Refresher on Balance of Payments Accounts, Analysis & Introduction to BOP Forecasting

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2. Competitiveness and External Sustainability
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1. REFRESHER ON BALANCE OF PAYMENTS

Material Covered in Introductory Course

- Balance of Payments Structure
- Exchange Rate and Competitiveness
- Balance of Payments Developments in Myanmar
- Sustainability and Growth Contribution

Revision of Introductory Course: Balance of Payments

1. Overall Balance (1+2)
2. Current Account
   - Goods (Exports, Imports)
   - Services (Received, Paid for Transportation, Travel, Others)
   - Income (Interest payments and receipts, Repatriation of profits, labor Income)
   - Transfers (Official, Private)
3. Capital Account
   - Direct Investment
   - Portfolio Investment
   - Other Capital (Loans and Deposits)

Balance of Payments Structure

ITEM	CREDIT	DEBIT
I. Current Account		
A. Goods	Exported	Imported
B. Services (Non-Factor)		
Transportation	Exported	Imported
Travel	Exported	Imported
Other	Exported	Imported
Government, not included elsewhere	Exported	Imported
C. Income (Factor services)		
Compensation of employees	Received	Paid
Investment income, incl. profits	Received	Paid
Of which: interest on external debt	Received	Paid
D. Current Transfers	Received	Paid
II. Capital and Financial Account		
A. Capital Account		
Capital transfers	Received	Paid
Acquisition/disposal of non-produced, non-financial assets	Disposed of	Acquired
B. Financial Account		
Foreign direct investment	Received from abroad	Sent abroad
Government and publ. enterprise loans	Borrowed from abroad	Repaid or lent abroad
Portfolio flows (equity and non-equity)	Received from abroad	Sent abroad
Other (can split between banks and others)		
Medium- and long-term	Borrowed from abroad	Repaid or lent abroad
Trade credit, other short-term loans	Borrowed from abroad	Repaid or lent abroad
III. Errors and Omissions	Net (equal to IV less sum of I and II)	
OVERALL BALANCE (= I. + II. + III. = -IV.)		
IV. CHANGE IN NET INTERNATIONAL RESERVES		
Change in reserve assets (Increase = -)	Decrease	Increase
Exceptional financing (debt relief)	Received	Repaid

