Financial Exchange Rates and International Currency Exposures

Discussion by

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Comments on
“Financial Exchange Rates and International Currency Exposures”
by Philip Lane and Jay C. Shambaugh

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Outline

• Goal
  – Understand financial implications of currency movements

• New primary data
  – Need to construct a dataset of external/asset liability currency weights

• Empirical analysis (first cut)
  – What has happened?
  – How big are these effects?
  – Are they changing over time?
Why do we care?

- Valuation effects are big; dominated by exchange rate effects in most cases
- Large after emerging market crises

**Cumulative change in external wealth due to valuation effects 1993–2003 (% of GDP)**

- Indonesia: $-37\%$
- Thailand: $-28\%$
- Philippines: $-26\%$
- Argentina: $-21\%$
- Malaysia: $-18\%$
- Turkey: $-14\%$
- Brazil: $-9\%$
- Korea: $-4\%$
Why do we care?

- Negative wealth shocks can have real effects
  - E.g., if consumption or investment depend on wealth via net worth of households and firms (borrowing constraints, collateral constraints)
Notation

• Basic accounting for a single foreign currency i
  – Notation could be simpler? If \( W = A_H - L_H + E(A_F - L_F) \)
  – Change in \( W \) due to \( E = \Delta E(A_F - L_F) \)

• Normalize by GDP
  \[
  \frac{\Delta W}{GDP} = \frac{\Delta E}{E} \times \frac{E(A_F - L_F)}{GDP}
  \]
  – Repeat and aggregate over multiple currencies
  – Weight attached to currency i is \( W_i = E(A_F - L_F)/GDP \)

\[
\frac{\Delta W}{GDP} = \sum W_i \frac{\Delta E_i}{E_i}
\]

• Like trade weighted exchange rate (NEER), could compute recursively from benchmark year. But there is a problem: the weights here need not add to 1. Could = 0 [or <0].
Notation

- Using the simple (unconstrained) \( W \) weights conflates two effects, so more notation used to break down the valuation effect

\[
W_i = \frac{E_i(A_{F_i} - L_{F_i})}{GDP}
\]

\[
W_i = \frac{E_i(A_{F_i} - L_{F_i})}{E_i(A_{F_i} + L_{F_i})} \times \frac{E_i(A_{F_i} + L_{F_i})}{\sum_i E_i(A_{F_i} + L_{F_i})} \times \frac{\sum_i E_i(A_{F_i} + L_{F_i})}{GDP}
\]

Lane Shambaugh weight \( w \) for each currency \( i \) (also broken down by asset class \( k \), time \( t \))

- Why is this helpful? Don’t like unconstrained weights.
- Extracts scaling factor. \( A+L \) has growing fast in last 10-20 years.
- The \( w \) weights have to be between –1 and +1.
- Use the above \( w \) to compute a “scale free” financial ex rate index
Data

\[ \frac{\Delta W}{GDP} = \sum W_i \frac{\Delta E_i}{E_i} \]

• Finding the exchange rates is easy
• Constructing the weights is very hard
  – Disaggregate by asset class, some guesswork (but not much)
  – Detective work needed to infer “secret” details on the composition of central banks’ forex reserves
  – As with many papers, describing data takes up 10% or less of discussion, but probably took 90% of the time.
  – Very carefully done and a major contribution
Results

• Makes sense to check on correlation with trade weighted exchange rate index
  – Not much correlated with trade weighted exchange rates (as expected, Table 1)

• Although the asset and liability parts of this exchange rate are as volatile as a conventional NEERs, the net financial exchange rate is much less volatile (Table 2).
  – However, since A+L is growing, even if that measure stays constant, the real impact of such volatility has been growing over time.
  – And we are comparing apples and bananas anyway
  – The big story is that on average during a nasty shock [for an EM], these effects can be large (as we have seen)
    • Sudden stop wealth loss = -8% times (A+L)/GDP
    • Big change (deval>50%) wealth loss = -30% times (A+L)/GDP
Changes over Time

• Significant
  – Emerging/developing negative exposure to foreign currencies has fallen by 3/4 from 1994 to 2004
    • Median FXAGG (= sum of $w_i$) falls from −0.43 to −0.10
  – Median impact of a 1% devaluation has also fallen, but not as much for the same group of countries
    • Median NETFX (= FXAGG * IFI) falls from −0.36 to −0.13
  – Advanced countries maintained steady positive exposure but the scale has gone up dramatically
    • Median FXAGG (= sum of $w_i$) rises from +0.08 to +0.09
    • Median NETFX (= FXAGG * IFI) rises from +0.08 to +0.36

• Summing up (Tables 5 and 7)
  – Most countries have seen balance sheets grow
  – EM and Dev have reduced their -ve FX exposures
    • Adding up? EM/Dev small. And a lot of Advanced scaling up is “within”?
Why the Shift?

• Explaining what has happened
  – Table 8 only does a cross-section analysis for 2004
  – But why is 2004 so different from 1994?
    • Were either/both optimal?
    • GDP per capita “explains” a lot but is always unappealing on the right hand side
    • This is the only major hole
    • Perhaps not needed in this paper, as there is so much in there already, and is possibly a direction for future work
Big Impacts

• Explaining why it matters
  – Exchange rate drives everything (Table 9)
    • Pass through is ~1 to total valuation effect
    • Known exceptions (e.g. U.S. “other” valuation effects according to BEA, if you believe the data…)
  – Dev/EM get much bigger wealth hits (Table 10)
    • NETFX is smaller in these countries
    • But their exchange rate volatility is much higher
      – Mean of ABS(VALxrr) is 5.3% of GDP for Dev, 3.8% for EM, versus 2.8% for Advanced
    • Small suggestion: switch away from absolute values
      – Show the distribution of signed levels.
      – Then we can see the skewness in it (currency crashes).
      – And/or in this table too provide summary stats for VALxrr for sudden stops and big change (as per Table 2)
Summing Up

- Provides a significant advance in our understanding of exchange-rate driven valuation effects
  - Constructs the necessary data (not easy)
  - Shows that exchange rate is main valuation effect in most countries
    - Yet, although exposure is less in Ems/Devs they take bigger hits due to more volatile exchange rates
  - Shows how countries’ exposures have changed
    - Provokes other questions:
      - Why have these changes occurred?
      - Was their learning after the 1990s crises?
      - What explains private versus official changes?
        - Has the accumulation of reserves been driven in part by some policy goal of reducing aggregate currency mismatch?
        - Or by other factors?