Why the Exchange Rate is Often Appreciated in Brazil?

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Four questions:

- Is the BRL appreciated? Recent exchange-rate (ER) history
- What's the role of the interest rate? Monetary policy and ER in Brazil
- What about the other ER determinants? Three additional hypotheses about the Brazilian ER
- What to do? Macroeconomic policy and the role of the ER

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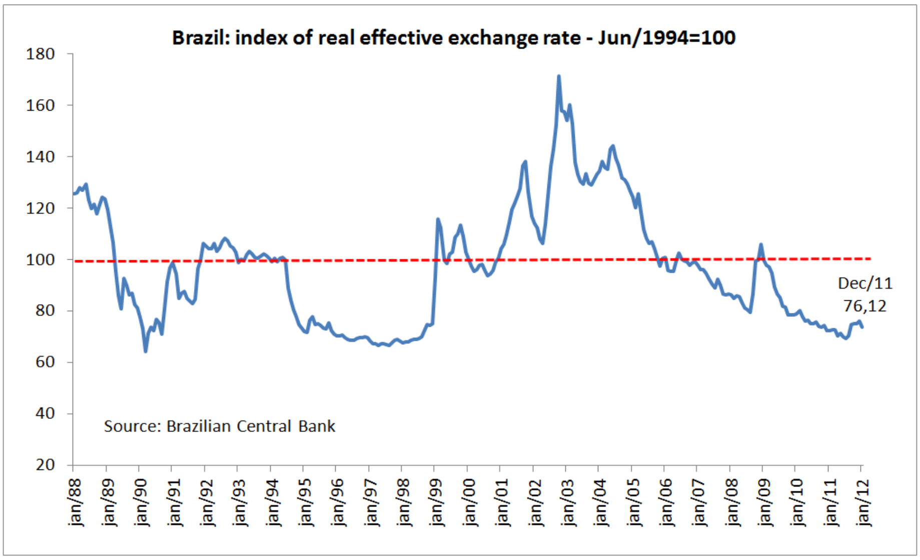
Recent Exchange-Rate History

Is the BRL appreciated?

- The Brazilian government does not have a formal exchange-rate target
- But the government intervenes in the FX market when it finds the exchange rate too appreciated or depreciated
- Economists use long-run trends to measure how much a currency is appreciated or depreciated
- Some market analysts say that the BRL is currently 20% appreciated

<u>Recent RER history</u>: at the end of 2011 the Brazilian effective real exchange rate was 24% below the its level in July/1994



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Main periods in the recent Brazilian real-exchange-rate history

1. High inflation and volatility: 1989-91
2. Preparation of the Real Plan: 1992-94
3. Real Plan: 1994-98
4. New macroeconomic policy: 1999-00
5. Shocks and depreciation: 2001-03
6. Disinflation and appreciation: 2004-05
7. Commodities, speculation and crisis: 2007-09
8. Recovery, QE and appreciation: 2010-today

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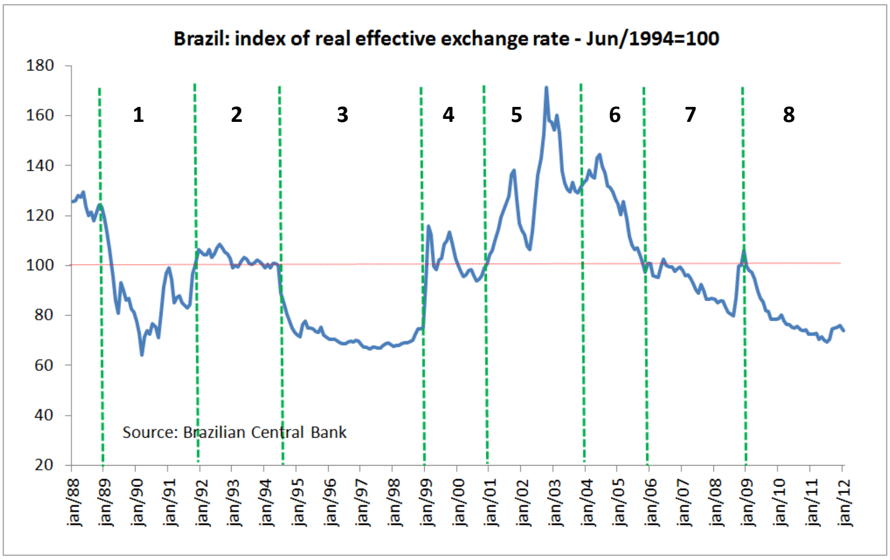
<u>Since when is the BRL appreciated?</u> The current appreciation started in 2006 and so far it has been determined mostly by the fluctuations in the interest rates and risk aversion in advanced economies.



