eams

Dipartimento di
Scienze Economiche, Aziendali,
Matematiche e Statistiche "Bruno de Finetti"

A8. FOREX

FINANCIAL MARKETS AND INSTITUTIONS

A.A. 2022/23

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AGENDA

- WHY DO WE NEED THE FOREX?

- HOW DO ER WORK?

- CAN WE PREDICT ER?

- IS THERE A LINK BETWEEN ER AND IR?

PURPOSE AND FEATURES

- Usually quotes are in **units of domestic per foreign currency**:

  - appreciation represents a fall in this exchange rate

  - (f.i. in EU, from 0.93 €/$ to 0.90 €/$)

- Easier: **units of foreign per domestic currency**:

  - appreciation represents an increase in this exchange rate

  - (f.i. in EU, from 1.08 $/€ to 1.11 $/€)

PURPOSE AND FEATURES

Euro Pairs

		Bid	Ask			Bid	Ask
EUR/AUD	▲	1.62008	1.62032	EUR/CAD	▼	1.48193	1.48215
AUD/EUR	▼	0.61716	0.61725	CAD/EUR	▲	0.67470	0.67480
EUR/CZK	—	23.62452	23.63458	EUR/DKK	—	7.45136	7.45245
CZK/EUR	—	0.04231	0.04233	DKK/EUR	—	0.13418	0.13420
EUR/HUF	▼	387.222	387.524	EUR/NOK	▼	11.30526	11.30882
HUF/EUR	▲	0.00258	0.00258	NOK/EUR	▲	0.08843	0.08845
EUR/NZD	▲	1.73589	1.73629	EUR/PLN	▼	4.68582	4.68773
NZD/EUR	▼	0.57594	0.57607	PLN/EUR	▲	0.21332	0.21341
EUR/SEK	—	11.21248	11.21596	EUR/TRY	▲	20.51152	20.51621
SEK/EUR	—	0.08916	0.08919	TRY/EUR	▼	0.04874	0.04875
EUR/SGD	▲	1.43365	1.43387	EUR/ZAR	▲	19.55023	19.55873
SGD/EUR	▼	0.69741	0.69752	ZAR/EUR	▼	0.05113	0.05115

PURPOSE AND FEATURES

- Trading currencies and, especially, **deposits in foreign currencies**

- Demand/supply determine Q and **prices are set as ER:** cost of purchasing foreign goods, services and financial assets