2. COMPETITIVENESS AND EXTERNAL SUSTAINABILITY

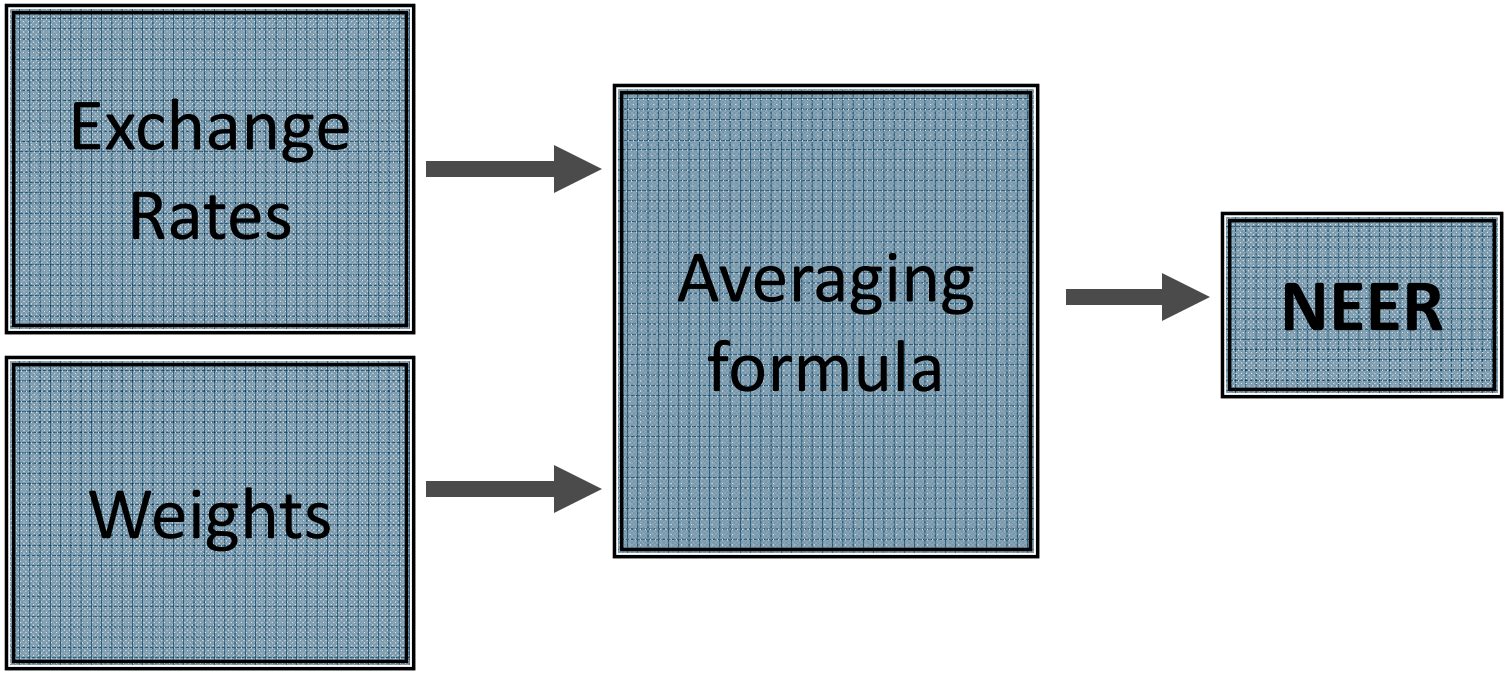
Exchange Rate Basics

- Appreciation and depreciation; kyat per US# and US$ per kyat
- Exchange rate depends on availability of foreign exchange: balance of payments and central bank intervention.
- Fundamental factor in determining exchange rate is price differentials between two countries:
  - Similar good in two countries should cost about the same → exchange rate corrects for price differential
  - This is called purchasing power parity

Nominal Effective Exchange Rate (NEER)

The NEER is a weighted average of indexed nominal bilateral rates

- Bilateral cross rates are expressed in foreign currency per domestic currency and indexed to 100 The more “important” a competitor, the higher the weight of its currency



Real Exchange Rate

Comparing the price level in Myanmar with that of other countries, all expressed in US$:

$$RER = \frac{CPI_{Myanmar}^{kyat} \cdot \frac{US\$}{kyat}}{CPI_{USA}^{US\$}} = \frac{CPI_{Myanmar}^{US\$}}{CPI_{USA}^{US\$}}$$

What does it mean if real exchange rate increases?

- Goods in Myanmar become more expensive relative to their counterparts in the USA
- Kyat becomes more expensive in terms of US dollars

This is a real appreciation which reduces competitiveness i.e. reduces exports and raises imports