Is there a recurring pattern?

- Since the beginning of floating exchange rates in Brazil, the BRL tends to appreciate in the absence of domestic or international shocks because of the persistently high Brazilian interest rate.
- But the Brazilian exchange rate has also been influenced by other factors recently
- We will present **four hypotheses** about the determination of the real exchange rate

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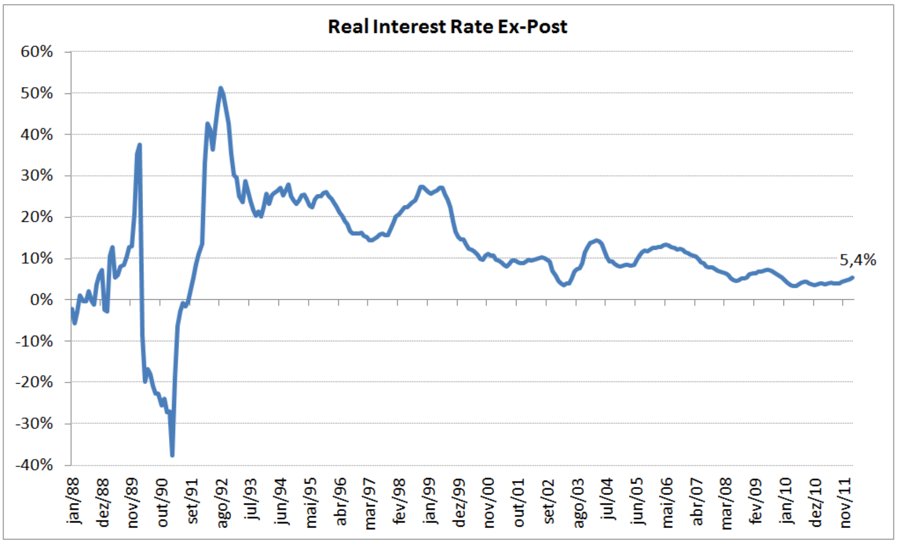
Monetary Policy and Exchange Rates in Brazil

The Brazilian Idiosyncrasy

- Brazil has a very high real interest rates (RIR) since the early 1990s.
- This high RIR was initially necessary to avoid capital flight and hyper-inflation, in the early 1990s, and to sustain a currency, peg during the Real Plan
- Since the beginning of inflation targeting the RIR has been reduced, but it is still very high by international standards, especially in face of quantitative easing in advanced economies

The Brazilian ex-post RIR



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Monetary policy and the ER

- The ER is still the most important transmission mechanism of monetary policy to prices in Brazil
  - Low wealth and credit effects reduces the impact of changes in the interest rate on aggregate demand
  - And high inflation inertia reduces the response of prices to aggregate demand
- The response of fiscal policy to interest rates is also an important transmission mechanism of monetary policy in Brazil, but this has political and social limits

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Inflation targeting and RER: with the exception of 1999, when the inflation target was set in midyear, the RER has appreciated in every year that the inflation target was met in Brazil

