The enigma of exchange rates – recommencing exchange rate theory

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Agenda

1. Where does orthodox exchange rate theory stand?
2. Where does Keynesian exchange rate theory stand?
3. Some new ideas
4. The dollar-euro/DM-exchange rate since 1970
5. Where to go

1. Where does orthodox exchange rate theory stand?

Traditional XR determinants:

$$s_t = \alpha\, E_t(y_{t+1} - y_{t+1}^*) + \beta\, E_t(PPP^* - PPP_t) + \lambda\, E_t(\pi_{t+1}^* - \pi_{t+1}) + \gamma\, E_t(i_{t+1} - i_{t+1}^*) - R + \varepsilon_t$$

* rest of world; y growth rate; PPP purchasing power parity; π inflation rate; i nominal interest rate; R country risk premium; ε error term

Cont‘d

But:

„There is overwhelming empirical evidence that the exchange rates of the most important currencies are unrelated to the fundamentals that economic theory has identified.” **(De Grauwe 2000, 353)**

Most orthodox economists believe in the long-run validity of PPP, admit that in the short-run (1-2 years) deviations from fundamentals occur. They cannot explain the transition from the short-run to the long-run.

Exchange rate theory is one of the Achilles heels of mainstream international macroeconomics.

2. Where does Keynesian exchange rate theory stand?

- **Keynes**: PPP is „truism“ (1923); covered interest rate parity (CIP) is important but cannot explain XR; Keynes did not develop a coherent XR theory for flexible XR; speculation not very important for him
- **Davidson**: uncertainty, unachored expectations → volatility, high XR elasticity of expectations, visible hand necessary
- **Harvey**: forex is financial asset; speculation of forex dealers, predominance of chartists relative to fundamentalists; high volaility; in the long run huge imbalances; cyclicity not addressed
- **Kindleberger/Minsky**: boom-bust cycle of asset prices applicable to forex markets

„One place where the model surely applies today is foreign exchange markets, in which prices rise and fall in wide swings, despite sizable interventions in the market by monetary authorities …. “ (Kindleberger, 2000, p. 21)

- Behavioral finance (**De Grauwe et al**.): microeconomic approach; under high uncertainty → search for simple heuristics; Chartists predominate against fundamentalists; rejection of rational expectation theory and efficient market hypotheses; but: bounded rationality; rejection of PPP

Cont*d

- **Lavoie/Daigle 2011**: stock-flow-consistent model; follows behavioural finance; models expectations of chartist traders and „conventionalists“ (=fundamendalist traders); long cycles of appreciation and depreciation

  - rigid and strict assumptions; constant shares of both traders groups; constant expectations

  - model cannot capture uncertainty, very mechanistic

  - forecast of performance is possible with given parameters

  - Keynesian?

3. Some new ideas

1.) Financialisation of forex markets

- detached from trade with goods
- huge volume of forex markets, high growth
- forex is an asset class of ist own
- XR not neutral

2.) Multiple equilibriums

Cont‘d

3.) Role of „fundamentals“:„Fundamentals“ is umbrella term for many diverse indicators (PPP, interest parity, current account balances, growth differentials, international net investment position etc.) – heterogeneity of fundamentals

- Fundamentals do play a prime role when it comes to reversals from appreciation to depreciation (change of sign)
- Indicators for fundamentals often without clear, unambiguous direction
- Indicators on fundamentals require interpretation
- Natural „trustees“ of fundamentals are/should be central banks/governments
- In most modern analyses: PPP-deviation neglected, although very relevant in exuberant episodes