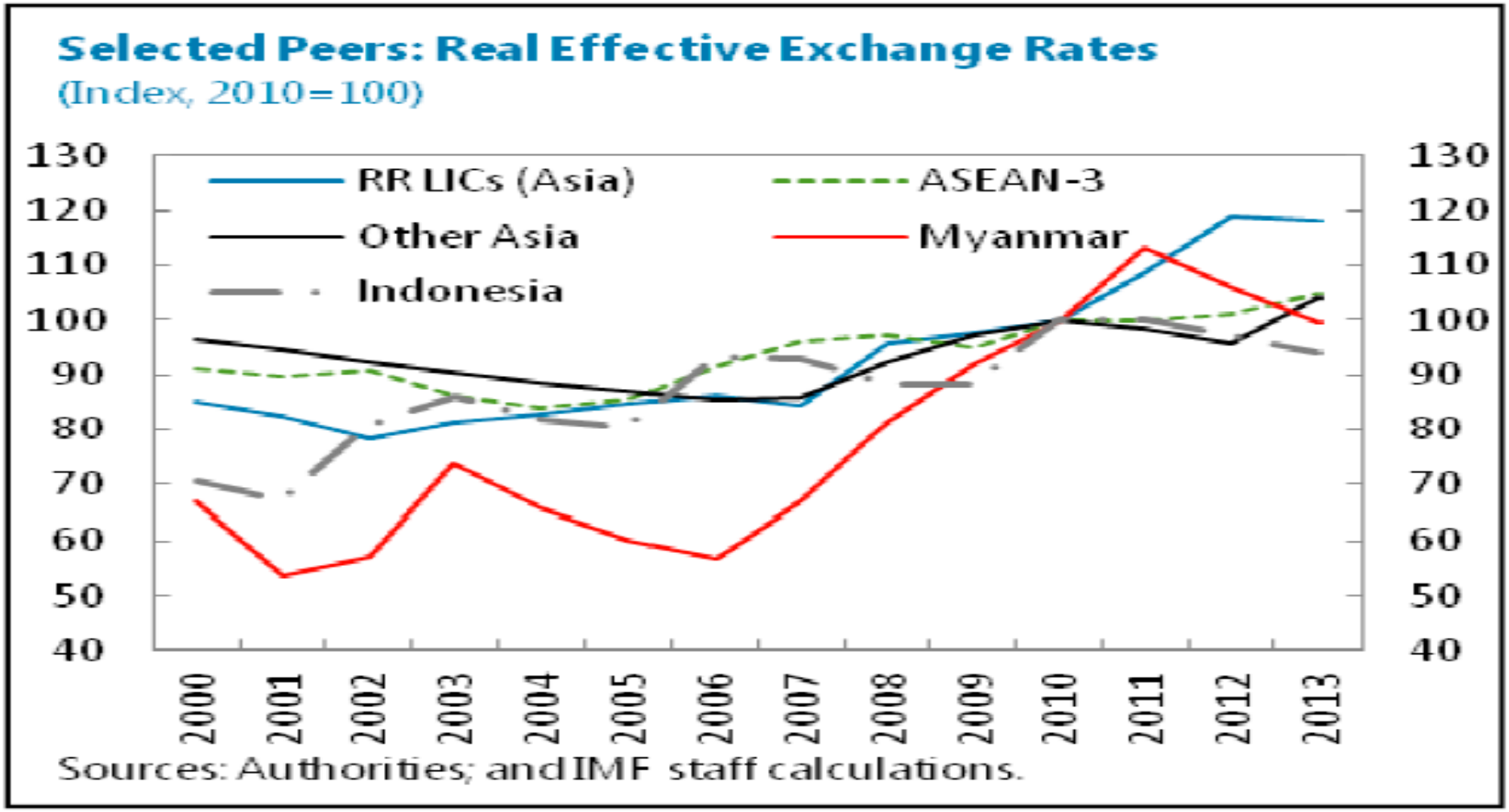
Assessing Competitiveness

- Various indicators can help assess a country's external competitiveness.
- REER is one possible method.
- Another is to monitor the size of the current account deficit: ability to earn surpluses or keep deficits small enough to avoid an unsustainable build-up of external costs.
- Trends in unit labor costs of major exports

External Factors Crucial for Growth

- Large expansion of manufacturing sector, often financed through FDI, was key driver of growth in Asia.
- This requires export driven growth strategy, which in turn needs to be supported by external competitiveness, including competitive real exchange rate, though other factors such as good infrastructure, education, and openness to trade and FDI, are also important.

Some Deterioration in Myanmar's External Competitiveness



The Current Account

- External Competitiveness is Key Determinant of Current Account
- Current Account Balance (CAB) addresses:
  - How much expenditures exceed disposable income
  - How much we are increasing our foreign "indebtedness"
- A current account deficit must be financed by increases in foreign liabilities or by declines in foreign assets.
  - CA deficits excessive/ sustainable?

Revision: What is the Current Account Deficit

- Y=C+I+G+X-M
- [Y=GDP; C=Private Consumption; G=Government Consumption; X=Exports of Goods and Services; X=Imports of Goods and Services; X-M=Current Account Balance; S=Savings]
- X-M=Y-C-I-G
- [Y-C-G=S]
- X-M=S-I

Current Account Sustainability Issues

- Can country generate future trade surpluses to repay liabilities (debt)?
  - Rate of economic growth; rate of investment; export performance; openness to trade
- Is the exchange rate misaligned?
  - Examine movements in the real exchange rate
- How vulnerable is the country to external shocks and swings in investor sentiment?
  - Volatility of Terms of Trade (TOT); export composition; composition and size of external debt.

CA deficits not always a problem

- Important to keep in mind: CA deficit need not be bad or unsustainable.
- Could be indication of healthy investment into growing economy.
- Most likely to be damaging if:
  - Fuelling consumption boom
  - Funds flow to unproductive investment, often: real estate

External Debt Sustainability Analysis

- Similarities between external and fiscal sustainability: similar methodologies
- However, also important differences; the government does not directly control the CAB
- Exchange rate normally plays larger role in external sustainability
- We will not go over external sustainability in detail.

Link between CA and External Debt

- Financing a CA deficit:
  - Equity investment into the country, E
  - Borrowing (accumulation of foreign debt, D)
  - Drawing down foreign assets, FA (bank deposits abroad, or reserves of monetary authorities)
- To the extent a CA deficit is not financed by equity investment or a drawdown of foreign assets, external debt is increasing.