	Real effective exchange rate (jun/94=100)	% change in the Real effective exchange rate	Effective Inflation rate (IPCA)	Month when the target was set	Inflation target	Margin of tolerance	Target met
1999	105,7	49,9%	8,94%	jun/99	8,00%	2,00%	Yes
2000	97,1	-8,1%	5,97%	jun/99	6,00%	2,00%	Yes
2001	120,6	24,1%	7,67%	jun/99	4,00%	2,00%	No
2002	133,2	10,5%	12,53%	jun/00	3,50%	2,00%	No
2003	137,9	3,5%	9,30%	jun/01	3,25%	2,00%	No
				jun/02	4,00%	2,50%	
2004	135,5	-1,7%	7,60%	jun/02	3,75%	2,50%	No
				jun/03	5,50%	2,50%	Yes
2005	110,5	-18,5%	5,69%	jun/03	4,50%	2,50%	Yes
2006	98,7	-10,7%	3,14%	jun/04	4,50%	2,00%	Yes
2007	91,6	-7,2%	4,46%	jun/05	4,50%	2,00%	Yes
2008	88,4	-3,5%	5,90%	jun/06	4,50%	2,00%	Yes
2009	87,5	-1,0%	4,31%	jun/07	4,50%	2,00%	Yes
2010	75,9	-13,3%	5,91%	jun/08	4,50%	2,00%	Yes
2011	72,6	-4,3%	6,50%	jun/09	4,50%	2,00%	Yes

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1st Hypothesis: Carry-Trade and ER cycles

- Undershooting and overshooting: a high interest-rate differential tends to appreciate the currency of the high-interest-rate country to the point in which the currency becomes so appreciated that the market expectations change direction
- Speculative bubbles: a high interest-rate differential can also magnify ER movements through highly leveraged speculative bets in the derivatives markets

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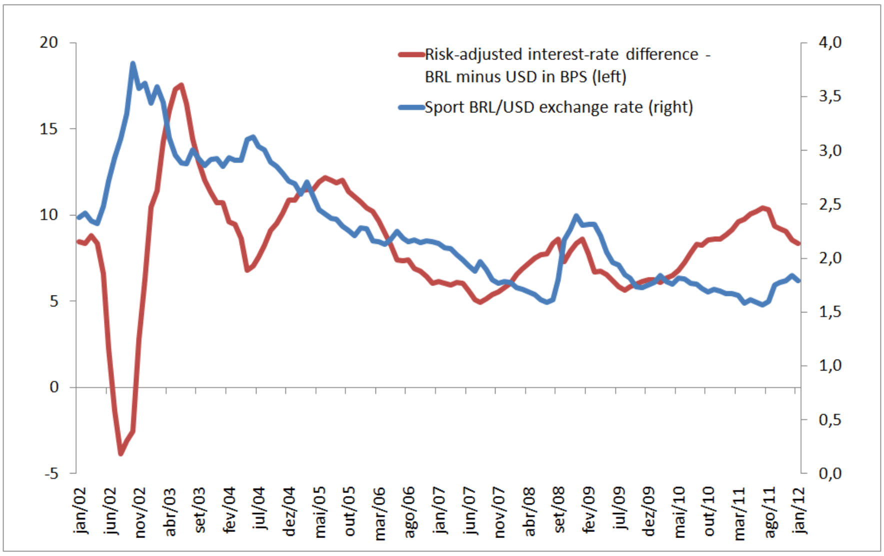
CARRY TRADE AND THE NOMINAL EXCHANGE RATE



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A Simplified Model

- Exchange-rate determination

$$i_{BRL,t} = i_{USD,t} + \sigma_{BRL,t} + E(s_{t+1}) - s_t$$
$$E(\Delta s_{t+1}) = \alpha\left(i_{USD,t} + \sigma_{BRL,t} - i_{BRL,t}\right) + \beta(\varepsilon_t^* - \varepsilon_t)$$
$$\Delta\varepsilon_t = \Delta s_t + \pi_t^* - \pi_t$$

- The long-run RER is a function of the terms of trade, current account balance, etc.
- And the usual 3 macroeconomic equations close the model: demand curve, Phillips curve and Taylor rule

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But is it just the interest rate?