4.) Predominance of destabilising speculation

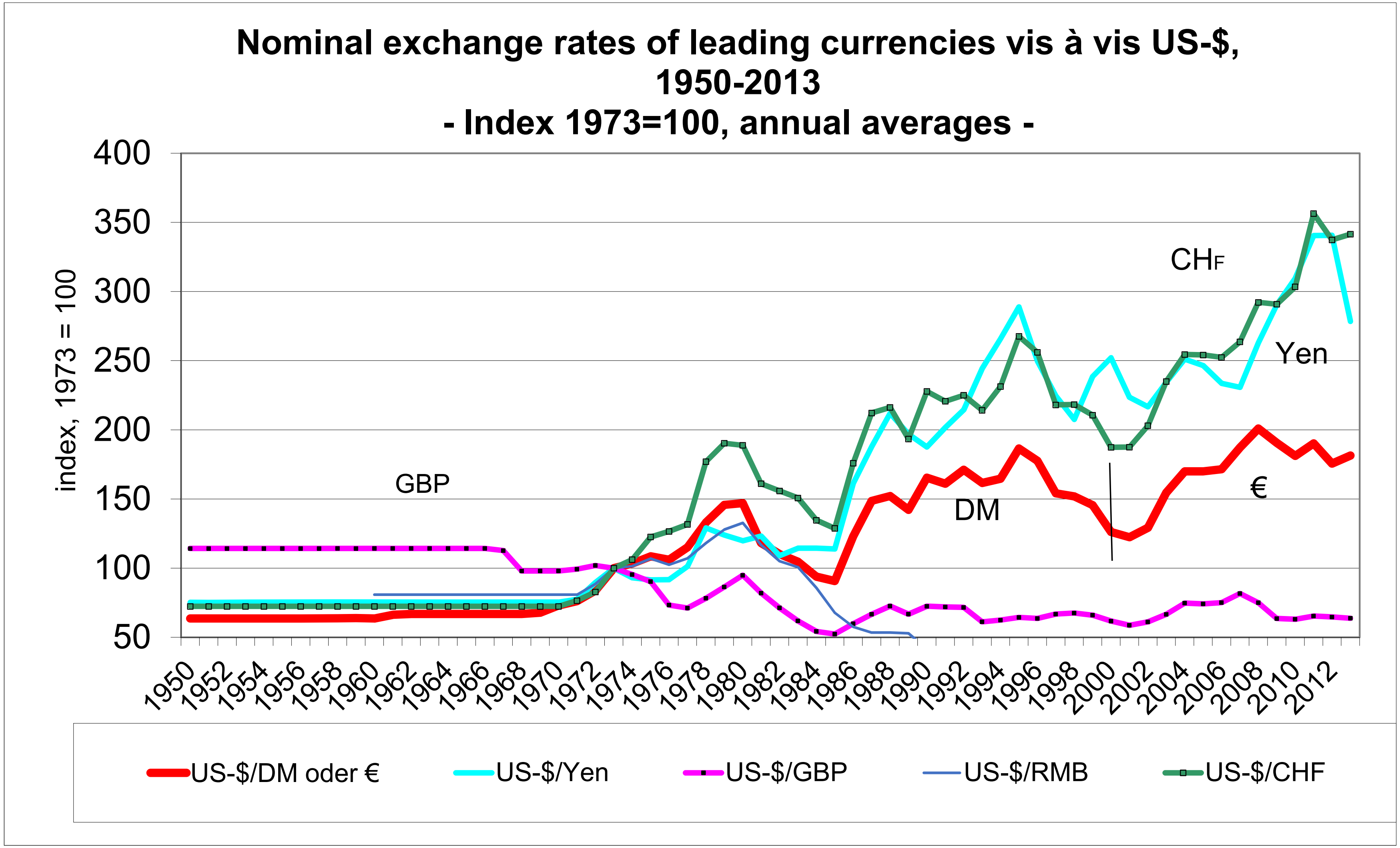
- Most of the time: speculation of forex trading industry, algorithm trade (high frequency trade), derivatives abet upward and downward speculation, partial hedging for increased risk taking
- Short-termism underscores lack of fundamental ingrediences in traders‘ rules
- Predominance of destabilising speculation (microeconomically „rational“) , lack of stabilising speculation (see Kindleberger/Minsky)
- „rational bubbles“?
- Long waves of upward/downward speculation, as long as fundamentalists are weak or inactive

5. **Boom-bust cycles of appreciation – depreciation**

- Similar to other asset classes: value of currency does not grow infinitely
- Point, time, intensity of reversal unpredictable
- Important fundamentals strongly „violated“
- PPP *must* play a role since trade with goods and services becomes extremely distorted; heavy pain for strongly appreciating and depreciating economies
- Capital flows also strongly distorted
- Risk of recession, balance of payments or financial crisis
- Central banks become concerned
- Vested interests of many interest groups are at risk
- In many reversals of XR, central banks intervened on the forex markets

4. The dollar-euro/DM-exchange rate since 1970

- Since 1970: strong volatility, trend towards nominal appreciation of DM/euro
- Bilateral real exchange rate appreciated at times by > 100%, and depreciated afterwards excessively
- Long-run trend: only little real appreciation of DM/Euro since 1973
- Among all fundamental factors, PPP most strongly violated in phases of extreme misalignments
- Problems of measurement of PPP remain (tradables, nontradables; high transaction costs (Rogoff)?)
- Varying deviation of PPP cannot be explained by transaction costs
- Europe can only „survive“ the roller-coaster XR by stabled intra-European XR



