basis points above KFR	36.50%
2006	MLAR no change remains at 25.0%	CRR no change remains at 3%		KFR no change remains at 6%	Buying at a margin 150 basis points above KFR	36.50%
2007	MLAR no change remains at 25.0%	CRR No Change Remains at 3%		KFR no change remains at 6%	Buying at a margin 100 basis points above KFR	36.50%
2008	MLAR no change remains at 25.0%	CRR No Change Remains at 3%		KFR increases to 8%	Buying at a margin 100 basis points above KFR	36.50%
2009 March	MLAR no change remains at 25.0%	CRR no change remains at 3%		KFR no change remains at 8%	Buying at a margin 100 basis points above KFR	36.50%

Notes:

(a) The CRR was introduced in August 1998 initially at 10.0%; however, it was temporarily suspended in December 1998 at 0.0%. As a result, the value for 1998 is 0.0%. The CRR was re-introduced in January 1999 at 5.0%.

(b) The Kina auction facility was introduced on 1 May 1995. In March 1999, the facility was revised and the rate was determined through competitive bidding. In February 2001, the facility was further refined to fixed rates, at spreads above or below the monthly announced Kina facility rate (KFR).

Table A3 Samoa. Monetary policy instruments: chronological developments and changes, 1998–2009

Year	*Reserve requirement*	*Discount lending*	OMO	*Repurchase rate*	*Direct credit controls*	*Interest rate ceiling*	*Moral suasion*
1998	LAR in existence		Central bank securities since 1998 Average indicator rate: 91-day yield				
1999	LAR abolished SRD at 4.8% on deposit liabilities		Average indicator rate: 91-day yield				
2000	No change in SRD		Average indicator rate: 91-day yield				
2001	No change in SRD	Based on the yield of CBS 91-day security plus 3% penalty	Average indicator rate: 91-day yield	Depends on the securities yield plus 3%	None	None	Yes
2002	No change in SRD	Based on the yield of CBS 91-day security plus 3% penalty	Average indicator rate: 91-day yield	Depends on the securities yield plus 3%	None	None	
2003	No change in SRD	Based on the yield of CBS 91-day security plus 3% penalty	Average indicator rate: 91-day yield	Depends on the securities yield plus 3%	None	None	
2004	No change in SRD	Based on the yield of CBS 91-day security plus 3% penalty	Average indicator rate: 91-day yield	Depends on the securities yield plus 3%	None	None	
2005	No change in SRD	Based on the yield of CBS 91-day security plus 3% penalty	Average indicator rate: 91-day yield	Depends on the securities yield plus 3%	None	None	
2006	SRD reduced from 4.8% to 3.5%	Based on the yield of CBS 91-day security plus 3% penalty	Average indicator rate: 91-day yield	Depends on the securities yield plus 3%	None	None	Moral suasion applied discouraging credit growth
2007	No change in SRD	Based on the yield of CBS 91-day security plus 3% penalty	Average indicator rate: 91-day yield	Depends on the securities yield plus 3%	None	None	

Year	*Reserve requirement*	*Discount lending*	OMO	*Repurchase rate*	*Direct credit controls*	*Interest rate ceiling*	*Moral suasion*
2008	SRD increased to 4.5% in March	Based on the yield of CBS 91-day security plus 3% penalty	Average Indicator rate: 91-day yield	Depends on the securities yield plus 3%	None	None	
2009			Average indicator rate: 91-day yield	Rate reduced to 5% in Feb	None	None	

Table A4 Solomon Islands. Monetary policy instruments: chronological developments and changes, 1983–2009