- Econometric evidence shows that international conditions have been more important for the ER than the interest-rate differential in recent years
  - So Brazil no longer needs a high interest rate to avoid capital flight and ER depreciation
- The data also shows that countries with lower interest rate have also experienced sharp appreciations in recent years
  - So a lower interest rate alone will not necessarily eliminate the current appreciation

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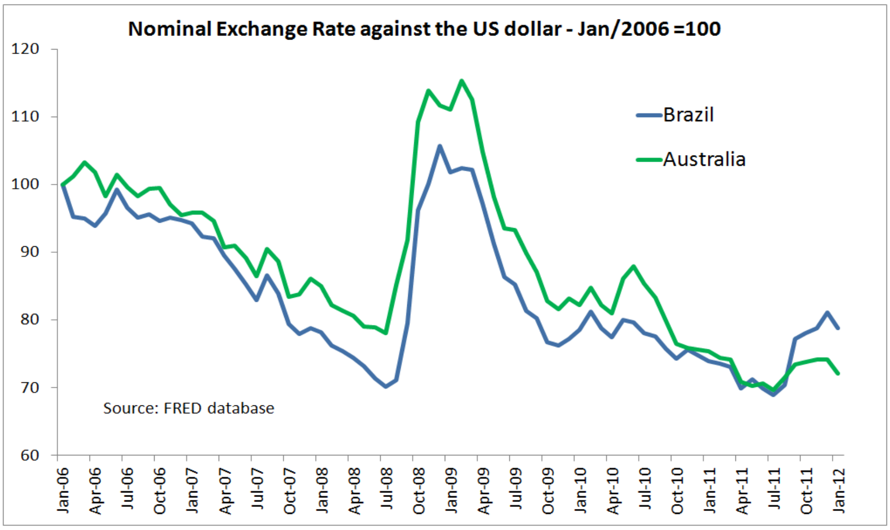
A tale of two countries: despite the difference between their base interest rates, Brazil and Australia have showed very similar ER dynamics in recent years.