Nominal exchange rates of leading currencies vis à vis US-$, 1950-2013
- Index 1973=100, annual averages -
index, 1973 = 100
400
350
300
250
200
150
100
50
1950
1952
1954
1956
1958
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
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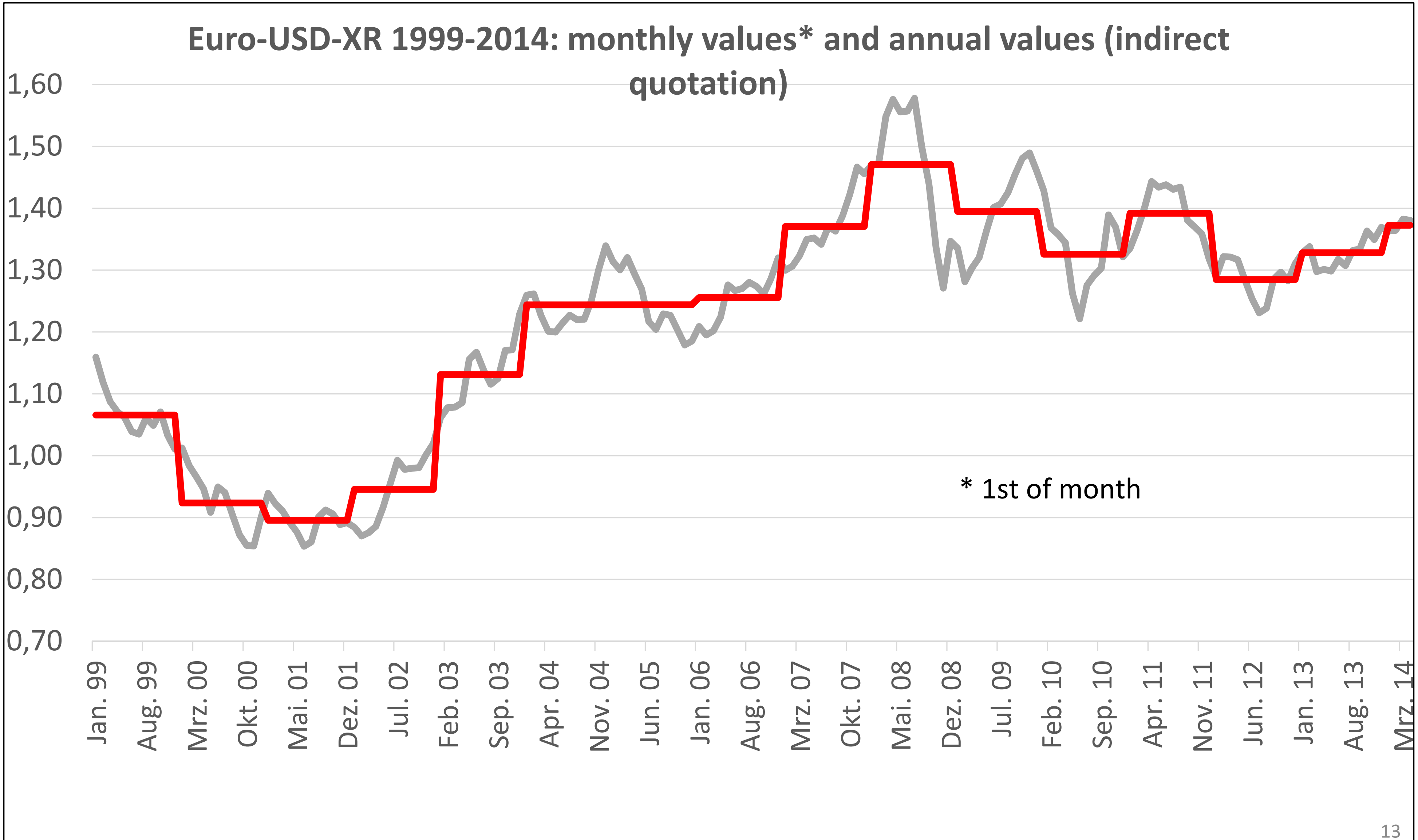
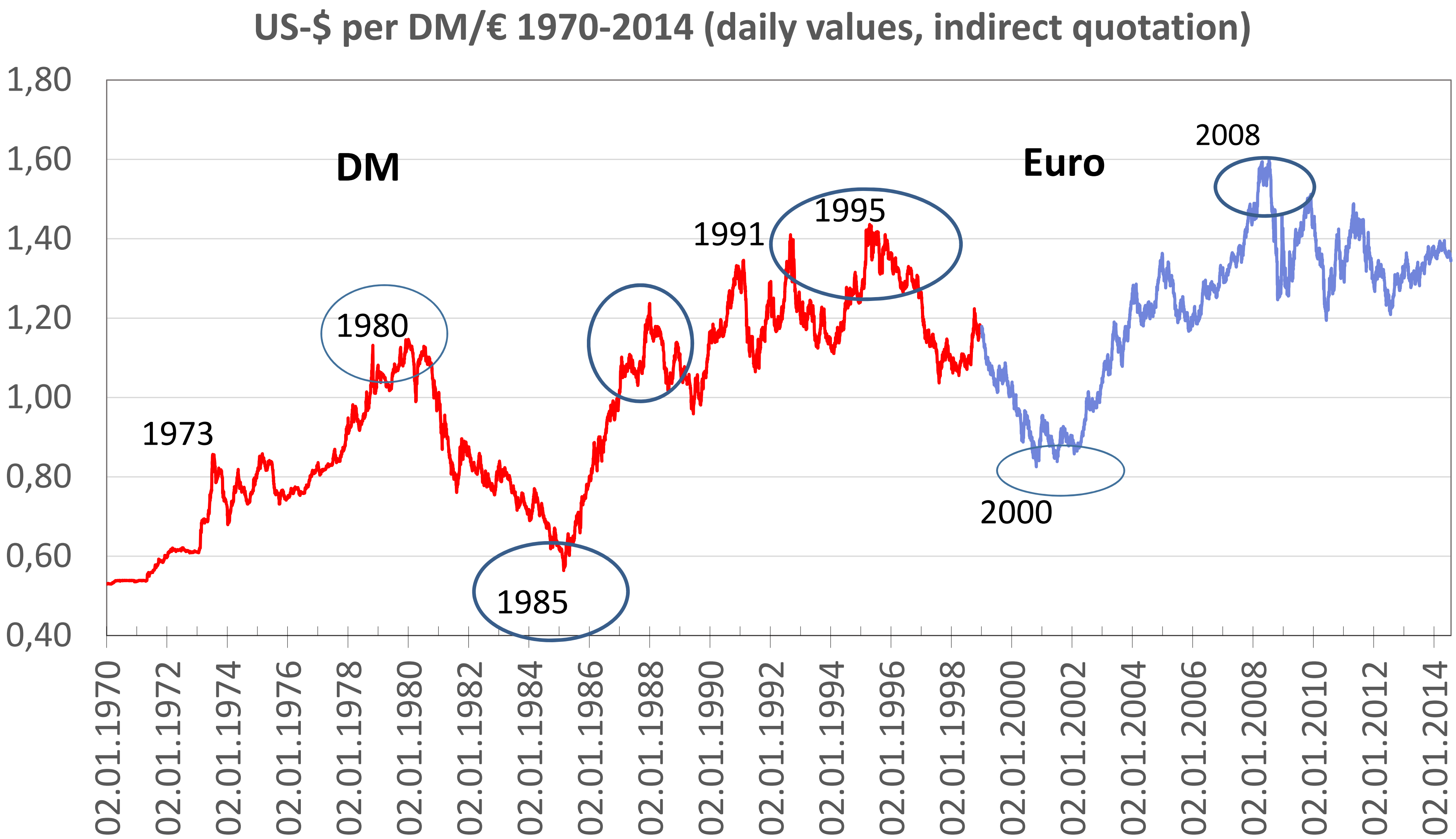
US-$/RMB
US-$/CHF


