

# 2009 Fundamental Equilibrium Exchange Rates: Methodology Notes

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# Model Structure -1

- Change in Current Account as % GDP  
= % Change in Effective Exchange rate  
x Trade Impact Parameter
- $\Delta CA\% = \% \Delta E \times b$
- Impact parameter higher for more open economy
- US:  $b = 0.16$                       China:  $b = 0.30$
- 10%  $\Delta E \rightarrow 1.6\%$  GDP impact US

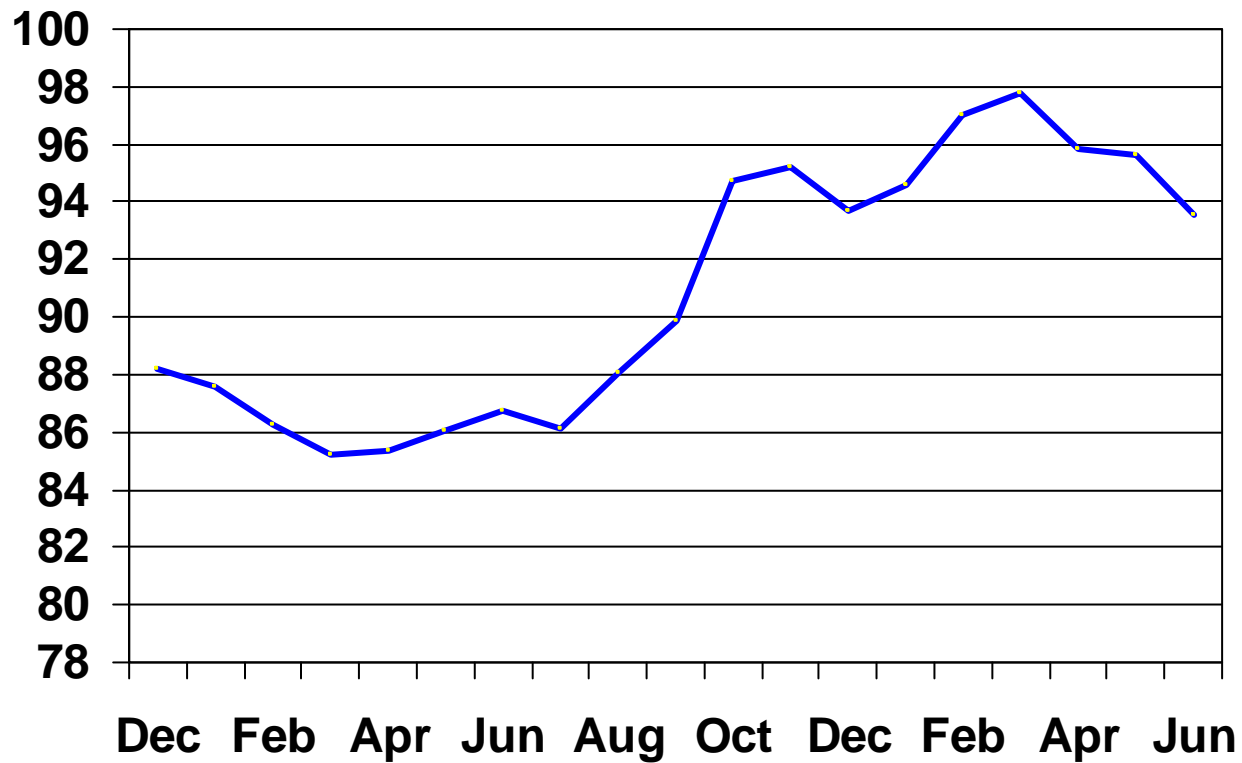
## Model Structure - 2

- Change in effective exchange rate  
= Change in bilateral against dollar ( $Z$ )  
*minus* trade-share weighted  
appreciations against dollar of partners
- $\% \Delta E_i = Z_i - \text{SUM}(Z_k \times W_{ik})$
- Target change in effective rate = Target  
CA change / Impact parameter  
( $\% \Delta E_i = \% \Delta CA/Y \div b$ )