- Trading on **three markets: spot, forward/future, swap**

EURUSD 24.03.23
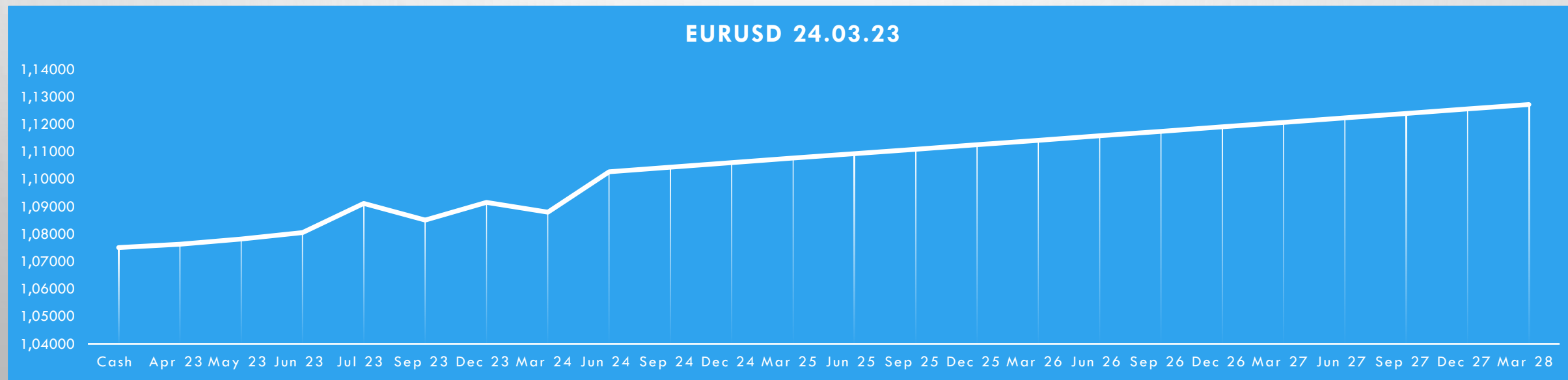
PURPOSE AND FEATURES

- **ERs affect economy:**
  - appreciation makes **own goods more expensive** and **foreign good cheaper** if prices are constant (depreciation the opposite)
  - economic and financial integration makes this **relevant for the overall economy, not just for importers/exporters**
  - ER are (at least partially) **linked with IR** through returns on assets
- Trading is **OTC between dealers,** despite words such as Forex/FX
- Trading deals with large (mln $-€) **deposits** in different currencies
- Currently the **largest market** (around 5-6 TRN USD of daily turnover for wholesale operations in recent years)
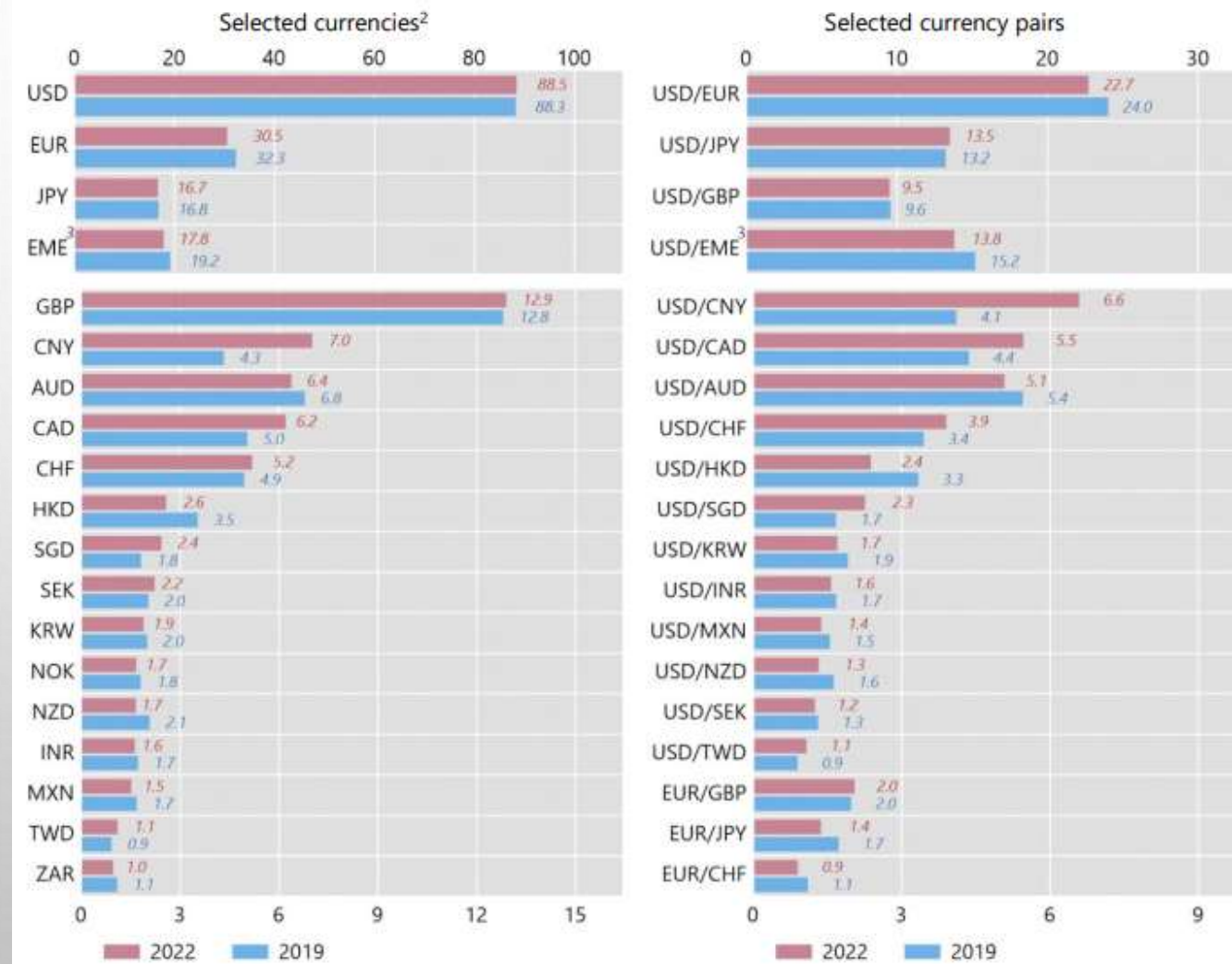- Extremely **liquid and deep worldwide** market