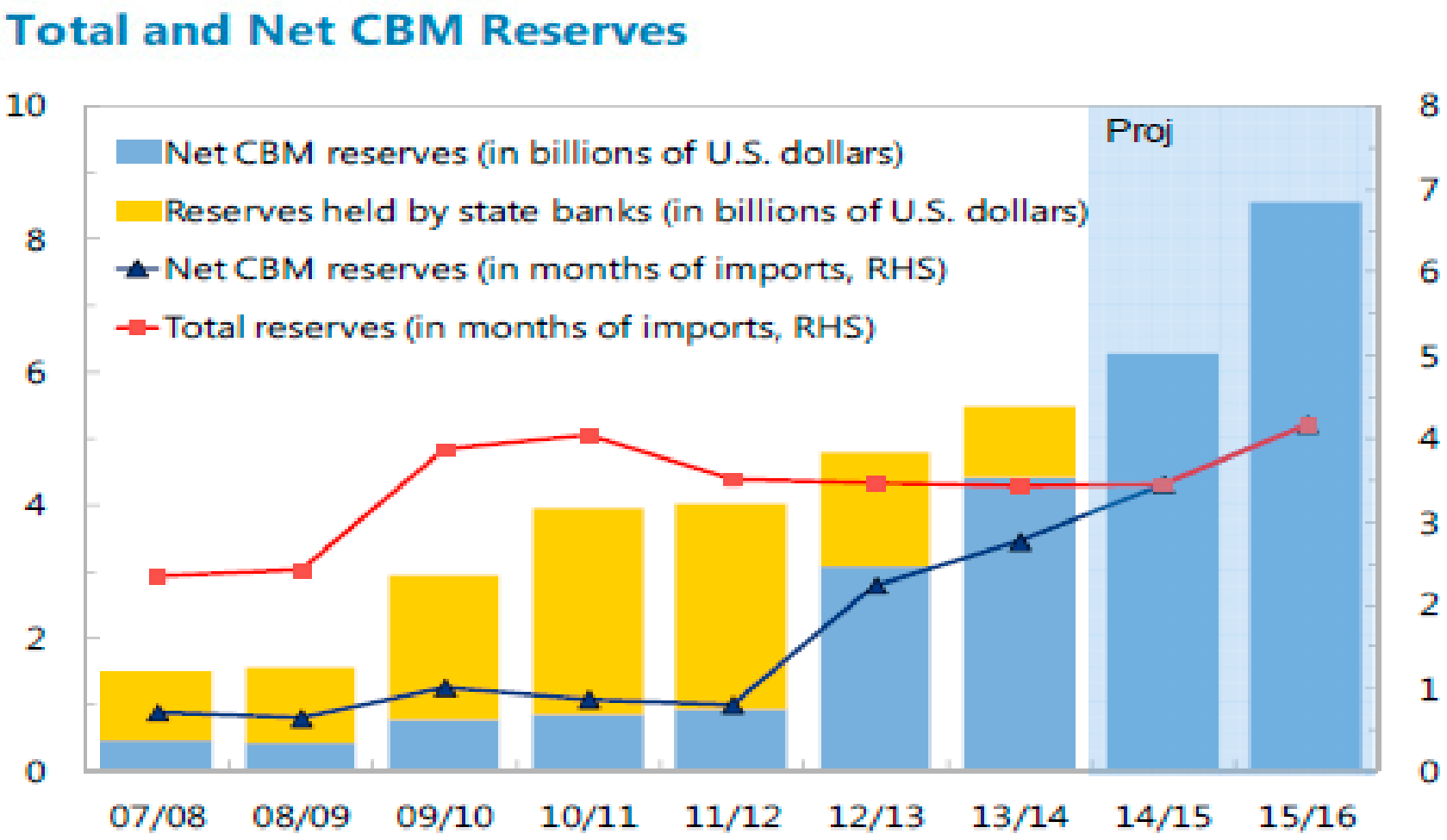
Foreign Exchange Adequacy

- Reserves can cushion country against sharp drops in export revenues, or a sudden stop in capital inflows.
- Thus, reserves can help prevent a financial crisis or a slowdown in output growth, because a country can maintain imports despite the reduction in exports.
- Central bank needs to target a level of reserves that it finds appropriate and target intervention in the foreign exchange market to maintain this level.
- Not clear what level of reserves is appropriate.
- Reserves may not always work—loss of reserves leads to loss in confidence.