# Model Structure -3

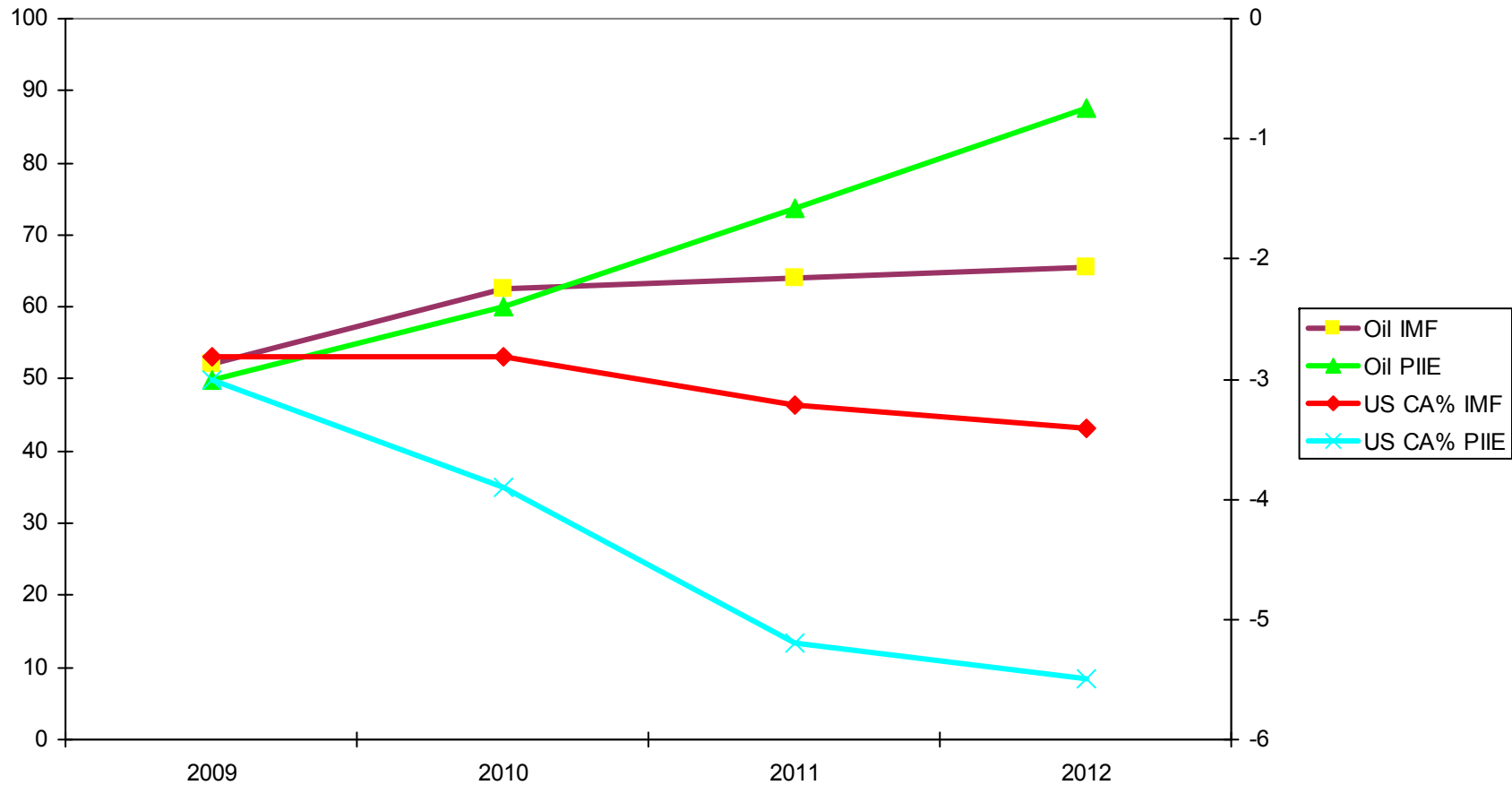
- Solve for 34 currency changes against dollar ( $Z$ ) that yield target set of effective exchange rate changes
- Matrix form:  $E = Z (I - W)$
- So:  $Z = (I - W)^{-1} E$
- “SMIM”: Symmetric (US treated equally) Matrix Inversion Method

# Fed Broad Real Dollar Index (Dec. 2007- June 2009)



# Changes from IMF WEO

(Oil price, \$/bbl: left; US CA%: right)



# China Pipeline Effects?

- IMF: China's CA flat at 10% of GDP through 2012
- But China's REER in March 09 was 14% stronger than in Feb 08
- Applying Impact Parameter (0.3) implies reduction by 4.2% of GDP after 2-year lag
- So: Possible overstatement of appreciation needed for Renminbi