PURPOSE AND FEATURES
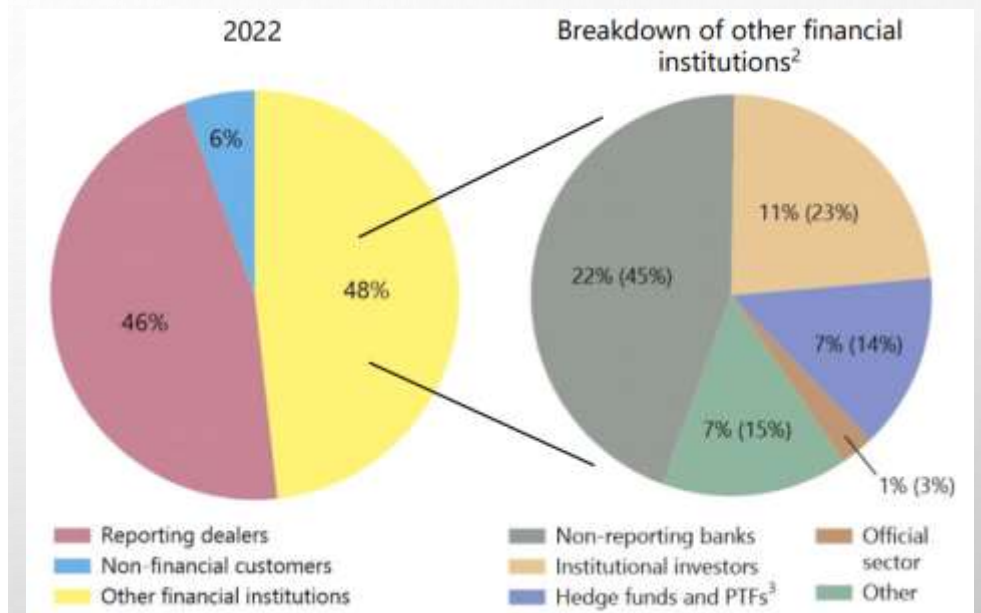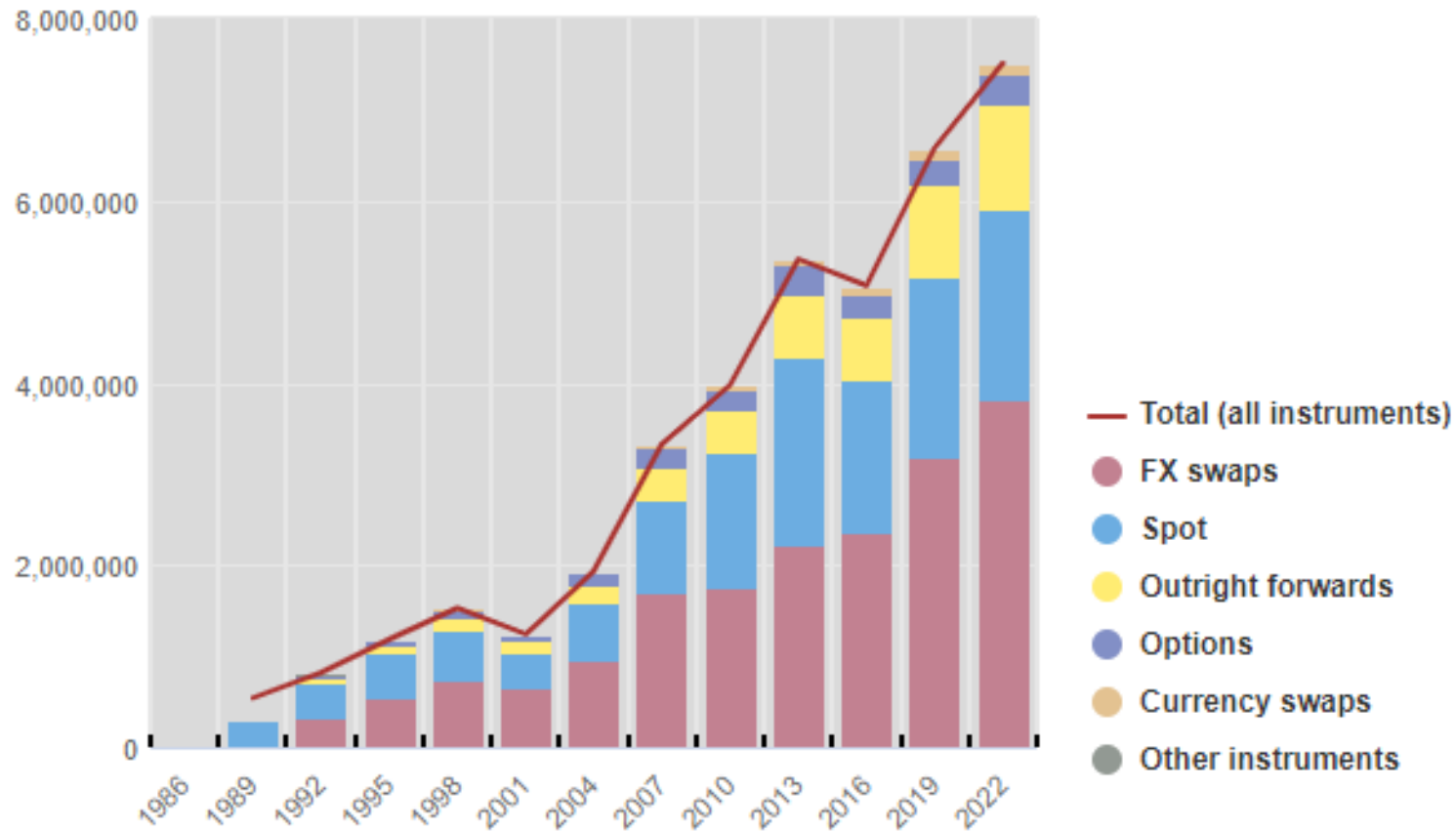
PURPOSE AND FEATURES