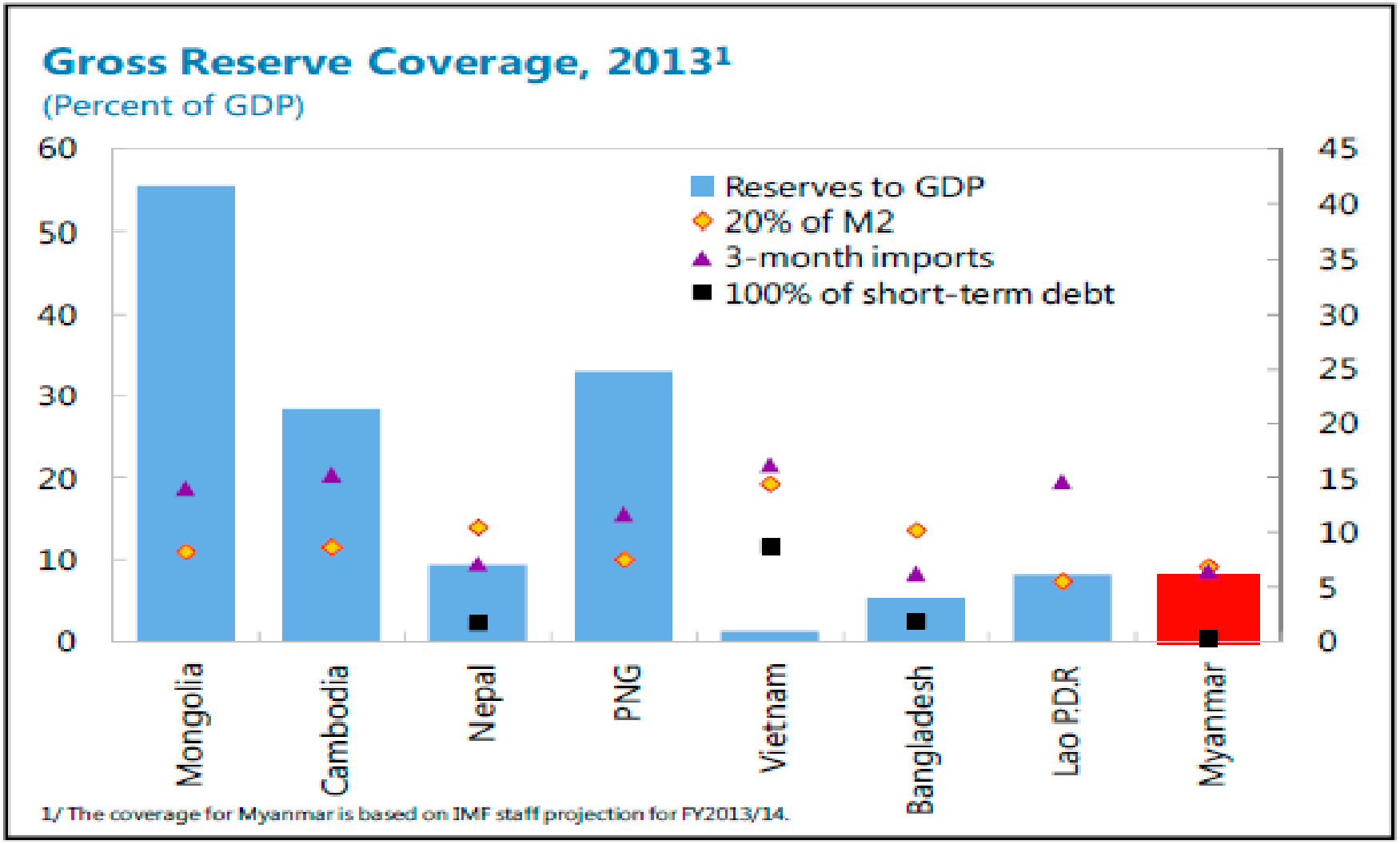
Indicators of Reserve Adequacy

- Traditional indicator is reserves in months of imports. If exports drop, how long can a country keep exporting. The traditional benchmark is 3 months, but this is out of date. IMF recommends import cover of 5-6 months for Myanmar (2013 Article IV).
- Newer indicators focus on capital account vulnerabilities.
- To what extent reserves cover debt obligations maturing over the next year. Many believe Asian Crisis of 1997-98 occurred because reserves were insufficient for this purpose.
- Reserve coverage of broad money (M2) is another possible indicator, showing vulnerability to domestic outflows i.e. residents taking their deposits out of local banks