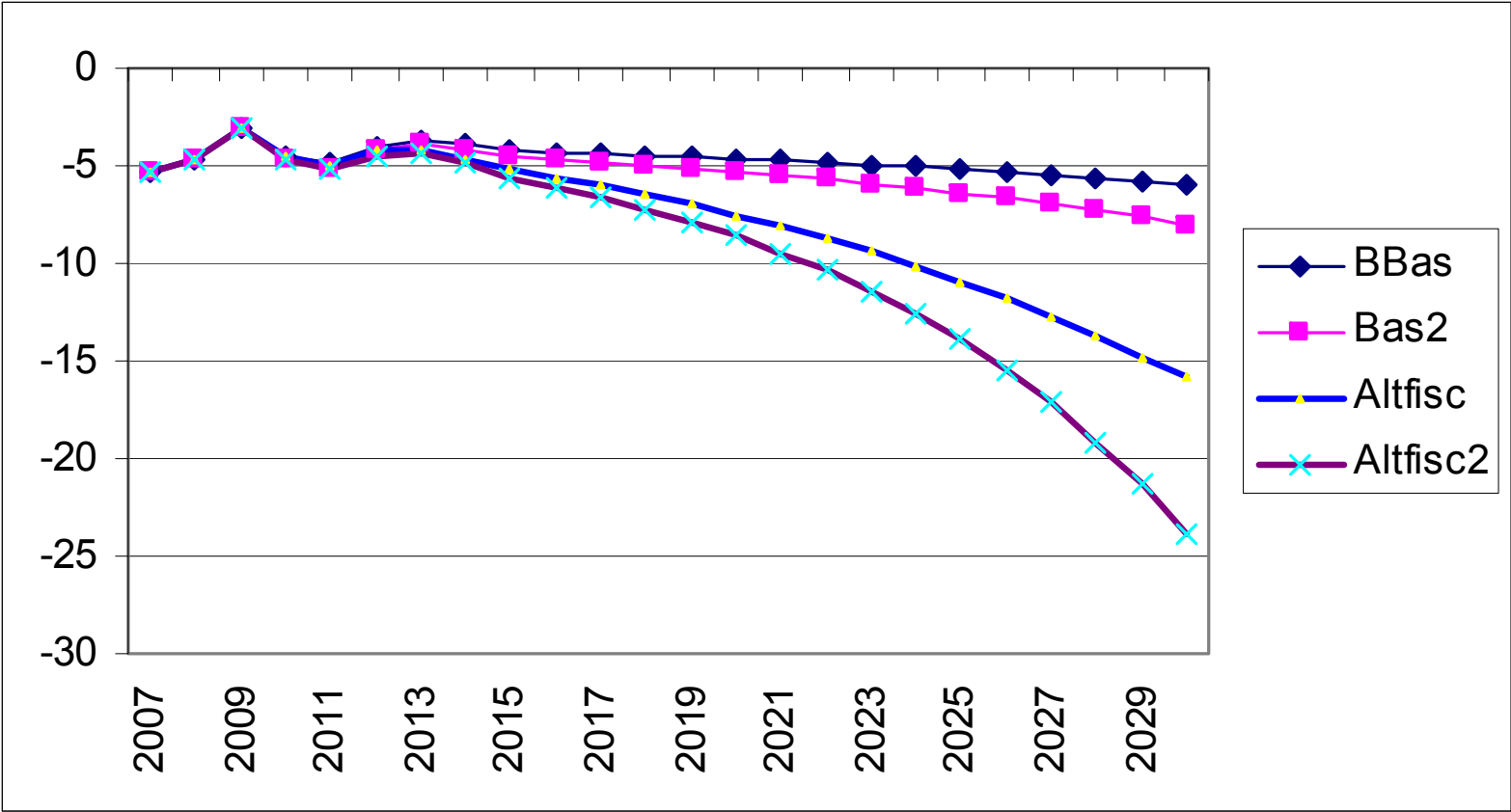
# US Long-Term Fiscal and External Imbalances (Special Report 20)

- CBO Dec: 07: fiscal deficit 10% of GDP by 2030 (social spending)
- Projected Cline current account model:
  - this “Fiscal Erosion” scenario versus “Benign Baseline” 2% GDP fiscal deficit
- Trade deficit rises by 40% of extra fiscal deficit
- Interest rates, dollar rise

