“A Proposed Monetary Regime for Small Commodity-Exporters: Peg the Currency in Terms of the Export Price”

Jeffrey Frankel

“The Role of Sterilized Intervention in Exchange Rate Stabilization Policy”

Michael Hutchison

Discussion by

Kenneth N. Kuttner

Federal Reserve Bank of New York

Stabilizing the Economy: What Roles for Fiscal and Monetary Policy?

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“The views expressed here are solely those of the author, and are not necessarily those of the Federal Reserve Bank of New York, or the Federal Reserve System.”

Introduction and summary

- How should small open economies manage their exchange rates?
- These papers present two slightly contrarian views:
  - Frankel: commodity-producing countries should peg their currencies to the relevant commodities.
  - Hutchison: sterilized intervention may have a role to play in stabilizing the exchange rate.

“A Proposed Monetary Regime for Small Commodity-Exporters: Peg the Currency in Terms of the Export Price”

Jeffrey Frankel

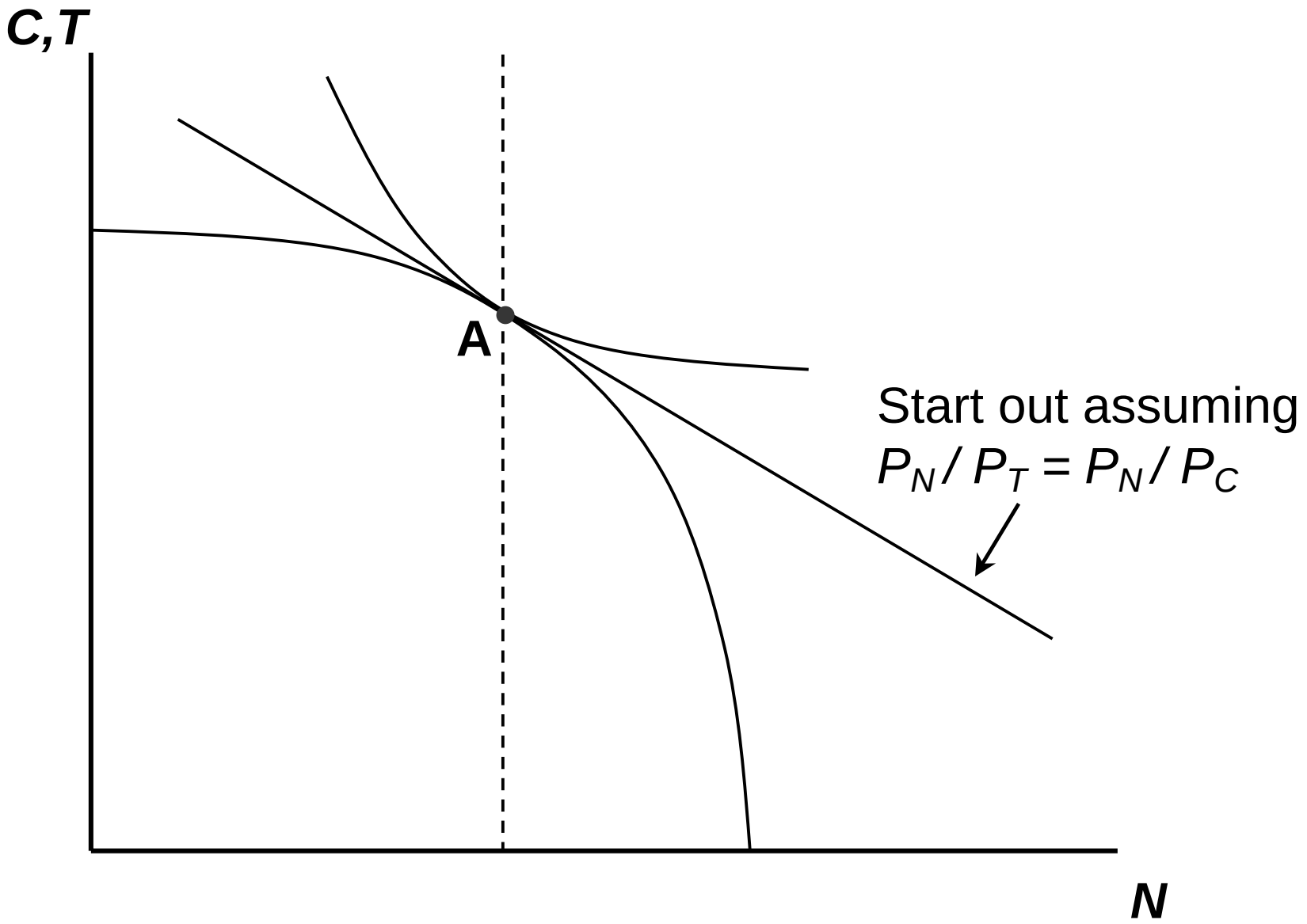
Frankel's insight

- With a commodity-backed currency, the vagaries of the commodity market will affect your terms of trade.
- If you're a small commodity exporter, you have to accept those market vagaries, and deal with them as best you can.
- Linking the terms of trade to the commodity price helps deal with those vagaries.

A minimal model

- Home country produces two goods: nontradables and a commodity (coffee).
- It exchanges coffee for tradables, which are consumed along with nontradables.
- Coffee price is exogenous.
- Full employment + equilibrium in nontradables market $\rightarrow P_N / P_T$.

