Reserve Management Guidelines

1. Reserve Management Objectives, Scope, and Coordination

1.1 Objectives

Reserve management should seek to ensure that: (i) adequate foreign exchange reserves are available for meeting a defined range of objectives; (ii) liquidity, market, and credit risks are controlled in a prudent manner; and (iii) subject to liquidity and other risk constraints, reasonable earnings are generated over the medium to long-term on the funds invested.

1.2 Scope

Reserves consist of official public sector foreign assets that are readily available to and controlled by the monetary authorities.

Reserve management activities may also encompass the management of liabilities, other short foreign exchange positions, and the use of derivative financial instruments.

1.3 Reserve management strategy and coordination

Reserve management strategies should be consistent with and supportive of a country's or union's specific policy environment, in particular its monetary and exchange arrangements.

Evaluation of alternative reserve management strategies and their respective implications for reserve adequacy are likely to be facilitated by a cost/benefit analysis of holding reserves.

Reserve management strategies may also need to take into account strategies for the management of external debt for purposes of reducing external vulnerability.

2. Transparency and Accountability

2.1 Clarity of roles, responsibilities, and objectives of financial agencies responsible for reserve management.

The allocation of reserve management responsibilities, including agency arrangements, between the government, the reserve management entity, and other agencies should be publicly disclosed and explained.

The broad objectives of reserve management should be clearly defined, publicly disclosed, and the key elements of the adopted policy explained.

2.2 Open process for reserve management market operations

The general principles governing the reserve management entity's relationships with counterparties should be publicly disclosed.

2.3 Public availability of information on foreign exchange reserves

Information on official foreign exchange reserves should be publicly disclosed on a pre-announced schedule.

2.4 Accountability and assurances of integrity by agencies responsible for reserve management

The conduct of reserve management activities should be included in the annual audit of the reserve management entity's financial statements. Independent external auditors should conduct the audit and their opinion on the financial statements be publicly disclosed.

General principles for internal governance used to ensure the integrity of the reserve management entity's operations should be publicly disclosed.

3. Institutional Framework

3.1 Legal foundation

Sound institutional and governance arrangements should be established through a legislative framework that clearly establishes the reserve management entity's responsibilities and authority.

3.2 Internal governance

The internal governance structure of the reserve management entity should be guided by and reflect the principles of clear allocation and separation of responsibilities.
Sound management of internal operations and risks requires appropriately qualified and well-trained staff, following sound business practices.

Effective monitoring of internal operations and related risks should be supported by reliable information and reporting systems, and an independent audit function.

Staff involved in reserve management should be subject to a code of conduct and conflicts of interest guidelines regarding the management of their personal affairs.

Effective recovery procedures should be in place to mitigate the risk that reserve management activities might be severely disrupted by the failure of operating systems, or other catastrophic events.

4. Risk Management Framework

There should be a framework that identifies and assesses the risks of reserve management operations and that allows the management of risks within acceptable parameters and levels.

The risk management framework should apply the same principles and measures to externally managed funds as it does to those managed internally.

Risk exposures should be monitored continuously to determine whether exposures have been extended beyond acceptable limits.

Reserve managers should be aware of and be able to account for potential financial losses and other consequences of the risk exposures they are prepared to accept.

The risk management framework should also address risks associated with derivative financial instruments and other foreign currency operations.

To assess the risk and vulnerability of the reserve portfolio, the reserve management entity should regularly conduct stress tests to ascertain the potential effects of macroeconomic and financial variables or shocks.

5. The Role of Efficient Markets

Reserve management, and any related policy operations, should be conducted in markets that have sufficient depth and liquidity, and can process transactions in a sound and efficient manner.

Supplementary Data

Institutional Framework

Separate front and back offices	Yes … 20	No … 0
Separate Risk Management Unit (middle office)	Yes … 17	No … 3
Formal guidelines for managing liquidity, market and credit risk	Yes … 20	No … 0
Annual or more frequent reserve management reports	Yes … 20	No … 0
Annual or more frequent audits of reserve management transactions	Yes … 19	No … 1
Code-of-Conduct and conflict of interest guidelines for reserve management staff	Yes … 15	No … 5
Business recovery procedures in place	Yes … 16	No … 4

Portfolio Management

Use of external managers	Yes … 14	No … 6
Stress test for liquidity assessment	Yes … 10	No … 10
Stress test of market risk exposures	Yes … 15	No … 5
Foreign currency borrowing integrated with foreign exchange reserve management[55]	Yes … 8	No … 12
Specialized management information technology in place for risk management	Yes … 17	No … 3

Portfolio Management Statistics: Strategic Benchmarks

Duration	Yes … 19	No … 1

[55] Refers to entities which integrate government liabilities and reserve assets.