# US Long-Term Fiscal and External Imbalances - 2

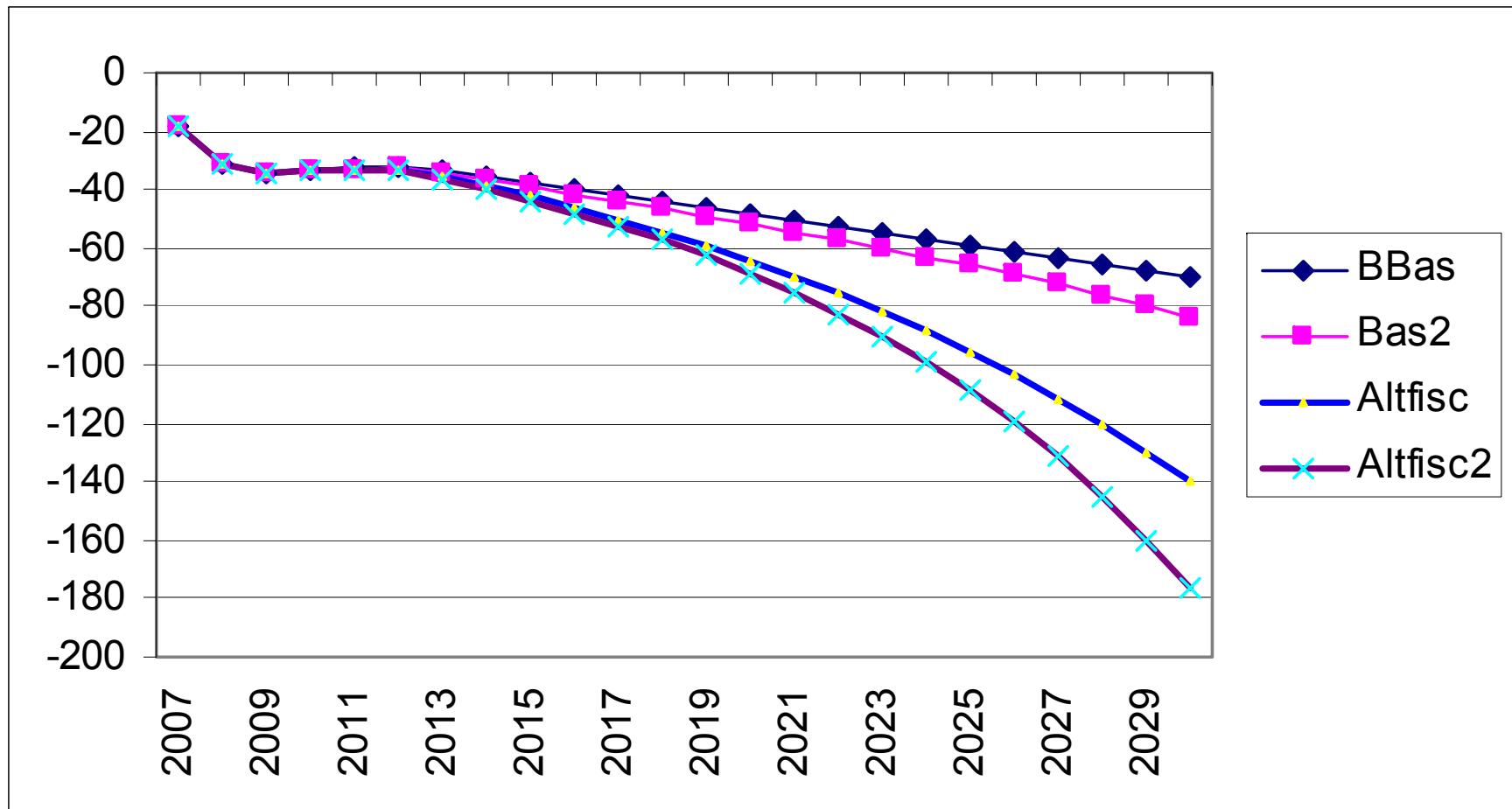
- Cumulative effect of interest payments widens current account deficit much more.  
Capital services deficit in 2030:
  - benign baseline: 0.8 % of GDP
  - fiscal erosion: 6.8 % of GDP
- Worse if interest rate rises from deteriorating country risk
- External vulnerability adds to case for fiscal adjustment

# US Current Account % GDP: Benign Baseline and Fiscal Erosion



# US NIIP % GDP:

## Benign Baseline and Fiscal Erosion



# FEERs and the Crisis

- Imbalances were not the main cause of the crisis
- But the international system is far more fragile than we had thought
- Imbalances can only aggravate the fragility
- FEERs can be input into policies toward reducing imbalances