Year	*Liquid asset requirement ratio (%)*	*Statutory reserve requirement ratio (%)*	*Secured advance facility*	*Repurchase rate (%)*	*Interest rate ceiling*	*Moral suasion*	*Bokolo deposit*
1983	LAR was introduced in 1983 LAR Ratio 15%	SRD was introduced in 1988 SRD ratio 5%			No ceiling until 1988		
1984	No change in LAR	No change in SRD			No ceiling		
1985	No change in LAR	No change in SRD			No ceiling		
1986	No change in LAR	No change in SRD			No ceiling		
1987	LAR increased to 27.5%	No change in SRD			No ceiling		
1988	No change in LAR	SRD was discontinued		Repurchase rate introduced 2.50%	Ceiling was imposed 18%	Yes	
1989	No change in LAR			No change	Ceiling continued		
1990	LAR increased to 35%			No change	Ceiling discontinued		
1991	No change in LAR			No change	No ceiling		
1992	LAR increased to 37.5%			No change	No ceiling		
1993	No change in LAR				No ceiling		
1994	No change in LAR			No change	No ceiling		
1995	LAR increased to 40%			Increased to 5%	No ceiling		
1996	No change in LAR			No change	No ceiling		
1997	No change in LAR			No change	No ceiling		
1998	No change in LAR			No change	No ceiling		
1999	Re-definition of eligible liquid assets: It includes till cash and deposit with CBSI). T-bills are excluded				No ceiling		

Year	*Liquid asset requirement ratio (%)*	*Statutory reserve requirement ratio (%)*	*Secured advance facility*	*Repurchase rate (%)*	*Interest rate ceiling*	*Moral suasion*	*Bokolo deposit*
2000	LAR 7.5%			No change	No ceiling		
2001	LAR 7.5%				No ceiling		
2002	LAR 7.5%			No change	No ceiling		
2003	LAR 7.5%			No change	No ceiling		
2004	LAR 7.5%			No change	No ceiling		
2005	LAR 7.5%			No change	No ceiling		
2006	LAR 7.5%			No change	No ceiling		
2007	LAR 7.5%			No change	No ceiling		
			SAF introduced to correct any deficits that banks may experience on short-term basis	No change			
2008	LAR 7.5%						
							Bokolo deposit facility offered: 1 year to 2 year maturities interest rate: at 3.5% to 5%
2009	LAR 7.5%			No change	No ceiling		

Table A5 Tonga. Monetary policy instruments: chronological developments and changes, 1993–2009

Year	*Reserve requirement ratio (%)*	OMO	*Repurchase rate (%)*	*Direct credit controls*	*Interest rate ceiling*	*Moral suasion*	*Unsecured advance facility*
1993	SRD ratio introduced SRD at 5%						
1995	SRD ratio raised to 10%						
1998	SRD ratio raised to 12%			In place			
2000	SRD 15%	NRBT notes discontinued			None	Used since 2000	
2004				Removed			
2005				Re-imposed		In place	
2006		Resumed NRBT notes				In place	
Dec-06			10%				10%
2007	SRD ratio reduced to 12.5% LAR introduced at 5%		12%	Removed		In place	
2008	SRD ratio reduced						
Aug-08	to 10%		10%			In place	6%
2009	SRD 10% LAR 5%						
Mar-09			6.00%			In place	
May-09			4.5%			In place	4.5%

Table A6 Vanuatu. Monetary policy instruments: chronological developments and changes, 1984–2008

Year	*Statutory reserve requirement*	*Discount lending rate*	*Open market type operations*	*Repurchase rate*	*Direct credit controls*	*Interest rate ceiling*	*Moral suasion*
1980	None	10.97	None			none	none
1981	None	10.97	None				
1982	None	10.97	None				
1983	None	10.97	None		RBV issued guidelines: a) Rates to lending to productive sectors and re-financing of import-saving & export promotion and tourism projects should be in 12–14% range; b) Rates should not be more than 12–14% for small businesses, local enterprises with ni-Vanuatu participation; c) Banks average lending interest rate should not exceed 14.0% per annum; d) Bank spread between its weighted average 1–12 months fixed deposits and average lending should not exceed 4–5%; and e) Growth in personal lending should be restrained in order to allow for some increase in lending for (a) & (b)		
1984	None	10.97	None				
1985	None	10.97	None		Due to lack of bankable projects, RBV abrogated guideline (d)		
1986	None	10.97	None		Banks failed to adhere to the guidelines Interest rate in prod. sector exceeded 14% RBV issued a firmer guidelines to banks to comply with the 14% ceiling by March 1987		
1987	None	10.97	None		At end 1987, interest rates was 10.0% Direct controls ceased in 1987		

