S-I Balances

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S-I Framework

- \( Y \equiv C + I + G + X - M \)
- \( C \equiv Y - T - S \)
  - Where \( T \) is taxes, \( S \) is savings
- Then
- \( (S-I) + (T-G) + (M-X) \equiv 0 \)
  - Net savings must be zero – resources that are produced, or income that is received, has to go somewhere
S-I continued

• More useful to rewrite:
  – \((S-I) + (T-G) \equiv (X-M)\)
    • domestic savings must equal the trade surplus
    • that’s the only way on net to obtain foreign assets
  – We can think of this as either the flow of
    • Real goods & services
  – or the flow of
    • Financial assets
we can break S-I down further

\[ (S_{Hse} - I_{Hse}) + (S_{Corp} - I_{Corp}) + (T-G) \equiv (X-M) \]

- In US, historically (pre-1980) each term on the left side was close to zero as a share of GDP
  » No longer!
- In Japan, historically (pre-1975) the household sector ran a large surplus, the corporate sector a large deficit, while both trade and government were close to zero
  » No longer true!
- A priori: what changed? so what?
- Remember this is an accounting identity, we need to think carefully about causation!!
US context

- prior to 1980 balanced S-I
- then came Reagan
  - “supply side” tax cuts (to the Republican right), *anti-recession stimulus internally*!
  - “Star Wars” boost in G (lots of other programs, too)
  - so (T-G) went from balance to negative
    - and the recession ended, helped by the Fed
Contemporary Analysis

• As economy recovered, recession-driven (S-I) > 0 would disappear
  – but interest rates would rise, crowding out “I” and limiting recovery
    • interest rate channel: too many borrowers, interest rates would rise
    • goods: in partial equilibrium, tax cuts boosted “C”, recovery “I” and Star Wars “G”
    • not mutually consistent! – “I” and/or “C” suffer
Ex post

• Interest rates did rise
  – while “I” did rise
  – so did “C” and “G”
  – (X-M) was the adjustment mechanism!!
    • unprecedented in post-1914 era

• ➔ digression on forex markets
Foreign exchange

• hold forex for 4 reasons
  – trade (to buy imports)
  – DFI / portfolio (pensions, factories, M&A)
  – short-term earnings $i_{\text{foreign}} - i_{\text{home}}$
  – speculation

• S & D analysis
  – supply = “selling” dollars (to purchase ¥)
  – demand = “buying” dollars (w/ Japanese ¥)
business cycle / trade

• If we have a recession, then ceteris paribus
  – incomes and hence imports fall
  – exports remain unchanged
    • lower sales of US$ for ¥ for US imports
    • unchanged purchase of US$ by Japan for their imports
  – S shifts in, ¥ depreciates (more ¥ per $)
interest rates

• if US rates rise, Japan’s don’t
  – supply of US$ shifts left as we leave money in NY
  – demand for US$ shifts right as Japanese money managers park more funds in NY
• net = higher ¥/$
  – ¥ depreciates / $ appreciates
  – US imports rise, exports fall = (X-M) ↓
other factors

• if the US has high inflation and Japan none
  – the US dollar will depreciate to maintain Purchasing Power Parity

• if productivity in Japan increases faster than in the US
  – the US dollar will depreciate as it becomes harder for us to export / cheaper to import
Empirical

• Look in first slide at shifts in sectoral savings in US
• Lines in second chart are the sum of these separate sectoral surpluses and deficits
  – big net domestic savings deficits in mid-1980s and after 2000
Our Bubble: Household Saving is Negative!!
US Net Financial Flows, % of Value Added

- Household
- Government
- Business
- Net domestic
- Rest of World (neg)
Interest rate response

• The following two charts look at
  – how US domestic (real) interest rates responded
  – how the yen / dollar rate responded
When US Real Interest Rate Fell Then....holding yen became much more attractive ...
It takes 2 to tango

• Japan’s example
  – Germany is similar

• postwar growth slows
  – investment slows while corporate profits rise
  – savings plays catch-up with income growth and rises

• net (large) private savings surplus
adjustment

• \((S-I) + (T-G) = (X-M)\)
  – with first turning positive we need some combination of
  – higher government deficits and/or
  – bigger trade surpluses

• in the 1970s the former, in the 1980s the latter
# Japanese Savings & Investment Balances

**Long-run Evolution 1955-2002**

*Household, Corporate, Government, National*

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Japan private sector S-I

- in the early postwar era periodic big savings shortfalls
  - so ca. 1961 (X-M) deficit but ran out of dollars, IMF stepped in
  - by late 1960s domestic balance and (with a government surplus) small trade surplus
- chronic savings surpluses after 1970
  - except for first oil crisis and 1989 bubble
Savings and Investment Flows

Pre-1990 data are SNA68, 1990-2002 data are SNA93

Net Household Savings Supplied  Net Investment Funding Demanded  (Household Savings)
Global story

• breakdown of global savings deficits and surpluses
  – US against the world
  – fortunately the rest of the world wanted to lend money while we wanted to borrow money
  – so everyone was happy

• Fehr et al. – will they remain happy?
Global Savings Distribution
Oh, and composition

• Why, everyone wanted US treasuries!
  – with Euro-zone problems, will there be flight to the US$ (and UK £ sterling)?
  – and flight to japanese yen?

• so despite our very large deficits
  – it remains easy to sell bonds
  – and no end in sight
    • ?? eventual gradual adjustment, cf. Fehr et al.
Financing of US International Deficit

Foreign Gentlemen Prefer Bonds
The End

• remains to be written!
• how will global economy adjust …
  – and individual countries adjust
• … to large imbalances
• will China treat us to dinner?
  – lending us the money to continue investing
    and consuming and retiring?
  – if not, what will give?