Euro-USD-XR 1999-2014: monthly values* and annual values (indirect quotation)
1,60
1,50
1,40
1,30
1,20
1,10
1,00
0,90
0,80
0,70
Jan. 99
Aug. 99
Mrz. 00
Okt. 00
Mai. 01
Dez. 01
Jul. 02
Feb. 03
Sep. 03
Apr. 04
Nov. 04
Jun. 05
Jan. 06
Aug. 06
Mrz. 07
Okt. 07
Mai. 08
Dez. 08
Jul. 09
Feb. 10
Sep. 10
Apr. 11
Nov. 11
Jun. 12
Jan. 13
Aug. 13
Mrz. 14
* 1st of month


US-$ per DM/€ 1970-2014 (daily values, indirect quotation)
1,80
1,60
1,40
1,20
1,00
0,80
0,60
0,40
DM
Euro
1973
1980
1985
1991
1995
2000
2008
02.01.1970
02.01.1972
02.01.1974
02.01.1976
02.01.1978
02.01.1980
02.01.1982
02.01.1984
02.01.1986
02.01.1988
02.01.1990
02.01.1992
02.01.1994
02.01.1996
02.01.1998
02.01.2000
02.01.2002
02.01.2004
02.01.2006
02.01.2008
02.01.2010
02.01.2012
02.01.2014

Explaining reversals

- Idiosyncratic narratives
- Econometrics fails, reversals unpredictable
- Deviation from most or all fundamentals strong, esp. From PPP
- Both countries discontent with extreme appreciation and depreciation, resp.