Year	*Statutory reserve requirement*	*Discount lending rate*	*Open market type operations*	*Repurchase rate*	*Direct credit controls*	*Interest rate ceiling*	*Moral suasion*
1988	SRD was introduced at 10%	10.97	None		Interest rates determined by market forces		
1989	10%	10.97	None				
1990	10%	10.97	None				
1991	10%	10.97	None				
1995	10%	10.97	None				
1996	10%	10.97	None				
1997	10%	10.97	None				
1998	Due to VNPF crisis, SRD was replaced with prescribed reserve asset (PRA) ratio of 16% Enabled banks to subscribe to govt. issued bonds for funding VNPF payouts	10.97	Introduction of RBV notes	Introduced in 1998 at 6.20%			
1999	PRA abolished SRD increased to 10%	Abolished in May 1999	3.40%	5.87			
2000	10%		3.50%	7%			
2001	Reserve requirement at 10% of all vatu deposits and 50% of demand deposits in foreign currency		3.29% RBV notes since March 1998 as a fine tuning instrument In case of unwarranted high (low) liquidity, the RBV can absorb (inject) liquidity from (into) the system through issuing higher (lower) amounts of RBV notes	6.50%	None	None	None

Year	*Statutory reserve requirement*	*Discount lending rate*	*Open market type operations*	*Repurchase rate*	*Direct credit controls*	*Interest rate ceiling*	*Moral suasion*
			Average indicator rate: 91-day yield? If the rate increases, it indicates tight liquidity in banking system; if rate declines it indicates easing liquidity or ample systems liquidity				
2002			4.98%	6.50%			
2003	No changes in SRD ratio from 2001–2007		4.15%	6.50%			
2004			3.50%	6.50%			
2005			4.34%	6.25%			
2006			5.16%	6.25%			
2007			4.25%	6.00%			
2008	In Nov. 2008 SRD was reduced to 8% of all vatu deposits & 50% of demand deposits in foreign currency Reduced to 5% of all vatu& 50% of demand deposits in foreign currency in Jan 2009	Re-Introduced in October 2008 Banks can borrow against their securities (RBV notes& govt. bonds) at 8.75% interest rate Interest rate reduced to 7.75% in Nov 2008	4.30%	6.00%			

Source: Reserve Bank of Vanuatu Quarterly Economic Review, various issues

Appendix 2. Socio-economic Profile of PICs

Selected economic indicators

Table A7 GDP per capita, PPP (current international $)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Fiji	1,442	1,702	1,862	1,859	1,995	2,067	2,189	2,915	3,073	3,017
Kiribati	2,117	1,964	2,027	2,186	2,164	2,204	2,208	2,128	2,402	2,563
PNG	1,255	1,230	1,187	1,305	1,408	1,661	1,751	1,680	1,778	1,650
Samoa	2,199	2,403	2,324	2,334	2,475	2,561	2,768	2,995	3,258	3,323
Solomon Islands	1,207	1,262	1,294	1,373	1,533	1,581	1,667	1,793	1,808	1,849
Tonga	2,558	2,671	2,890	3,148	3,083	3,137	3,275	3,481	3,545	3,462
Vanuatu	2,168	2,325	2,657	2,813	2,801	2,936	2,962	3,133	3,157	3,282
	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
Fiji	3,053	3,345	3,320	3,431	3,567	3,644	3,882	4,100	4,334	4,276
Kiribati	2,922	3,123	3,257	3,374	3,638	3,595	3,156	3,353	3,474	3,568
PNG	1,702	1,716	1,668	1,665	1,651	1,682	1,731	1,791	1,852	1,974
Samoa	3,378	3,483	3,671	3,984	4,245	4,360	4,552	4,909	5,083	5,450
Solomon Islands	1,853	1,822	1,553	1,424	1,370	1,450	1,561	1,636	1,743	1,920
Tonga	3,597	3,714	3,980	4,164	4,348	4,567	4,729	5,067	5,251	5,209
Vanuatu	3,380	3,236	3,316	3,226	2,963	3,044	3,210	3,462	3,733	3,980

