

**Do We Really Know that  
Currency Crises are Macroeconomic?**

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## **Original idea of Krugman (1979):**

- Demonstrate that sluggish macroeconomic behavior consistent with sudden crises
- Contrast between slow deterioration of fundamentals and discrete loss of reserves bound together by no (expected) arbitrage condition
- Many different models of fundamentals
  - Subsequent “generations” of models add different sluggish phenomena: political vulnerability stemming from macroeconomic conditions, weak banking systems, etc.

## **Basic Idea of this Talk**

- Ask “Do We Really Know that Currency Crises are (mostly)

Macroeconomic Phenomena?”

- Question if there is substantive evidence that macroeconomic forces consistently help predict vulnerability to currency crises

## Analogy in Tranquility

- Meese and Rogoff on floating exchange rates
  - Macroeconomic fundamentals do not help predict exchange rates *ex ante* better than random walk at horizons up to two years
  - Interpretation is that existing fundamental models are sufficiently poor as to be valueless, not that macroeconomics is ultimately irrelevant

## Corresponding Question for Currency Crises

- Are extreme changes in exchange rate levels *ex ante* predictable on the basis of macroeconomic fundamentals?
- Important question, since these are often switches in exchange rate regimes.
  - Political and economic consequences of regime switches often high
  - Perhaps these were unavoidable in part simply because of difficulty of identifying crisis vulnerability

- Much work has gone into developing “Early Warning Systems” for currency crises, both academic and IFIs
  - New IMF department

## Evidence

- Macroeconomic phenomena reasonably unhelpful in forecasting crises
  - Explaining time-series variation is difficult; early warning systems predict poorly out of sample
- Similarly difficult to explain cross-sectional incidence of crises
  - Hard to explain why some crises spread and others do not
  - Note: separate issue from “channels” debate (trade vs. financial)

## **Anecdotal Evidence**

- No commonly accepted set of macro fundamentals to assess vulnerability to attacks currently exists, for low-inflation countries
  - Each new wave of currency crises seems to prompt new generation of currency crisis models
  - Macroeconomic fundamentals differed wildly across Asia 1997 somewhat across Europe 1992, Latin America 1994

## “Signals Approach”

(Kaminsky-Reinhart and co-authors)

- Variables which “signal” when they exceed threshold
- Choose variables to minimize noise/signal ratio for ex-post crisis prediction
- Approach has many choice variables => fit is better in-sample than out-of-sample (probability threshold, event window, variable set, etc.)
- Results seem reasonably unstable, sensitive

## **“Exchange Market Pressure Approach”**

(Eichengreen-Rose and co-authors)

- Probit Models also have many choices (weights of EMP, event threshold, exclusion window, variables in EMP, choice of regressors, etc.)
- Again, results are not robust

- Still, little evidence that either crises or “events” have substantial macroeconomic differences
  - Table 2, Figure 2 in original Eichengreen et al
  - Figure 7 in Eichengreen et al (1995); Table 2
  - Table 1 in Frankel and Rose (1996): poor predictive fit, even using in-sample forecasting

## **Time Series Forecasting: Most Crises are Unexpected.**

- Berg and Pattillo (1999): Asia was essentially unpredictable using three different models
- Tornell on Asia: a number of small changes necessary to transform Sachs, Tornell, and Velasco Mexico model into model for predicting Asian crisis

## **Cross-Sectional Incidence: How do Currency Crises Spread?**

- Why do some crises spread into regional crises?
  - EMS '92/'93; Mexico '94; Asia '97
- Why do some crises spread into international crises?
  - Russia '98
- Yet many crises appear idiosyncratic, despite all expectations.
  - Brazil '99
  - Czech Republic '97

## Few contagion models show evidence of macroeconomic fundamentals

- Some embedded in models with weak fundamentals
  - Eichengreen-Rose (1999) Table 1: weak macro (even after selection)
  - Glick-Rose Table 2
- Other models analyze channels without any model of incidence
  - Forbes

## Summary and Conclusion

- Macroeconomic variables simply do not help predict currency crises very much out of sample
  - Mechanical early warning systems do not work very well
- Macroeconomics is similarly unhelpful in explaining why certain currency crises spread, while others do not
  - Possible to trace channels of crises that do spread
  - Bigger question: why do some crises spread and others remain idiosyncratic?

## **Making Progress**

- Perhaps currency crises are more analogous to stock-market breaks than conventional models; micro-structural phenomena are important during periods of “high tension”
- What accounts for market vulnerability? Perhaps micro-structure
- Theory is ahead of empirics in modeling currency crises