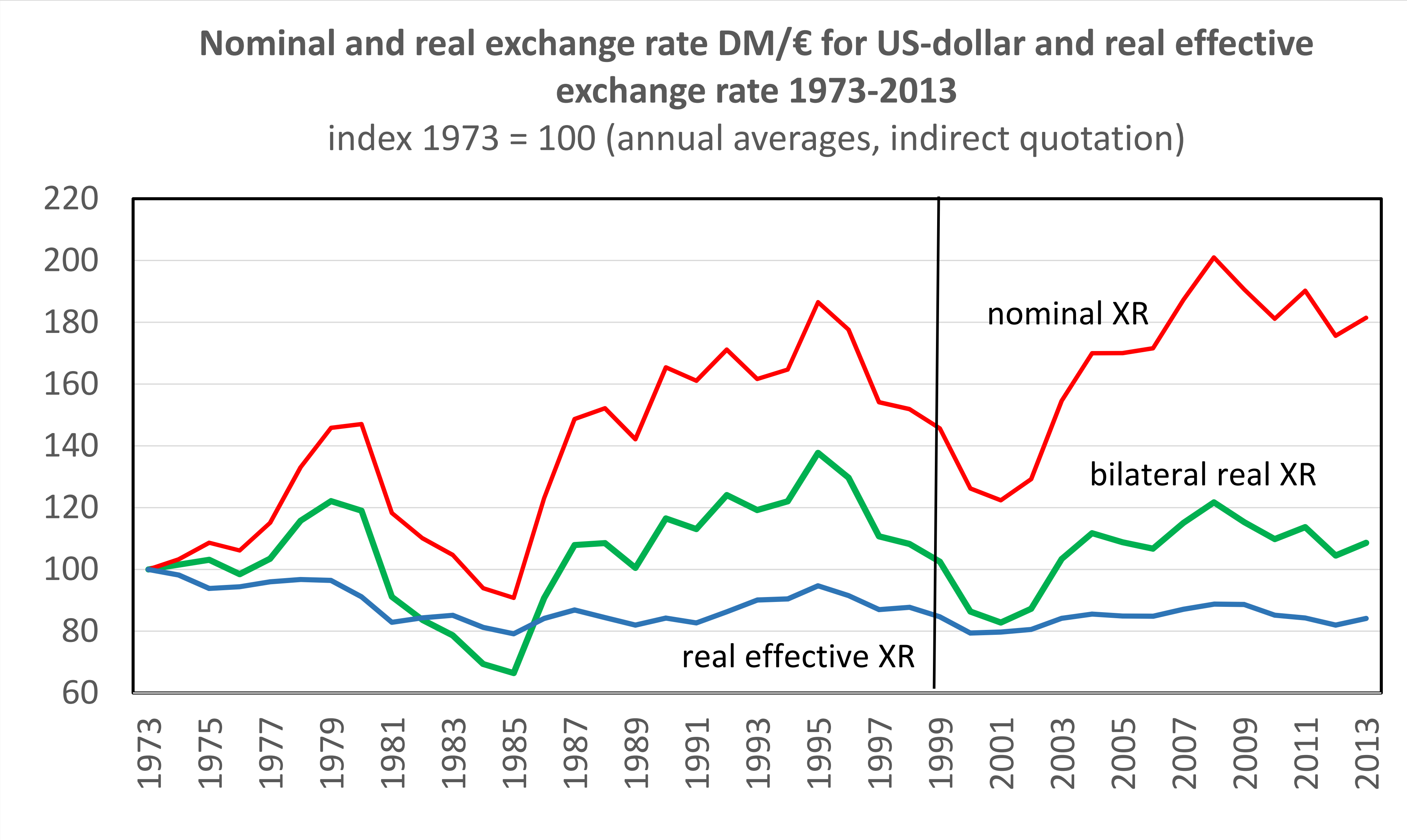
1980: extreme appreciation of DM, but high interest rate differential