Evolution of Myanmar's Reserves



Myanmar's Reserves Compared with Other Countries

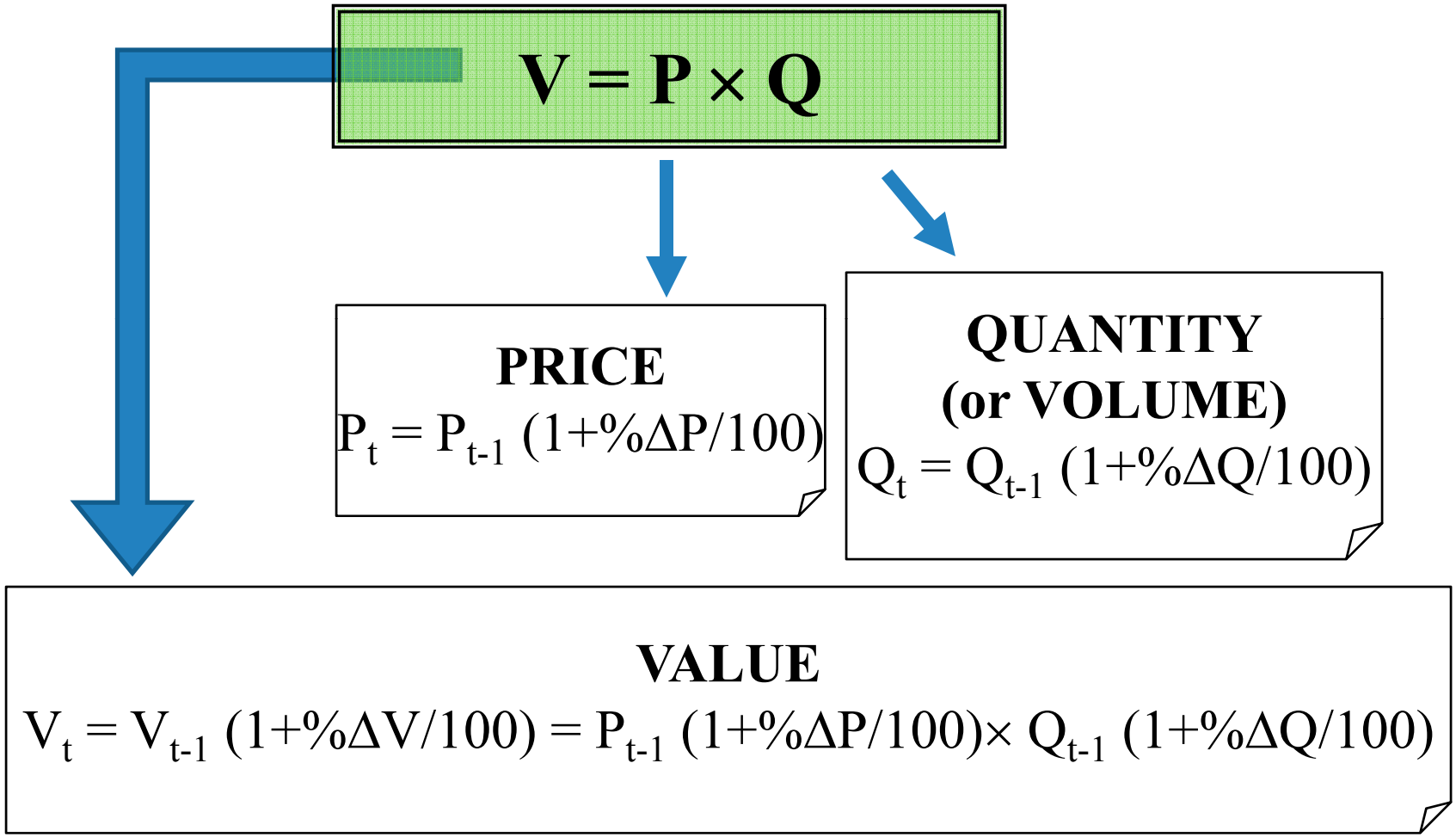


2. INTRODUCTION TO BOP FORECASTING

Inputs for forecasting

- Projected developments in the world economy
  - Forecasts from other institutions
  - IMF's World Economic Outlook
- Projected developments in the domestic economy
  - Forecasts from other sectors
  - Real sector, fiscal sector, and monetary sector
- Behavioral relationships—for example relationship between GDP and import growth

Revision: Price & Volume Changes



Forecasting Imports: Using Import Function

$$MR = f(\ ER*PM/PD;\ YR;\ \ldots)$$

Substitution effect (–)

Income effect (+)

where:

- ER*PM/PD = relative price of imports to domestic production, expressed in home currency
  - ER = nominal exchange rate (in home currency per $)
  - PM = $ import price
  - PD = home production price (GDP deflator)
- YR = domestic income (proxied by real GDP)

Standard Export Function

$$XR = f\left((PD/ER)/PD^{*}; YR^{*}; \ldots \right)$$

Price effect (-)

Foreign income effect (+)

where:

- ER = nominal exchange rate (in home currency per $)
- PD = domestic price level (in home currency)
- PD* = foreign price level (in $)
- YR* = foreign income (proxied by real GDP in importing countries)

Forecasting Exports: Using Export Elasticities

Projected change in export volume:

$$\%\Delta XR = \{\varepsilon_P * \%\Delta((PD/ER)/PD^*)\} + \{\varepsilon_Y * \%\Delta YR^*\}$$

RELATIVE PRICE ELASTICITY:

	Typical estimate
ST (1 year)	~(-0.2)
LT (> 1 year)	~(-1)

FOREIGN INCOME ELASTICITY: Typical estimate 0.5 to 1.5

Forecasting Export Values

- Forecast export price growth (%ΔPX)
  - Use WEO forecasts
- Forecast export volume growth (%ΔXR)
  - Use estimated elasticities to get %ΔXR
  - Or use regression equations to get XR
- Compute export value
  - $X_t = X_{t-1} \times (1+\%\Delta PX/100) \times (1+\%\Delta XR/100)$

Projecting Exports—Supply Approach

What determines country's available supply of export products:

- Past developments, especially investment.
- Outlook for export volume—depends on domestic production, consumption, change in stocks, institutional factors.
- Outlook for selling price
  - World prices if "small" country
  - If "large" country depends on export volume.