Source: IMF World Economic Outlook Database 2008

Table A8 GNI per capita, PPP (current international $)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Fiji	1,990	2,210	2,320	2,330	2,540	2,620	2,740	2,910	3,100	3,040
Kiribati	1,140	1,100	1,270	1,490	1,480	1,480	1,590	1,690	1,480	2,000
PNG	1,210	1,210	1,190	1,320	1,410	1,670	1,780	1,740	1,800	1,750
Samoa	2,490	2,840	2,930	2,910	2,840	3,050	2,030	2,200	2,490	2,520
Solomon Islands	1,020	1,120	1,150	1,280	1,370	1,280	1,400	1,480	1,450	1,590
Tonga	1,970	1,980	1,980	2,140	2,170	2,280	2,510	2,550	2,690	2,770
Vanuatu	1,990	2,190	2,520	2,330	2,310	2,500	2,440	2,620	2,600	2,690
	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
Fiji	3,040	3,340	3,510	3,540	3,750	3,820	4,110	4,310	4,340	4,240
Kiribati	–	2,200	2,340	2,550	2,520	2,370	2,350	2,500	2,380	2,040
PNG	1,650	1,640	1,630	1,590	1,590	1,550	1,640	1,740	1,730	1,870
Samoa	2,610	2,690	2,920	3,150	3,350	3,470	3,630	3,740	4,040	4,350
Solomon Islands	1,590	1,570	1,360	1,260	1,190	1,270	1,400	1,470	1,580	1,710
Tonga	2,720	2,940	2,930	3,040	3,250	3,400	3,480	3,350	3,780	3,880
Vanuatu	3,000	2,950	2,930	2,960	2,630	2,690	2,840	3,000	3,310	3,410

Source: World Bank, *World Development Indicators* http://data.worldbank.org/indicator/DT.DOD.DECT.CD

Table A9 External debt stocks, total (DOD, current US$)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Fiji	471,909,000	409,964,000	403,085,000	351,141,000	331,797,000	324,077,000	278,499,000	246,249,000	213,316,000	215,187,000
Kiribati	–	–	–	–	–	–	–	–	–	–
Nauru	–	–	–	–	–	–	–	–	–	–
PNG	2,249,839,000	2,316,229,000	2,593,897,000	2,774,126,000	3,788,946,000	3,268,514,000	2,792,347,000	2,505,575,000	2,507,364,000	2,589,513,000
Samoa	75,957,000	73,638,000	91,957,000	140,728,000	117,904,000	193,778,000	156,917,000	170,359,000	166,928,000	156,360,000
Solomon Islands	103,662,000	99,982,000	120,499,000	129,466,000	94,292,000	150,544,000	154,929,000	158,741,000	147,495,000	139,948,000
Tonga	37,559,000	39,139,000	53,685,000	44,996,000	43,483,000	44,243,000	58,638,000	64,116,000	63,805,000	58,678,000
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	26,778,000	30,315,000	38,218,000	34,869,000	36,227,000	40,190,000	45,581,000	48,945,000	47,880,000	48,735,000
	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
Fiji	189,738,000	160,754,000	134,407,000	115,416,000	140,394,000	203,421,000	202,309,000	228,631,000	233,662,000	386,967,000
Kiribati	–	–	–	–	–	–	–	–	–	–
Nauru	–	–	–	–	–	–	–	–	–	–
PNG	2,712,135,000	2,644,461,000	2,555,958,000	2,477,812,000	2,436,417,000	2,463,994,000	2,286,015,000	2,275,790,000	2,372,481,000	2,245,133,000
Samoa	180,085,000	192,396,000	197,428,000	204,321,000	234,365,000	373,364,000	570,744,000	656,339,000	857,913,000	1,140,015,000
Solomon Islands	154,585,000	164,988,000	155,354,000	163,207,000	179,849,000	177,963,000	177,045,000	166,366,000	173,424,000	178,162,000
Tonga	64,799,000	68,857,000	65,174,000	62,917,000	72,487,000	85,748,000	86,216,000	81,789,000	84,990,000	90,511,000
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	64,166,000	65,651,000	74,476,000	71,589,000	90,469,000	96,974,000	120,669,000	82,098,000	86,112,000	94,086,000