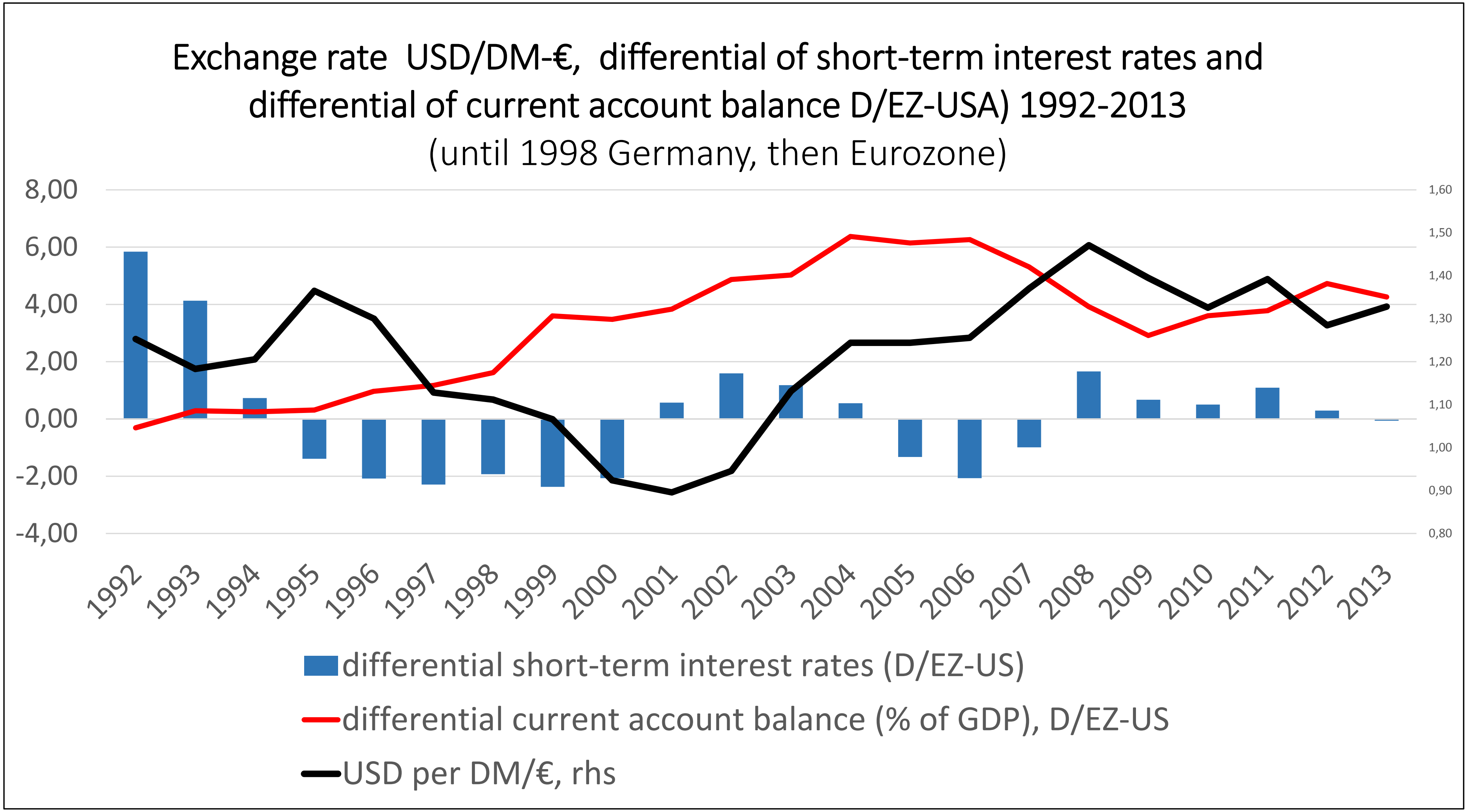
1985: Plaza Accord, 1987 Louvre Accord

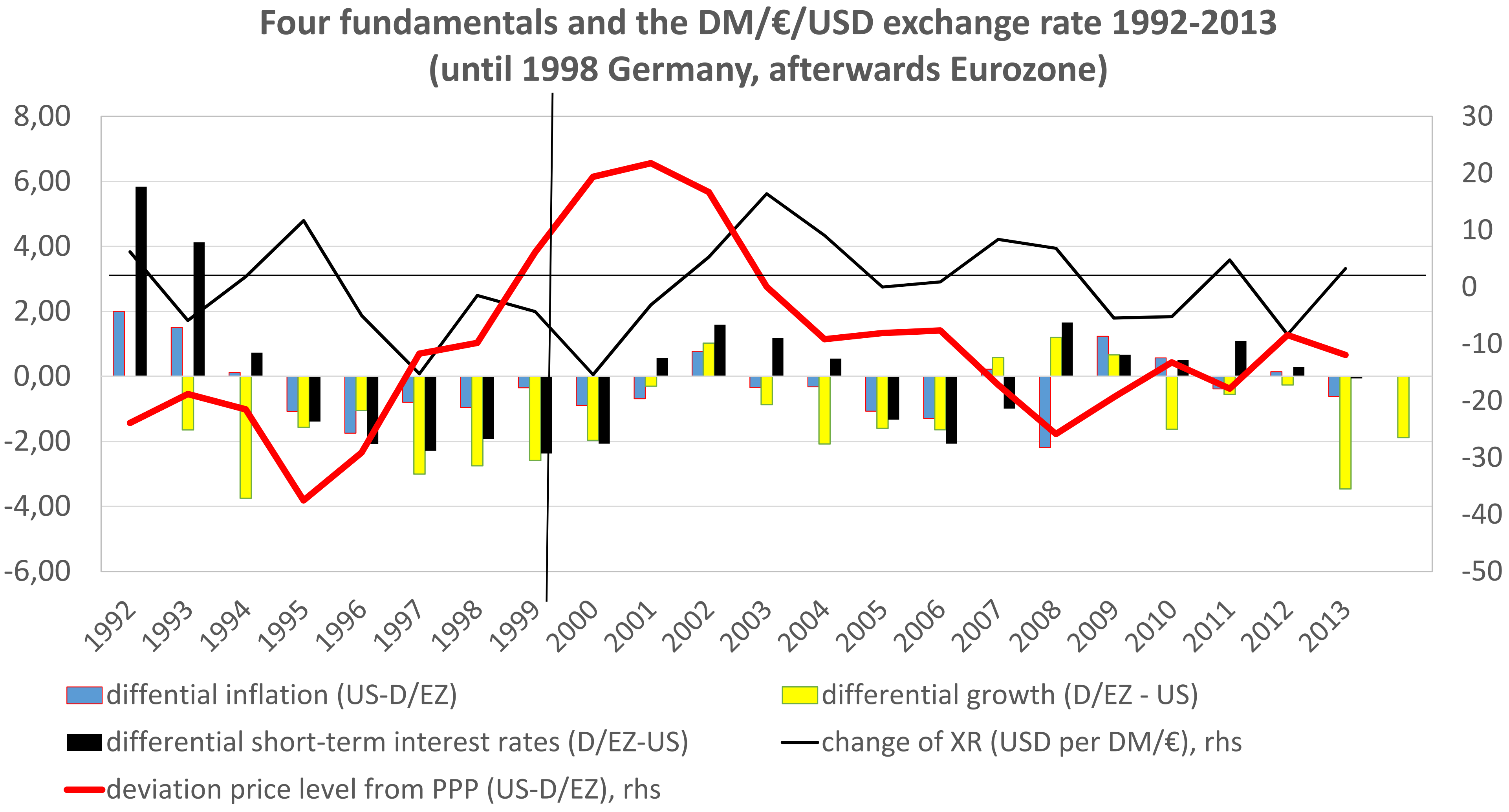
1995: excessive DM appreciation untenable, dotcom-boom in US started