Currency Composition	Yes … 20	No … 0
Are benchmarks publicly disclosed?	Yes … 6	No … 14
Use of Derivatives (if yes, provide description)	Yes … 16	No … 4
Investment instruments		
Sovereign bonds	Yes … 20	No … 0
Supranationals	Yes … 19	No … 1
BIS	Yes … 20	No … 0
Agencies, Pfandbrief,	Yes … 15	No … 5
Commercial banks	Yes … 20	No … 0
Corporate bonds	Yes … 6	No … 13
Equities	Yes … 3	No … 17
Repos	Yes … 17	No … 3
Others (specify)		
Mortgage-backed	3	
Asset-backed	3	
Commercial Paper	1	
Bonds with embedded options	1	
Credit Card ABS	1	
Others:		
Securities lending	Yes … 15	No … 5

MACROECONOMIC INDICATORS
(at end-2001)

Country	Exchange Rate Arrangement 1/	GDP per Capita 2/ (U.S. Dollars)	ST Debt 2/ / GDP (times)	Reserves 2/ (Bill of U.S. Dollars)	Ratio of Reserves to: Mo. Imports 2/ (No. of mths)	Ratio of Reserves to: Broad Money 2/ (times)	Ratio of Reserves to: ST Debt (times)
Advanced 3/							
Australia	Independently floating	18,458.66	n.a.	18.07	3	0.07	n.a.
Canada	Independently floating	22,730.21	n.a.	34.01	2	0.10	n.a.
Hong Kong SAR	Currency board	24,189.84	n.a.	111.16	6	0.24	n.a.
Israel	Crawling band	17,541.96	n.a.	23.38	6	0.21	n.a.
Korea	Independently floating	8,854.89	n.a.	102.77	7	0.28	n.a.
New Zealand	Independently floating	12,707.70	n.a.	3.01	2	0.07	n.a.
Norway	Independently floating	37,232.75	n.a.	15.54	4	0.18	n.a.
United Kingdom	Independently floating	23,735.65	n.a.	37.79	1	0.03	n.a.
Developing/In-Transition 3/							
Botswana	Pegged against a composite	3,314.43	0.11	5.90	32	3.54	10.63
Brazil	Independently floating	2,984.13	0.12	35.76	6	0.27	0.60
Chile	Independently floating	4,312.39	0.17	14.22	8	0.20	1.25
Colombia	Independently floating	2,052.10	0.12	10.17	8	0.40	1.02
Czech Republic	Independently floating	5,550.65	0.16	14.36	4	0.34	1.60
Hungary	Pegged within a horizontal band	5,214.96	0.23	10.73	4	0.44	0.91
India	Managed float	464.49	0.02	46.38	7	0.15	4.82
Latvia	Pegged against a composite	3,274.69	0.51	1.04	3	0.41	0.26
Mexico	Independently floating	6,030.90	0.06	44.75	4	0.25	1.22
Oman	Fixed peg	7,671.86	0.14	2.38	4	0.35	0.88
Tunisia	Managed float	2,061.29	0.14	2.00	2	0.17	0.74
Turkey	Independently floating	2,283.49	0.32	19.04	4	0.27	0.40

1/ Source: Annual Report on Exchange Arrangements and Exchange Restrictions

2/ GDP, Reserves, Imports, Broad Money, ST Debt: WEO,

3/ WEO Classification

GLOSSARY

Asset Backed securities. Bonds or notes backed by loan paper or accounts receivable originated by banks, credit card companies or other providers of credit and often enhanced by a bank letter of credit or by insurance coverage provided by an institution other than the issuer.
Asset liability management. The management of business and financial risks by matching the financial characteristics (on- and off-balance sheet) of an entity's assets to those of its liabilities.
Back office. The area of reserve management operations responsible for confirmation, settlement and, in many cases, reconciliation of reserve management transactions.
Benchmark. The mix of currencies, investment instruments, and duration that reflect the reserve manager's tolerance for exposure to liquidity, credit, and market risks.
Confidence intervals An estimate of the probability (confidence) that an observation will fall within or outside a specified range. If the underlying data are normally distributed, a 68% confidence interval is estimated as the mean plus and minus one standard deviation and a 95% confidence interval is estimated as the mean plus and minus two standard deviations.
Credit risk. The risk of nonperformance or default by borrowers on loans or other financial assets, or by a counterparty on financial contracts. Credit risk includes replacement cost risk, principal risk and cash deposit risk.
Currency risk. The risk of adverse movements in foreign currency cross exchange rates that reduce the domestic currency value of international reserves. Currency risk on reserve assets also arises with an appreciation of the domestic currency.
Custodial risk. The risk of loss of securities held in custody occasioned by the insolvency, negligence or fraudulent action of the custodian or of a sub-custodian.
Custodian. An entity, often a bank, that safekeeps and administers securities for its customers and that may provide various other services including clearing and settlement, cash management, foreign exchange and securities lending.
Custody. The safekeeping and administration of securities and other financial instruments on behalf of others.
Dealing risk. Dealers exceed their authority in dealing with counter parties or instruments, or incorrectly process a transaction.
Delivery versus payment. A link between a securities transfer and a funds transfer system that ensures that delivery occurs if, and only if, payment occurs.
Delta. Delta measures the relationship between an option price and the underlying futures contract or stock price.
Derivative product. A contract or convertible security that changes in value in concert with and/or obtains much of its value from price movements in a related or underlying security, future, or other instrument or index.
Duration. A measure of the sensitivity of a portfolio to movements in market yields by determining the time-weighted average of the present values of all future cash flows of a security or a portfolio, discounted at current interest rates.
Front office. The area responsible for initiating investment transactions in accordance with approved delegations, limits, and benchmarks and the prompt and accurate entry of transactions into the investment management system.