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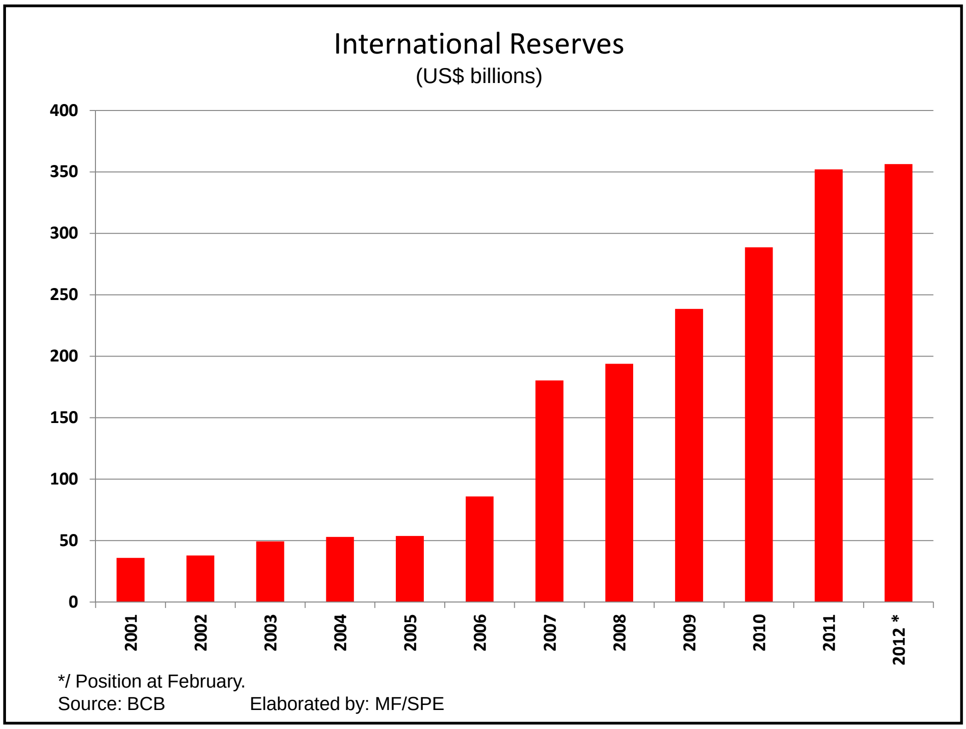
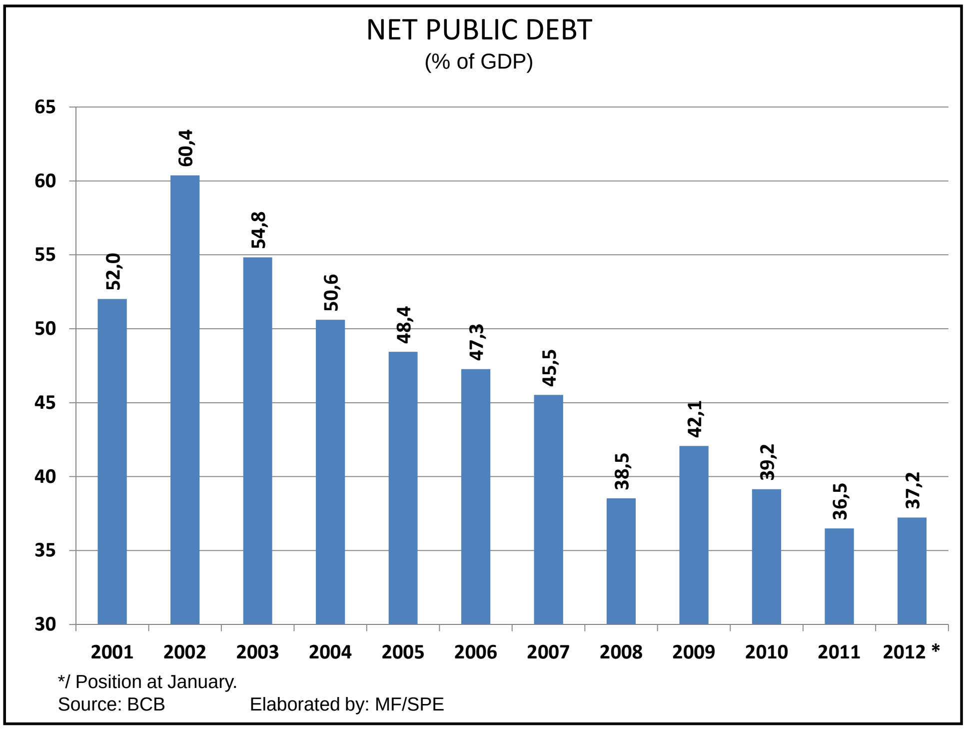
Three additional hypotheses about the Brazilian exchange rate

2nd Hypothesis: Lower Financial Fragility

- Brazil has reduced its financial fragility substantially in recent years, and this has reduced investors' risk aversion regarding the country
  - Foreign finance: reserve accumulation and lower foreign debt
  - Public finance: high primary surpluses and lower public debt, in % of GDP


International Reserves
(US$ billions)
400
350
300
250
200
150
100
50
0
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012 *
*/ Position at February.
Source: BCB
Elaborated by: MF/SPE


NET PUBLIC DEBT
(% of GDP)
65
60
55
50
45
40
35
30
52,0
60,4
54,8
50,6
48,4
47,3
45,5
38,5
42,1
39,2
36,5
37,2
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012 *
*/ Position at January.
Source: BCB
Elaborated by: MF/SPE

3rd Hypothesis: Commodity Prices and Terms of Trade

- The recent boom in commodity prices has led investors to expect that the country can sustain an appreciated currency
  - Higher terms of trade improve the current-account balance
  - High commodity prices increase foreign investment in the economy
  - And the BRL functions as a proxy of commodity indexes