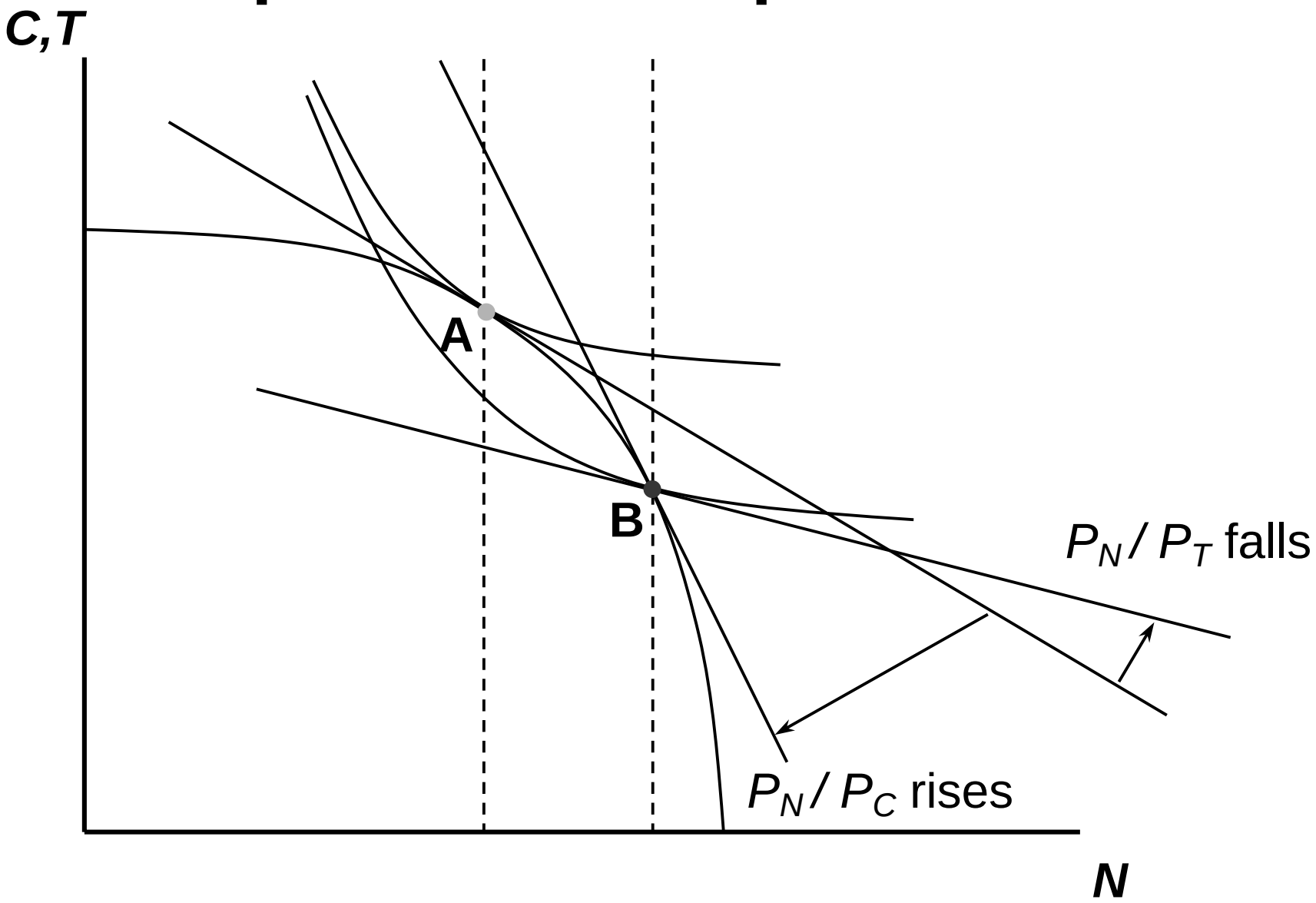
Initial equilibrium



Response to fall in coffee price

- Increase in $P_N / P_C \rightarrow$ reallocation away from coffee production, towards nontradables.
- A decline in P_N / P_T (more expensive imports) is required to restore equilibrium.

Impact of coffee price decline



Where’s the money?

- The price of the currency unit has no role here — all prices are relative.
- Why, then, does it matter what the currency is pegged to?
- It comes down to whether the exchange rate does the adjusting, or the price level.

To peg to the dollar…

- The dollar peg:
  - The value of the currency is fixed at 1 peso/$.
  - If the market price of coffee is $1/lb, then the peso price of coffee is 1 peso/lb.
  - If the market price drops to $0.50/lb, and the exchange rate remains fixed, P_N / P_C will rise to 2.
  - "Old" $P_N / P_T \Rightarrow$ internal imbalance, P_N must fall to restore equilibrium.

…or to to coffee?

- The coffee peg:
  - The value of the currency is fixed at 1 peso/lb.
  - If the market price of coffee is $1/lb, then the exchange rate will be 1 peso/$.
  - If the market price drops to $0.50/lb, then the exchange rate will depreciate to 2 pesos/$.
  - Since $P_T = e\, P_T^*$, P_N / P_T falls proportionally.
  - “Hard-wired” accommodation.