Financial error or misstatement risk. The failure of the accounting system and related controls to properly record all transactions and accounting adjustments.
Interest rate risk. Sometimes also referred to as an element of market risk, interest rate risk involves the adverse effects of increases in market yields that reduce the present value of fixed interest investments in the reserve portfolio. Interest rate risk increases, *ceteris paribus,* with the duration of a portfolio.
Internal audit. An independent source of assurance about the management of risks and the operation of the control system that assists management of an organization in the effective discharge of their responsibilities.
Information ratio. Information ratio measures excess return over the benchmark per unit of observed risk.
Information technology risk. The failure of critical electronic data processing, communication and information systems causing severe disruption to reserve management functions.
Legal risk. The possibility of losses from contracts that are not legally enforceable or not properly documented
Liquidity risk. Liquidity risk refers to the possible difficulties in selling (liquidating) large amounts of assets quickly, possibly in a situation where market conditions are also unfavorable, resulting in adverse price movements.
Market risk. Risks associated with changes in market prices, such as interest rates and exchange rates. Changes in interest rates affect market prices of fixed interest securities. Hence, shorter duration securities are less at risk than long-term, fixed rate securities.
Mean variance analysis. The process of identifying and evaluating portfolios that offer the highest expected return for given levels of variance.
Middle office. Located between the front and back offices, the middle office's role is to monitor that all transactions have been performed properly, that risks are being monitored and limits observed, and that relevant information is available for management.
Mortgage backed securities. Debt instruments collateralized by residential, commercial, or industrial real estate mortgages
Official foreign exchange reserves. Those external assets that are readily available to and controlled by monetary authorities for direct financing of payments imbalances, for indirectly regulating the magnitudes of such imbalances through intervention in exchange markets to affect the currency exchange rate, and/or for other purposes. To meet this definition, reserve assets need to be liquid or marketable foreign currency assets that are under the effective control of, or "useable" by, the reserve manager and held in the form of convertible foreign currency claims of the authorities on nonresidents. To be recognized as part of official foreign exchange reserves, gold must be held by the monetary authorities, as monetary gold.
Operational risk. A range of different types of risks, arising from inadequacies, failures, or non-observance of internal controls and procedures, which threaten the integrity and operation of business systems.
Performance Attribution system. An analytical framework that isolates the effects and measures the return contributions of market allocation, currency management and security selection decisions. Performance attribution is used to evaluate the quality of the separate asset allocation and selection decisions that create a portfolio.

Pfandbriefe: Pfandbriefe are covered bonds issued to fund loans which are secured, as a rule, by first ranking mortgages or land charges (Mortgage Pfandbriefe) or lendings to the public sector (Public Pfandbriefe). They are issued by German private mortgage banks, private ship mortgage banks and public sector credit institutions.
Portfolio Optimization. Use of a linear or quadratic model to structure a portfolio to maximize or minimize, yield, long-term rate sensitivity etc., or to increase or reduce exposure to certain industries, market sectors, or macroeconomic factors, subject to prespecified constraints.
Public debt management. The process of establishing a strategy for managing the government's debt in order to raise the required amount of funding, achieve its risk and cost objectives, and to meet any other sovereign debt management goals the government may have set.
Reputation risk. A reserve manager's reputation and credibility may be called into question as a result of inappropriate reserve management actions, or unauthorized release of information.
Reserve assets. See official foreign exchange reserves.
Reserve management. The process by which public sector assets are managed in a manner that provides for the ready availability of funds, the prudent management of risks, and the generation of a reasonable return on the funds invested.
Repurchase agreement (repo). A contract to sell and subsequently repurchase securities at a specified date and price.
Risk. The possibility of financial or other losses arising from an entity's financial exposures and/or the failure of its internal control systems.
Securities Lending. A carefully collateralized process of loaning portfolio positions to custodians, dealers, and short sellers who must make physical delivery of fungible positions.
Settlement risk. The potential loss as a result of failure to settle, for whatever reason other than default, by the counterparty.
Sovereign risk. The risk that a foreign sovereign government will restrict the ability of a holder to gain access to their assets or the proceeds from the sale of such assets. Sovereign risk is an inevitable feature of reserve management since assets are necessarily held in foreign countries, often in sovereign government securities of major investment currencies, and for which there are no better investment alternatives available.
Tracking error. Tracking error is the differential in performance between a portfolio and its benchmark indicating the standard deviation of relative returns.