2001: coordinated interventions of Fed/ECB; bursting of dotcom bubble

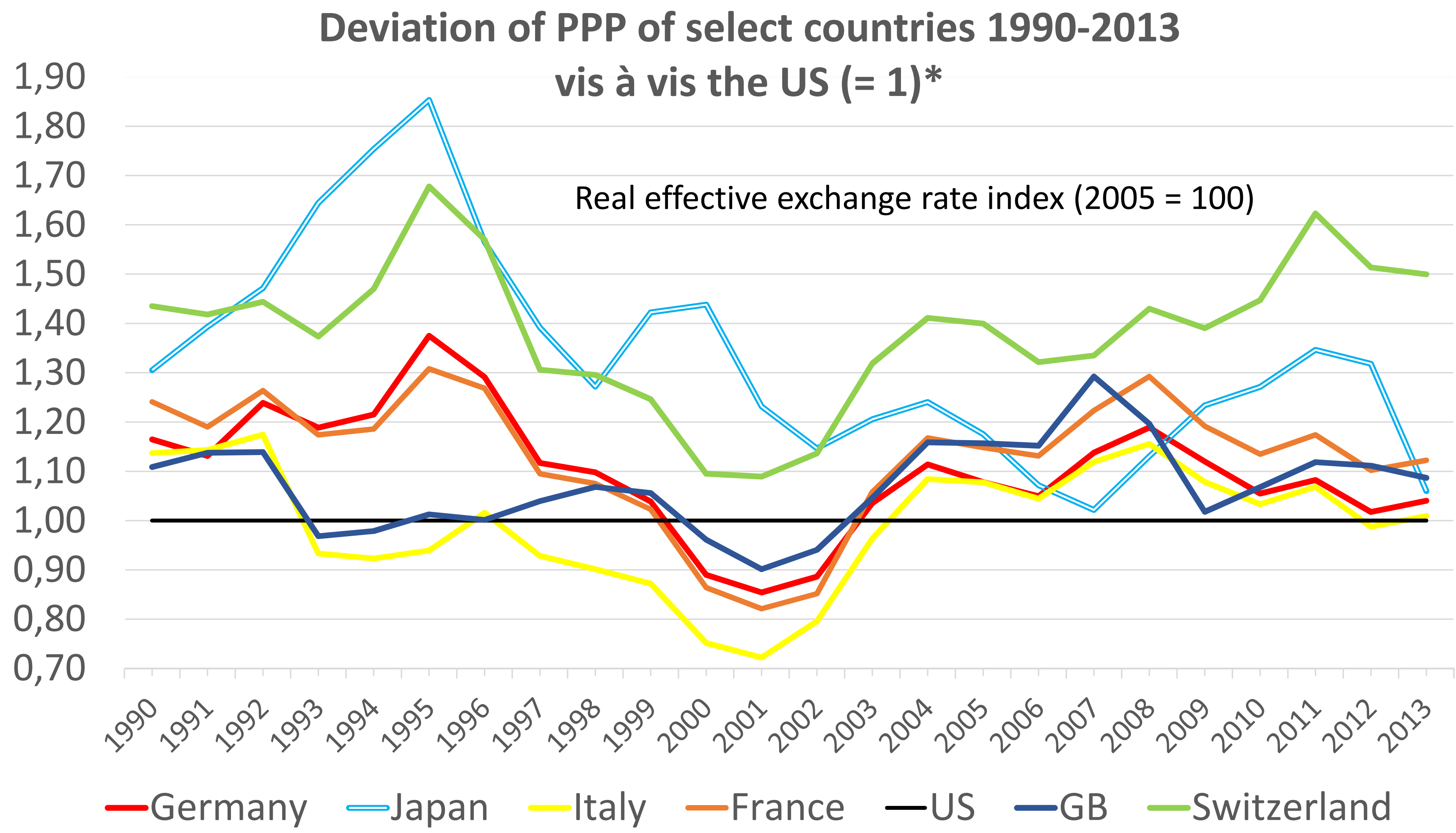
2008: shock of financial crisis


Nominal and real exchange rate DM/€ for US-dollar and real effective exchange rate 1973-2013
index 1973 = 100 (annual averages, indirect quotation)
220
200
180
160
140
120
100
80
60
nominal XR
bilateral real XR
real effective XR
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013