Foreign exchange market turnover by currency and currency pairs[1]

Net-net basis, daily averages in April, as a percentage of total turnover

Graph 4

THEORIES OF ER: LONG RUN

Theory of purchasing power parity (PPP)

- *Law of one price*: *two countries producing the same good with negligible transportation costs and barriers should price them at the same level*

- ER between two currencies reflect **changes in price levels**

- If price levels rise here, currency depreciates and others appreciate: **always think in relative terms!**

- **Real ER** (rate of exchange between national and foreign goods) are representative of currency's relative cheapness or expensiveness, therefore PPP predicts RER close to 1 across all currencies

- PPP holds in the long run due to its strong hypothesis:

  - goods are perfect substitutes,

  - all goods can be traded internationally

 - transportation/trade barriers are negligible

REER (selected)
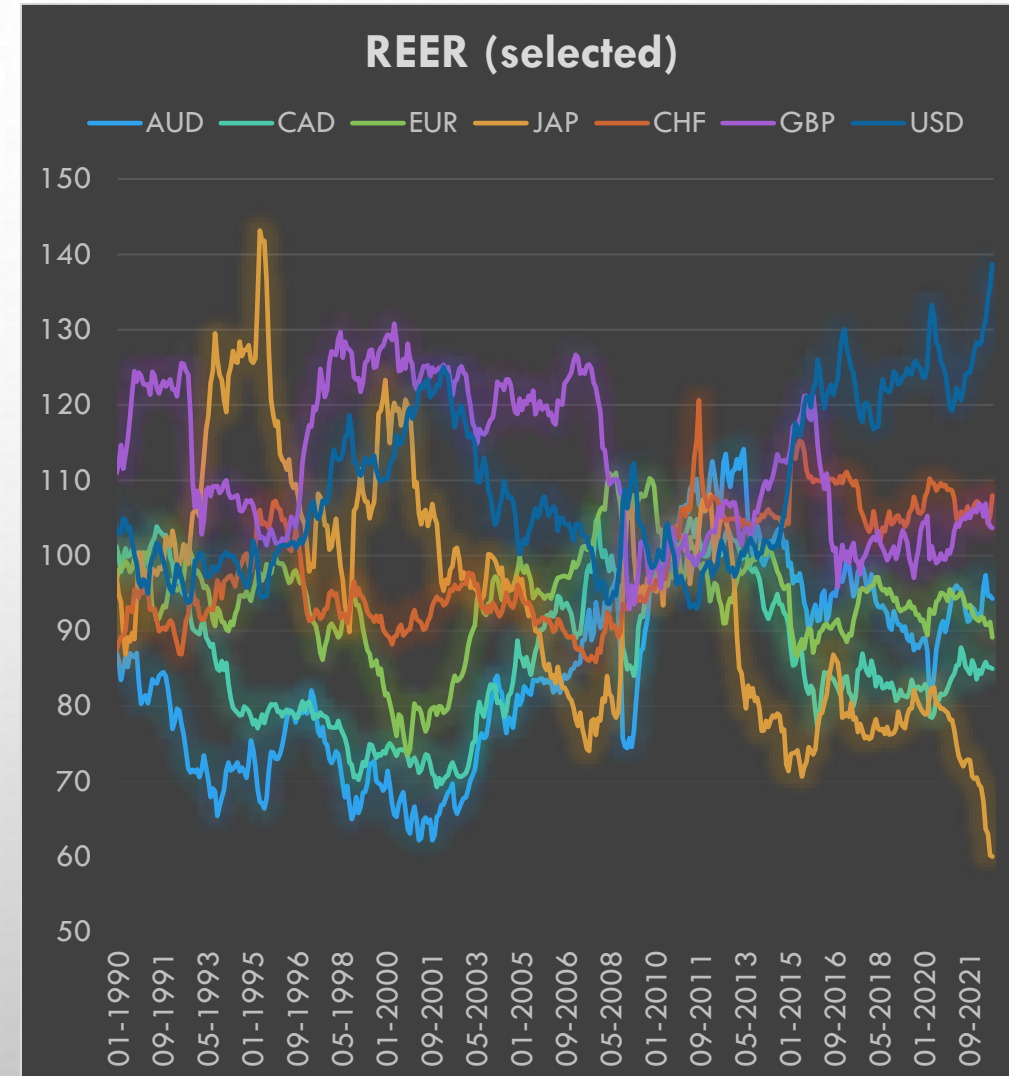
THEORIES OF ER: LONG RUN

Explaining ER: **we start from D and S for national/foreign traded goods**

Main factors:

- **Relative price levels:** rising domestic inflation depreciates national currency
- **Trade barriers:** increasing trade barriers (tariffs/quotas) appreciates national currency
- **Demand's preferences:** increasing appetite for domestic goods appreciates national currency
- **Productivity:** greater productivity in internationally traded goods reduce their relative price and appreciates national currency
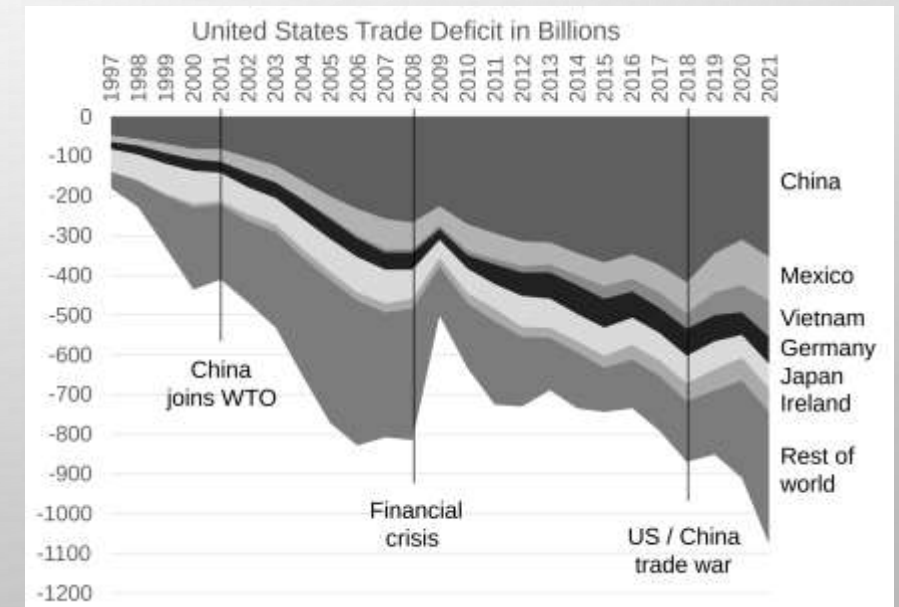
THEORIES OF ER: SHORT RUN

D and S again, but on assets in national and foreign currencies:

- Supply (domestic assets) can be considered given in the short run

- Demand decreases as currency appreciates (keeping future expected ER constant), since lower current ER with constant expected future ER means higher returns on national assets
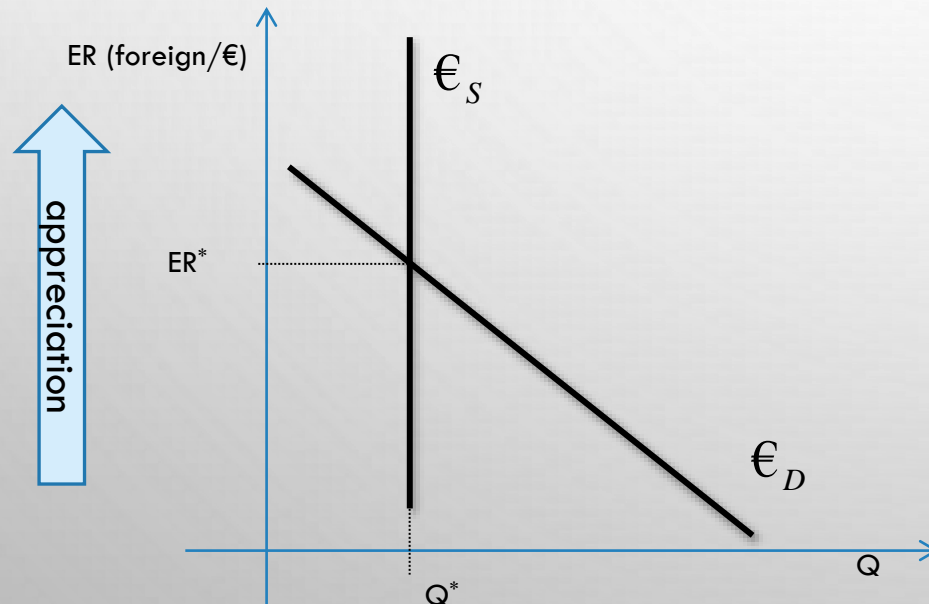

Factors influencing demand:
- **IR**: if national assets provide + returns compared to foreign ones, demand + and ER appreciate (_national VS foreign IR_)
- **Expected ER**: if the future expected ER + (because of expected − national _price levels_, + _trade barriers_, − _import_, + _export_, + _productivity_), returns on national assets +, demand + and ER +

IR VS ER

- IR can change because of real IR or expected inflation changes: **different impact on ER**

- **if real IR increase, returns increase:** more demand of national assets, *appreciation*

- **if expected inflation, returns decrease:** less demand of national assets, *depreciation*
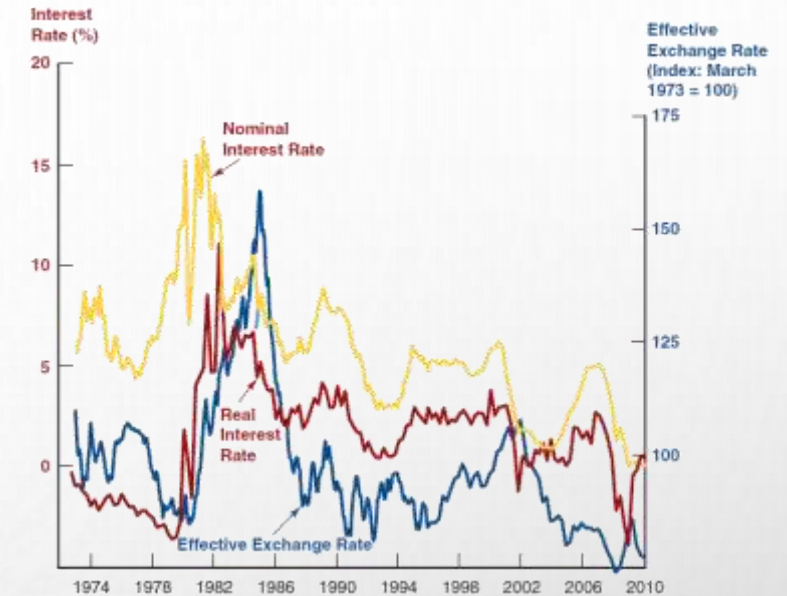
INTEREST PARITY CONDITION

Domestic assets earn i^D and foreign assets i^F (no capital gains): comparison requires **conversion**