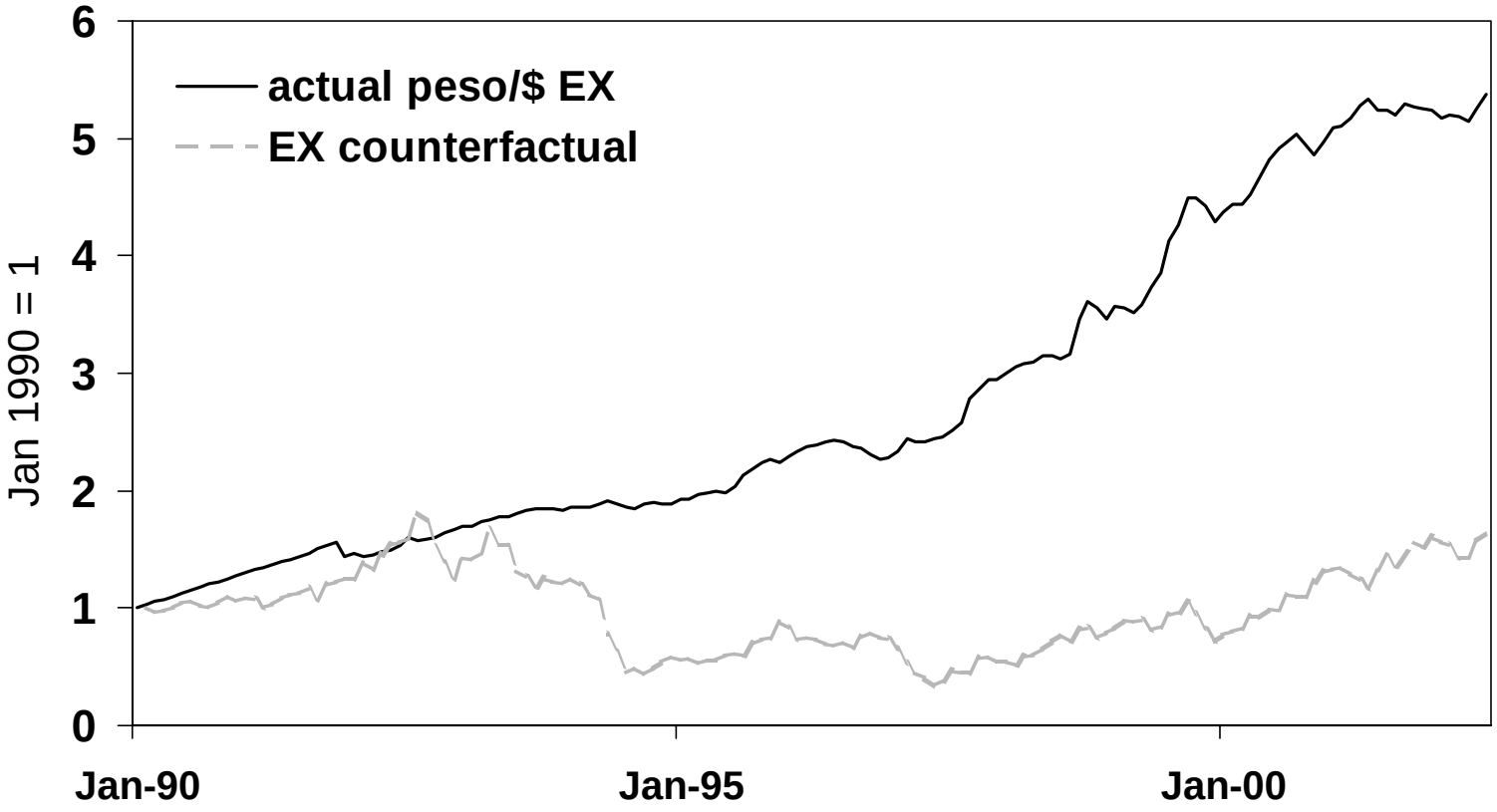
So the logic is:

- *Some* peg is needed for monetary discipline.
- Absent nominal rigidities, *any* peg will do.
- But nontradables' prices are probably sticky, and slow to adjust.
- A commodity peg minimizes the need for adjustment in the price of nontradables.

How would the nominal exchange rate behave in this regime?

- Suppose:
  - The pesos/lb price of coffee is fixed, and
  - The $/lb price of coffee is given by history.
- Counterfactual nominal exchange rate = constant ÷ $/lb market price.
- Volatility, but no trend depreciation.

Columbia's exchange rate under a coffee peg



Commodity price counterfactuals for currency pegs

- Frankel looks at the volatilities of the pesos/lb nominal market price, and the real price:

  $$\text{pesos/lb} \div \text{pesos/(local goods)} \times \$/(\text{US goods})_{\text{base year}}$$

- Nominal price volatility usually would have been lower under $ (or ¥ or DM) pegs.
- *Real* price volatility would have been *higher*.
  - Presumably due to positive correlation between pesos/lb and pesos/(local goods)…
  - Comparability of CPI baskets across countries?

Export performance under alternative pegs

- Real exchange rate counterfactuals:
  - Commodity peg: fix pesos/lb, take pesos/(local goods) as given.
  - Currency peg: use real prices in $, ¥ or DM terms, take pesos/(local goods) as given.
- Use plausible elasticities for export demand.
- Results: commodity peg helps, just when it should.