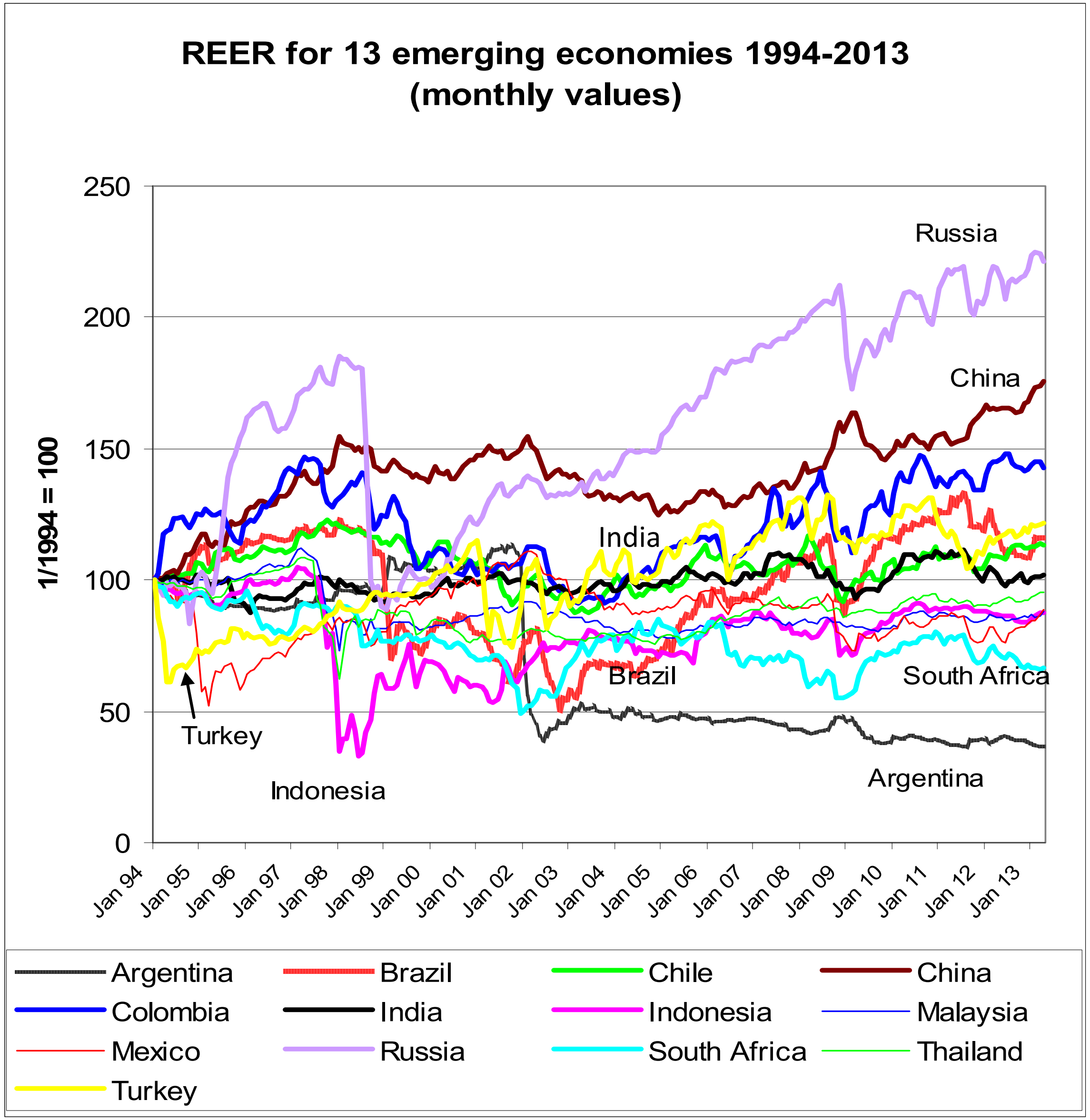

Exchange rate USD/DM-€, differential of short-term interest rates and differential of current account balance D/EZ-USA) 1992-2013
(until 1998 Germany, then Eurozone)
8,00
6,00
4,00
2,00
0,00
-2,00
-4,00
1,60
1,50
1,40
1,30
1,20
1,10
1,00
0,90
0,80
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
differential short-term interest rates (D/EZ-US)
differential current account balance (% of GDP), D/EZ-US
USD per DM/€, rhs



Four fundamentals and the DM/€/USD exchange rate 1992-2013
(until 1998 Germany, afterwards Eurozone)
8,00
6,00
4,00
2,00
0,00
-2,00
-4,00
-6,00
30
20
10
0
-10
-20
-30
-40
-50
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
diffential inflation (US-D/EZ)
differential growth (D/EZ - US)
differential short-term interest rates (D/EZ-US)
change of XR (USD per DM/€), rhs
deviation price level from PPP (US-D/EZ), rhs


Deviation of PPP of select countries 1990-2013
vis à vis the US (= 1)*
Real effective exchange rate index (2005 = 100)
1,90
1,80
1,70
1,60
1,50
1,40
1,30
1,20
1,10
1,00
0,90
0,80
0,70
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Germany
Japan
Italy
France
US
GB
Switzerland

Strong volatility of REER, except for India, Chile, Thailand, Malaysia, China



5. Where to go

- Recommencement of XR theory necessary
- Reconsideration of Keynes‘s endorsement of PPP (for tradables, adjusted for transaction costs) and on his analysis of uncertainty, expectations and speculation
- Financialisation of XR in modern flexible rate regimes (unregulatted forex markets, full international capital mobility) → huge volume of transactions, unrelated to fundamentals
- Destabilising speculation predominantes, one-directional
- Reversals unavoidable
- Crises or central bank interventions important during reversals
- Turning points still diffficult to explain; econometric methods fail
- Strong overlapping of behavioural finance XR theories and Keynesian ideas

- Political consequences:

  → managed floating

  → collaboration of two leading CBs and reserve currencies

  → remember Keynes 1923: dollar and Sterling blocs should cooperate, leading to more stable XR worldwide

  → monetary cooperation Fed/ECB is a cornerstone for global monetary reform