Source: World Bank, *World Development Indicators* http://data.worldbank.org/indicator/DT.DOD.DECT.CD

Selected indicators of openness

Table A10 Exports of goods and services (% of GDP)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Fiji	54	63	62	57	52	52	56	59	63	61
Kiribati	18	19	12	12	14	21	41	17	24	30
Nauru										
PNG	43	41	41	42	48	53	54	61	59	49
Samoa	–	–	–	–	–	–	24	35	35	33
Solomon Islands	51	46	47	53	54	61	58	57	54	61
Tonga	23	25	34	23	24	20	20	19	7	20
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	36	37	47	43	46	46	45	45	46	52
	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
Fiji	61	61	65	61	61	60	54	56	48	49
Kiribati	34	16	10	9	11	16	15	–	–	–
Nauru	–	–	–	–	–	–	–	–	–	–
PNG	54	63	66	65	61	69	72	73	82	90
Samoa	36	36	34	35	33	27	–	–	–	–
Solomon Islands	57	56	38	26	33	42	49	–	–	–
Tonga	16	12	15	11	18	19	21	20	16	–
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	44	40	44	42	45	45	46	45	44	–

Source: World Bank, *World Development Indicators* http://data.worldbank.org/indicator/DT.DOD.DECT.CD

Table A11 Imports of goods and services (% of GDP)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Fiji	51	60	67	61	55	59	59	59	59	58
Kiribati	114	125	147	135	127	100	93	109	100	94
Nauru	–	–	–	–	–	–	–	–	–	–
PNG	52	53	49	52	46	37	40	44	48	50
Samoa	–	–	–	–	–	–	49	60	57	53
Solomon Islands	68	77	74	87	71	79	79	67	64	75
Tonga	67	63	65	61	49	48	53	64	67	58
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	60	63	73	58	55	55	54	53	53	50
	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
Fiji	58	61	70	69	64	68	70	73	69	64
Kiribati	73	71	68	71	80	119	122	–	–	–
Nauru	–	–	–	–	–	–	–	–	–	–
PNG	49	53	49	52	58	54	59	62	61	68
Samoa	56	62	57	79	76	48	–	–	–	–
Solomon Islands	60	48	44	41	36	36	41	–	–	–
Tonga	62	50	52	52	63	62	60	65	61	–
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	54	58	53	55	61	59	59	60	58	–

Source: World Bank, *World Development Indicators* http://data.worldbank.org/indicator/DT.DOD.DECT.CD