Projecting Exports—Supply Approach

Approach more useful in the case of a exporter of commodities, only some of which is consumed domestically (e.g., copper, oil):

Alternative specification:

$$\mathbf{XR = f(YR, ER \times P_F/P, XDEMAND)} \quad (+ \quad + \quad -)$$

where

YR= productive capacity in the export sector (can be proxied by value added in the sector)

XDEMAND = excess demand (real spending minus potential output)

- In some cases, can forecast as product of output for export production x export price per unit

Disaggregation of Exports

- Again, elasticity approach only appropriate for some categories.
- For Myanmar we split forecast into:
  - Gas: growth of volume based on judgment and available information) and international oil prices
  - Agriculture, garments: supply side, based on growth of domestic capacity (GDP). Foreign income and REER may work well in some countries.
  - Other: 20% growth assumption, assumes strong diversification of Myanmar economy.

Projection of Agricultural Exports

Agricultural exports		C	D	E	F	G
Agricultural exports in millions of US$ (l 112)		2,570	3,375	3,560	3,845	3,881
change in % (l 1113)			31%	5%	8%	1%
International food price index (2005=100) (l 114)	162	175	179	176	166	158
change in % (l 115)		8%	2%	-1%	-6%	-4%
Volume index (2005 prices) (l116)		1,464	1,891	2,018	2,320	2,450
change in % (l 117)			29%	7%	15%	6%
Supply potential growth (l 119)			7%	8%	8%	9%
Scale elasticity: (l 120)			9%	11%	11%	11%
1.3						
Relative price index [use t-1] (l 122)		805	846	894	824	787
change in % (l123)			5%	6%	-8%	-5%
Relative price elasticity: (l 124)				4%	4%	-5%
0.7						
International food price index (2011/12=100) (l126)		100	102	101	94	90
change in % (l 127)			2%	-1%	-6%	-4%
Kyat/US$ exchange rate ave (l128)		805	855	966	1,002	1,056
change in % (l129)			6%	13%	4%	5%
Myanmar CPI ave (2011/12=100) (l130)		100	103	109	115	121
change in % (l 131)			3%	6%	6%	6%

Projection of Agricultural Exports

- Agricultural exports in millions of US$= G114 (Agricultural export price index)/100*G116 (Agricultural export volume index)
- G114='Real sector - Annual'!H34 (Commodity prices Commodity prices (Food, WEO, PFOOD)
- G116==F116*(1+G117 (percentage growth in volume))
- G117=$A$125 (Price elasticity of agricultural export volume (0.7)) *G123 (percentage change in relative price index, 0.7)+$A$121 (Income elasticity of agricultural exports, 1.3)*G119 (supply potential growth, from 'Real sector - Annual'!G10,)
- G178=G181 (Agricultural price index in US$)*G183 (Kyat/US$ exchange rate ave)/G185 (Myanmar CPI ave)

Forecasting Imports: Using Import Elasticities

Projected change in import volume:

$$\%\Delta MR = \{\eta_P * \%\Delta(ER*PM/PD)\} + \{\eta_Y * \%\Delta YR\}$$

RELATIVE PRICE ELASTICITY:

	Typical estimate
ST (1 year)	-0.1 to -0.7
LT (>1 year)	-0.5 to -1.5

INCOME ELASTICITY:
Typical estimate
1.0 to 2.0

Forecasting Import Values

- Forecast import price growth (%ΔPM)
  - Use WEO forecasts

- Forecast import volume growth (%ΔMR)
  - Use estimated elasticities to get %ΔMR

- Compute import value
  - $M_t = M_{t-1} \times (1+\%\Delta PM/100) \times (1+\%\Delta MR/100)$

Disaggregation of imports

- Generally don't forecast total imports: break down to key components. For Myanmar we separate:
  - Fuel imports
  - Imports financed by FDI (mostly machinery)
  - Other imports
- Elasticity approach not equally good for all components. Project FDI-financed imports based on judgment and possibly discussion with major enterprises financed by FDI.

Projection of Imports in the Spreadsheet

- Imports divided between Oil and Non-Oil
- Non-oil imports are divided between “FDI related” and “Other”. Former depend on quantity of FDI.
- We focus on Imports of Oil.
- Non-oil “Other” have the same methodology, except for different elasticities and different import price index.