Limitations of the approach

- The counterfactuals assume no change in path of domestic price level, pesos/(local goods).
  - Commodity peg will probably have a big impact on the CPI — especially through tradables' price.
- Perhaps more useful to analyze the behavior of P_N / P_T under alternative pegs.
  - Should display negative correlation with P_N / P_C.
  - Assume PPP for tradables…
  - Some rudimentary model needed nontradables.

Other reservations

- Frankel's prescription applies cleanly to the "pure" case in which no tradables (other than the commodity) are produced locally.
- Commodity-induced exchange rate fluctuations would affect domestic tradables production.
- What is the optimal degree of accommodation in this case — less than one-for-one?
- Under what conditions (e.g., min export share) would a commodity peg dominate a dollar peg?

Hard peg issues

- A commodity peg might mitigate exchange rate misalignments, making the peg more viable…
  - But is there any reason to believe a commodity peg would be immune to speculative attack?
- How do you create a commodity-backed currency in practice?
  - Hold physical coffee bean reserves (for example), and be willing to exchange them for currency?

Why not an inflation target?

- Terms of trade fluctuations present a challenge to IT, but this can be addressed by:
  - using a relatively long targeting horizon, and
  - appropriate use of escape clauses.
- Examples:
  - The Bundsbank raised its inflation goal in 1979 in response to the oil price shock.
  - South Africa in 2001-02: low gold price $\rightarrow$ depreciation $\rightarrow$ missed inflation target.

“The Role of Sterilized Intervention in Exchange Rate Stabilization Policy”

Michael Hutchison

Hutchison's conclusions

- Sterilized exchange rate intervention *is* effective, at least in the very short term…
- But the the Chiang Mai initiative is too limited to effectively stabilize exchange rates.

Sterilized intervention: could it be effective?

- Three possible transmission channels:
  - Portfolio balance effects
  - The “classical” signaling channel (information about future monetary policy)
  - The “information signaling hypothesis” (monetary authority’s private information about fundamentals)

Sterilized intervention: *is* it effective?

- Two kinds of empirical evidence:
  - Time series analysis: yields weak (at best) evidence for the efficacy of sterilized intervention.
  - Event study method: yields relatively strong evidence that sterilized intervention *is* effective.
    - Fatum & Hutchison (2001).
- Why the different conclusions?

The time series approach

- Hutchison: time series techniques are "problematic." Why?
  - Sporadic nature of intervention does not violate classical statistical assumptions.
  - Standard time series estimators should "work."
- Illustration: has BOJ intervention been effective?
  - Time series analysis of official intervention data (weekly frequency, 1991-2001).

Time series evidence for Japan

results of Granger causality tests

Dependent variable = net $ purchases

net $ purch		Δ exch rate			Δ exch
lag 1	lag 2	lag 1	lag 2	R^2	p-value
0.17	0.13	-0.017	-0.007	0.09	0.006
(2.04)	(1.69)	(2.49)	(1.82)		

$\Rightarrow$ strengthening ¥ $\rightarrow$ $ purchases

Dependent variable = Δ exch rate

net $ purch		Δ exch rate			net $ purch
lag 1	lag 2	lag 1	lag 2	R^2	p-value
0.35	0.73	-0.072	-0.049	0.01	0.382
(0.80)	(1.33)	(1.26)	(0.90)		

$\Rightarrow$ $ purchases $\rightarrow$ no measurable effect on ¥

The event study approach

- Fundamental difficulty: the timing and duration of interventions are endogenous.
  - Victory is declared when the exchange rate turns around — even if not caused by intervention.
  - This will tend to exaggerate the effects of intervention.
- Nonparametric definition of “success” may find an effect, even when it is *quantitatively* small.

Policy implications

- Why do we care about the very short-term exchange rate movements generated by sterilized intervention?
- Is there any evidence to suggest sterilized intervention really can “burst a bubble”?

Conclusions

- Both papers challenge conventional wisdom on exchange rate policy.
- Frankel's novel proposal may be worth considering for some countries — but much more work is needed.
- Hutchison's careful analysis suggests re-thinking sterilized intervention's role (or lack thereof) in stabilization policy.