Table A12 Current account balance, US dollars (billions)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Fiji	0.067	-0.016	-0.133	-0.074	0.086	-0.021	-0.005	0.060	0.148	0.091
Kiribati	0.002	0.004	0.001	0.008	-0.004	0.004	0.002	0.004	-0.006	0.012
Nauru	–	–	–	–	–	–	–	–	–	–
PNG	-0.108	-0.145	0.179	0.186	0.664	1.218	0.594	0.848	0.289	-0.264
Samoa	0.013	0.014	0.013	-0.031	-0.025	-0.035	0.004	0.010	0.011	-0.009
Solomon Islands	-0.021	-0.026	-0.026	-0.036	-0.007	-0.007	0.001	0.013	0.012	-0.021
Tonga	-0.007	-0.002	-0.016	-0.015	-0.011	-0.009	-0.017	-0.018	-0.011	-0.002
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	0.002	0.011	0.004	-0.005	-0.005	-0.003	-0.008	-0.005	-0.006	-0.002
	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
Fiji	0.076	0.041	-0.094	-0.116	-0.022	-0.141	-0.371	-0.415	-0.716	-0.515
Kiribati	0.019	0.008	-0.001	0.010	0.005	0.008	-0.002	-0.027	-0.017	-0.021
Nauru	–	–	–	–	–	–	–	–	–	–
PNG	0.035	0.096	0.300	0.201	-0.031	0.159	0.035	0.096	0.300	0.201
Samoa	0.021	0.004	0.002	–	-0.003	-0.271	-0.021	-0.006	-0.020	-0.029
Solomon Islands	-0.006	0.023	-0.030	-0.026	-0.015	0.021	0.061	-0.028	-0.018	-0.010
Tonga	-0.018	-0.001	-0.010	-0.013	0.007	-0.005	0.008	-0.006	-0.023	-0.025
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	0.006	-0.012	0.005	0.005	-0.012	-0.018	-0.016	-0.027	-0.024	-0.049

Source: IMF World Economic Outlook Database 2008

Table A13 Net barter terms of trade (2000 = 100)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Fiji	142	–	–	–	–	–	–	–	–	–
Kiribati	–	–	–	–	–	–	–	–	–	–
Nauru	–	–	–	–	–	–	–	–	–	–
PNG	–	–	–	–	–	–	–	–	–	–
Samoa	–	–	–	–	–	–	–	–	–	–
Solomon Islands	85	–	–	–	–	–	–	–	–	–
Tonga	–	–	–	–	–	–	–	–	–	–
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	–	–	–	–	–	–	–	–	–	–
	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*
Fiji	–	–	100	102	99	96	91	94	102	96
Kiribati	–	–	–	–	–	–	–	–	–	–
Nauru	–	–	–	–	–	–	–	–	–	–
PNG	–	–	100	92	88	98	110	118	173	177
Samoa	–	–	100	100	102	95	88	83	85	80
Solomon Islands	–	–	100	101	107	109	109	95	93	97
Tonga	–	–	–	–	–	–	–	–	–	–
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	–	–	–	–	–	–	–	–	–	–

Source: World Bank, *World Development Indicators* http://data.worldbank.org/indicator/DT.DOD.DECT.CD

Table A14 Exchange rate (US$=1)

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Fiji	1.430	1.483	1.481	1.476	1.503	1.542	1.464	1.406	1.403	1.444
Kiribati	1.280	1.265	1.281	1.284	1.362	1.471	1.368	1.349	1.278	1.347
Nauru	–	–	–	–	–	–	–	–	–	–
PNG	0.867	0.859	0.955	0.952	0.965	0.978	1.011	1.280	1.319	1.438
Samoa	2.080	2.270	2.310	2.400	2.466	2.569	2.535	2.473	2.462	2.559
Solomon Islands	2.083	2.293	2.529	2.715	2.928	3.188	3.291	3.406	3.566	3.717
Tonga	1.275	1.261	1.280	1.296	1.347	1.384	1.320	1.271	1.232	1.263
Tuvalu	–	–	–	–	–	–	–	–	–	–
Vanuatu	104.426	116.042	117.061	111.675	113.392	121.581	116.405	112.112	111.719	115.873