Oil Imports in External Sector Spreadsheet

Oil imports		C	D	E	F	G
Oil imports in millions of US$ (l164)		1,765	1,456	2,104	2,067	2,060
			-18%	45%	-2%	0%
Fuel price index (2005=100) (l166)	157	200	192	191	168	145
change in % (l167)		27%	-4%	0%	-12%	-14%
Volume index (2005 prices) (l168)		883	759	1,103	1,229	1,419
change in % (l169)			-14%	45%	11%	15%
Real income growth (l171)	5.3%	5.9%	7.3%	8.3%	8.5%	8.5%
Income elasticity - over transition period:						
1.5						
Income elasticity - after transition period:						
1.2						
Relative price index [use t-1]		805	798	849	735	633
change in % (l178)			-1%	6%	-13%	-14%
Relative price elasticity: (l179)						
-0.2						
Fuel price index in US$ (2011/12=100) (l181)		100	96	96	84	73
change in % (l182)			-4%	0%	-12%	-14%
Kyat/US$ exchange rate ave (l183)		805	855	966	1,002	1,056
change in % (l184)			6%	13%	4%	5%
Myanmar CPI ave (2011/12=100) (l185)		100	103	109	115	121
change in % (l186)			3%	6%	6%	6%

Calculation of Oil Imports

- Oil imports in millions of US$= G166 (Fuel price index)/100*G168 (Fuel volume index)
- G166='Real sector - Annual'!H31 (Commodity prices (Fuel, WEO, PNRG, average)
- G168==F168*(1+G169 (percentage growth in volume))
- G169=$A$180 (Price elasticity of oil import volume (-0.2)) *G178 (percentage change in relative price index)+$A$173 Income elasticity of oil imports, 1.3)*G171 (real GDP growth, from 'Real sector - Annual'!H10, 8.5%)
- G178=G181 (Fuel price index in US$)*G183 (Kyat/US$ exchange rate ave)/G185 (Myanmar CPI ave)

Services

- Forecast separately: tourism, other services
- Tourism: growth in arrivals (key: GDP growth in major countries from which tourists come, exchange rate), average spending per tourist
- Government service payments rise in line with government spending.
- Other services: much transportation, closely linked to goods trade
  - Other credits proportional to goods exports
  - Service debits proportional to goods imports

Projecting Services and Private Transfers

- Exports of services have grown very rapidly but are assumed to slow down to 15%--a reasonable assumption for tourist revenues.
- Imports of Services grow at same rate as (exports + imports).
- Also slowdown in private transfers to 15% growth.

Income: interest payments

- Interest payments
  - Interest due is equal to the interest rate times the average stock of debt: $IY_t = i_t \bullet (D_t + D_{t-1})/2$ (see discussion on public sector debt payments).
  - We need: Stock of foreign debt (D_{t-1}), the new financing (ΔD_t), and the interest rate (i_t)
  - Note the role of the stock of external debt

Forecasting Transfers

- Private: mainly workers' remittances
  - Consider past trends, cyclical position of the host country, exchange rate expectations

- Official: mainly foreign grants
  - Consider past trends, any outstanding official commitments or special relationships.
  - Should be discussed with donor representatives.

Revision: Capital & Financial Account

- **Equity**

(Non-debt creating)

–FDI

–Portfolio

(e.g. Stock market)

- **Debt**

(Debt creating)

–Portfolio

(International bond issues)

–LT borrowing

–ST borrowing

Forecasting Foreign Direct Investment

Consider:

- Past trends
- Expected changes in:
  - Domestic market size; growth prospects; labor force skills; export opportunities
  - Macroeconomic stability;
  - Investment climate (rules and regulations)
  - Privatization policies;
  - Implementation of major projects, discuss with major companies.

Myanmar Financial Account and Overall Balance

Financial account (increase in liability: +)		2,503	-4,269	3,160	4,381	5,026
Direct investment: liabilities		2,035	1,147	2,633	3,350	3,850
Equity and investment fund shares		0	0	0	0	0
Debt instruments		2,035	1,147	2,633	3,350	3,850
Other investment: liabilities		468	-5,416	527	1,031	1,176
Other equity		0	0	0	0	0
Debt instruments		468	-5,416	527	1,031	1,176
Public MLT debt - net			-5,374	785	1,289	1,434
Public MLT debt - disbursements			811	993	1,478	1,875
Public MLT debt - repayment			129	208	189	441
Change in arrears (+ increase)			-6,056			
Private MLT debt - net			-42	-258	-258	-258
Errors and omissions (+ unrecorded inflows)		-1,615	1,097	-236	0	0
Current + capital + financial account balances		1,628	1,219	1,820	1,034	628
Overall balance		13	2,316	1,585	1,034	628
Check (should be zero)		-	-	-		
Financing		-13	-2,316	-1,585	-1,034	-628
Gross official reserves (increase: -)		-13	-2,316	-1,585	-1,034	-628

THANK YOU