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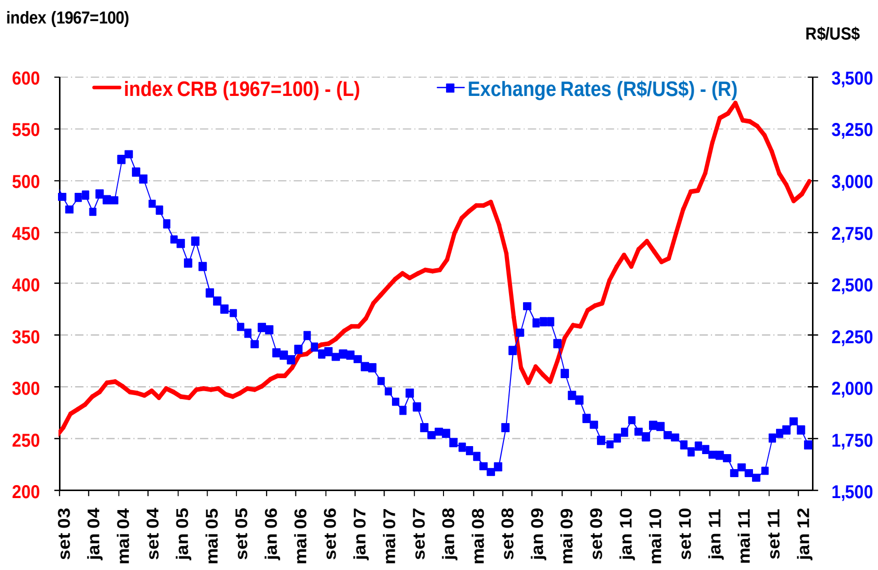
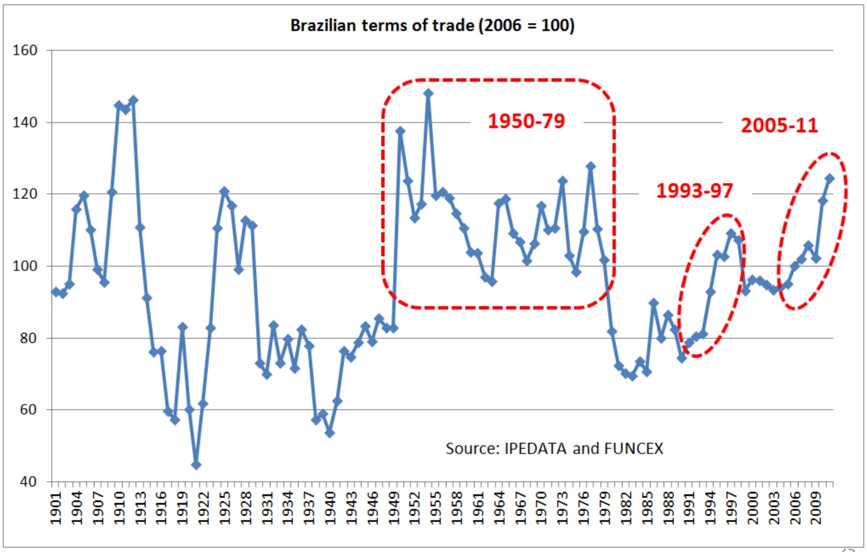
COMMODITIES AND EXCHANGE RATES



Sources: CRB and BCB. Elaborated by: MF/SPE.

Terms of trade: Brazil has usually used periods of favorable terms of trade to improve its economic situation. High terms of trade are not necessarily a "development curse".



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4^{th} Hypothesis: Development and Relative Prices

- Economic growth has accelerated in Brazil
- The increase in per-capita income raises the demand of non-tradable goods (services are a superior good)
- The difference between labor-productivity growth in the tradable and non-tradable sectors also raises the relative price of non-tradable goods (Balassa-Samuelson effect)

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Macroeconomic policy and the role of the exchange rate

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What’s the problem?

- The current domestic and international situations tend to appreciate the BRL excessively in the short run and generate ER volatility in the medium run
- Even though the current appreciation may be temporary, it can last long enough to have permanent effects on economic development
- And the growth of the tradable sector is crucial for the economic development of Brazil

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What's the solution?

- Continue with a floating exchange rate because this facilitates the adjustment of the economy to foreign and domestic shocks
- But complement the floating ER with foreign reserve accumulation and regulation of capital flows
- Adopt a series of tax and financial initiatives to increase the competitiveness and accelerate the growth of the tradable sector
- And reduce the interest rate

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