	1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*
Fiji	1.987	1.970	2.129	2.277	2.187	1.896	1.733
Kiribati	1.592	1.550	1.725	1.933	1.841	1.542	1.360
Nauru	–	–	–	–	–	–	–
PNG	2.074	2.571	2.782	3.389	3.895	3.563	3.223
Samoa	2.948	3.013	3.286	3.478	3.376	2.973	2.781
Solomon Islands	4.816	4.838	5.089	5.278	6.749	7.506	7.485
Tonga	1.492	1.599	1.759	2.124	2.195	2.142	1.972
Tuvalu	–	–	–	–	–	–	–
Vanuatu	127.518	129.075	137.643	145.313	139.198	122.189	111.790

Source: Penn World Tables http://pwt.econ.upenn.edu/php_site/pwt_index.php

Table A15 Real GDP (Annual percentage change)

	Average 1991–2000	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Fiji	5	2	3.2	1	5.5	0.7	3.3	-6.6	0.2
Kiribati	5.2	-5.1	6.1	2.3	2.2	0	3.2	-0.5	3.4
PNG	4.6	-0.1	-0.2	2.2	2.7	3.6	2.6	6.5	7
Samoa	3.2	8.1	5.5	2.1	2.4	6	1.8	6	4.5
Solomon Islands	2.5	-8	-2.8	6.5	8	5	6.1	10.2	7.3
Tonga	1.6	2.6	3	3.2	1.4	5.4	0.6	-3.2	1.2
Vanuatu	2.8	-2.5	-7.4	3.2	5.5	6.5	7.4	6.8	6.6

Source: IMF World Economic Outlook Database 2009

Table A16 Total government expenditure by main components (%)

Defence

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1999*	*2002*	*2004*	*2005*
Fiji	–	–	8.7	8.3	7.1	6.5	–	6.1	–	–	7.4	5.9
PNG	4.7	–	6.2	–	4.2	–	3.3	4.2	3.7	2.4	–	–
Solomon Islands	0.0	–	–	–	–	–	–	–	–	–	–	–
Tonga	–	–	–	0.0	–	–	–	–	–	–	–	–
Vanuatu	–	0.0	–	–	–	–	–	–	–	–	–	–

Education

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1999*	*2002*	*2004*	*2005*
Fiji	–	–	21.0	21.2	20.7	19.1	–	18.5	–	–	22.2	21.4
PNG	15.3	–	21.0	–	15.0	–	17.6	17.1	22.1	10.0	–	–
Solomon Islands	22.4	–	–	–	–	–	–	–	–	–	–	–
Tonga	–	–	11.1	13.0	–	–	–	–	–	–	–	–
Vanuatu	–	12.6	–	–	–	–	–	–	–	–	–	–

Health

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1999*	*2002*	*2004*	*2005*
Fiji	–	–	7.7	7.9	8.5	8.6		8.6	–	–	9.7	9.7
PNG	9.4	–	8.5	–	7.9	–	8.9	7.3	6.9	5.7	–	–
Solomon Islands	6.2	–	–	–	–	–	–	–	–	–	–	–
Tonga	–	–	7.0	6.6	–	–	–	–	–	–	–	–
Vanuatu	–	6.6	–	–	–	–	–	–	–	–	–	–

Social security and welfare

	1988	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1999*	*2002*	*2004*	*2005*
Fiji	–	–	5.1	4.0	4.6	4.1	–	4.4	–	–	4.2	4.5
PNG	0.5	–	1.0	–	0.7	–	0.7	0.8	2.3	1.5	–	–
Solomon Islands	0.8	–	–	–	–	–	–	–	–	–	–	–
Tonga	–	–	1.0	0.8	–	–	–	–	–	–	–	–
Vanuatu	–	0.9	–	–	–	–	–	–	–	–	–	–

Source: IMF Government Finance Statistics Yearbook, various series

This study examines how monetary and fiscal policies are implemented in Pacific small states and the impact on growth and development in these countries. It carefully sets out both the policy and institutional constraints in monetary and fiscal policy management, provides case study examples of policy implementation in practice, and suggests policy options that can be used by these countries.

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