

BOP Notes

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- BOP/IIP captures cross-border flows/stocks between residents and non-residents
- Unit is resident if it carries out economic activity in the territory either indefinitely or for a fixed but long period of time (more than one year)

The Current Account

- The current account can be written as

$$CA_t = TB_t^{GS} + TRAN_t^C + NETLABINC_t + NETINVINC_t \quad (1)$$

$$CA_t = TB_t^{GST} + NETINVINC_t \quad (2)$$

- Net investment income is

$$NETINVINC_t = INVINC_CREDIT_t - INVINC_DEBIT_t \quad (3)$$

$$NETINVINC_t = YLD_{At} * A_{t-1} - YLD_{Lt} * L_{t-1} \quad (4)$$

- where YLD is the yield rate (interest payments, dividends, profits on FDI), A is the stock of foreign assets and L is the stock of foreign liabilities at the end of period $t - 1$.

The Financial Account

- The financial account can be written as

$$FIN_t = FLOW_{At} + FLOW_{DERIV_t} - FLOW_{Lt} \quad (5)$$

$$FLOW_{At} = FLOW_{At}^{FDI} + FLOW_{At}^{PEQ} + FLOW_{At}^{PD} \quad (6)$$

$$+ FLOW_{At}^{OD} + FLOW_{At}^{RES} \quad (7)$$

$$FLOW_{DERIV_t} = \text{Net acquisitions of derivative positions}$$

$$FLOW_{Lt} = FLOW_{Lt}^{FDI} + FLOW_{Lt}^{PEQ} + FLOW_{Lt}^{PD} \quad (8)$$

$$+ FLOW_{Lt}^{OD} + FLOW_L \quad (9)$$

- "Rate of Flow"

$$RFLOW_{X_{it}} = \frac{FLOW_{X_{it}}}{X_{it-1}} \quad (10)$$

- The capital account can be written as

$$KAP_t = KTRAN_{At} - KTRAN_{Lt} \quad (11)$$

- Examples of capital transfers
 - Some types of foreign aid
 - Transfer of ownership of non-financial assets (land, mines, equipment)
 - Assets of migrants
 - Debt forgiveness

- The balance of payments must add to zero

$$CA_t - [FIN_t + KAP_t] + EO_t = 0 \quad (12)$$

where EO_t is the balancing “errors and omissions” term (statistical discrepancy)

The International Investment Position

- Foreign Assets are

$$A_t = FDI_{At} + PEQ_{At} + PD_{At} + OD_{At} + RES_{At} \quad (13)$$

- Foreign Liabilities are

$$L_t = FDI_{Lt} + PEQ_{Lt} + PD_{Lt} + OD_{Lt} \quad (14)$$

- Net value of derivative positions is $DERIV_t$
- Net international investment position (NIIP or NFA)

$$NIIP_t = A_t + DERIV_t - L_t \quad (15)$$

- A stock position X evolves according to

$$X_t = X_{t-1} + FLOW_{X_t} + VAL_{X_t} + OTH_{X_t} \quad (16)$$

- The valuation term VAL_{X_t} includes changes in market prices, exchange rates and write-downs
- The residual term OTH_{X_t} reflects gaps between survey data and flow data, gaps between market value and book value (FDI) and data revisions
- The “rate of capital gain” is a useful concept

$$KGR_{X_t} = \frac{VAL_{X_t}}{X_{t-1}} \quad (17)$$

- The overall rate of return is

$$ROR_{X_t} = \frac{INVINC_{X_t} + VAL_{X_t}}{X_{t-1}} \quad (18)$$

- The *NIIP* evolves according to

$$NIIP_t - NIIP_{t-1} = (A_t - A_{t-1}) - (L_t - L_{t-1}) \quad (19)$$

- or

$$NIIP_t - NIIP_{t-1} = NETFLOW_t + NETVAL_t \quad (20)$$

- since the net flow just equals the current account (assuming $KAP = EO = 0$)

$$NIIP_t - NIIP_{t-1} = CA_t + NETVAL_t \quad (21)$$

- which can be written as

$$NIIP_t - NIIP_{t-1} = TB_t^{GST} + NETINVINC_t + NETVAL_t \quad (22)$$

$$NIIP_t - NIIP_{t-1} = TB_t^{GST} + NETRET_t \quad (23)$$

- Indicating ratios to GDP with lower-case letters, we can write dynamics of *NIIP* as follows

$$b_t - b_{t-1} = bgst_t + \frac{yld_t^A A_{t-1} - yld_t^L L_{t-1}}{Y_t} + \frac{KG_t}{Y_t} \quad (24)$$

$$- \frac{g_t + \pi_t}{(1 + g_t)(1 + \pi_t)} b_{t-1} + \varepsilon_t \quad (25)$$

where b_t is NIIP-GDP ratio, g_t is the growth rate of real GDP, π_t is the inflation rate, and the term ε_t includes the ratio of capital transfers and errors and omissions to GDP.

- Sum of: (i) trade balance; (ii) investment income; (iii) capital gains; (iv) growth effect; (v) residual

- Define gross real rate of return on foreign assets

$$1 + r_t^A = \frac{(1 + yld_t + kg_t^A)}{(1 + \pi_t)}$$

- We can then write

$$b_t - b_{t-1} = bgst_t + \frac{r_t^L - g_t}{1 + g_t} b_{t-1} + \frac{r_t^A - r_t^L}{1 + g_t} a_{t-1} + \varepsilon_t$$

- or

$$b_t - b_{t-1} = bgst_t + \frac{r_t^W - g_t}{1 + g_t} b_{t-1} + \frac{(r_t^A - r_t^W)}{1 + g_t} a_{t-1} - \frac{(r_t^L - r_t^W)}{1 + g_t} l_{t-1} + \varepsilon_t$$

- Net position matters via second term
- Gross positions matter via third and fourth terms
- Composition matters

- Mark-to-market for portfolio equity and portfolio debt
- Non-portfolio debt: as valued by banks
- FDI: book value versus market value
 - Equity component; Debt component
 - Book value of equity: cumulative equity flows
 - [Retained earnings counted in flows]
 - Market value: stock prices for listed affiliates; market price of parent; indexation of acquisition price; market index for destination country
- Quality of data on derivative positions suspect (valuation of OTC positions)

- “Dark Matter”: capitalise investment income to obtain stock estimates
- Major problem: valuation of FDI
- Transfer pricing: raises foreign profits of US firms but reduces services exports by same amount - zero impact on CA
- Retained earnings (US vs non-US): different incentives
- Intangibles: measuring investment in non-tangible assets
- Capturing offshore vehicles: SIVs etc

- Bilateral Data
- Consolidated Positions
- Currency Exposure