Imagine:

- 1.1 $/€ is the spot ER, 1.15 is the future ER
- John (US) has 1.1$, Maria (IT) has 1€
- Italian returns are 2%, US returns are 5%

	JOHN in IT	JOHN in US	MARIA in US	MARIA in IT
Capital	1.1$	1.1$	1€	1€
Conversion	1€		1.1$	
Proceedings	1.02€	1.155$	1.155$	1.02€
Conversion	1.173$		1.004€	
Return	6.6%	5%	0.4%	2%

- Returns in F currency consider ER expectations, while comparison includes them relatively to F return

$$R^D(F) = i^D + \frac{E^e_{t+1} - E_t}{E_t}$$

$$\text{Relative } R^D(F) = i^D - i^F + \frac{E^e_{t+1} - E_t}{E_t}$$

- Returns in D currency and relative returns in terms of D currency get to the same result

$$R^F(D) = i^F - \frac{E^e_{t+1} - E_t}{E_t} \rightarrow \text{Rel. } R^F(D) = i^D - \left(i^F - \frac{E^e_{t+1} - E_t}{E_t} \right) = i^D - i^F + \frac{E^e_{t+1} - E_t}{E_t} = \text{Rel. } R^D(F)$$

- If assets are substitutes, demand increases where returns are expected higher, so for a given amount of assets, expected returns should be equal (**interest parity condition**): domestic currency appreciates ($\Delta + E_t$) if we expect appreciation or $\Delta + i^D$ or $\Delta - i^F$

$$i^D = i^F - \frac{E^e_{t+1} - E_t}{E_t}$$

$$E_t = \frac{E^e_{t+1}}{i^F - i^D + 1}$$

1. What happened to € and $ during the financial crisis (2007-2008)?

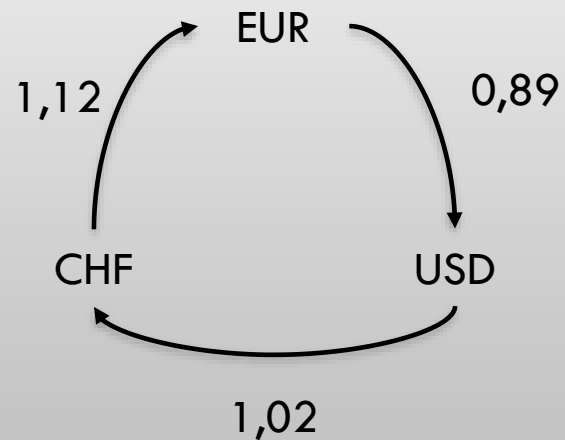   Why is the Euro so "strong" despite the EU-crisis in 2011? Why is it weaker now?

EXAMPLES

1. CARRY TRADE

On your trading desk you note the following:

- Your capital allowance for the day is 1.000.000 USD

- Three different banks are quoting 1,12 CHF/EUR, 0,89 EUR/USD, 1,02 USD/CHF

What can you do? What if many do?

Strategy A:
1) From USD to CHF: 980.392
2) From CHF to EUR: 875.350
3) From EUR to USD: 983.540

Performance: -1.6%

Strategy B:
1) From USD to EUR: 890.000
2) From EUR to CHF: 996.800
3) From CHF to USD: 1.016.736

Performance: +1.7%

EXAMPLES

2. PLAYING IR AND INFLATION

Turkey's lira plunges after Erdogan fires central bank head
Hong Kong / Istanbul / London (CNN Business) Turkey could be on the cusp of another currency crisis after President Recep Tayyip Erdogan...

Turkey's Erdogan Fires Central Bank Officials, Fueling Economic Uncertainty
ISTANBUL—Turkey's economy slid further into turmoil on Thursday after President Recep Tayyip Erdogan fired three top officials at the...

Erdogan fires statistics agency chief amid inflation spike
The president has drawn criticism for his repeated overhaul of the country's economic team, including replacing three central bank governors in...

Erdogan fires deputy governor of Turkey's central bank
Turkey's president has fired one of the deputy governors at the country's central bank, the third senior official to be dismissed in two...

Turkey Pauses Interest Rate Cuts After Surge in Inflation
Central bank held key rate at 14%, in line with forecasts - Erdogan signals more gradual easing in 2022 as economy adjusts.

Inflation in Turkey is getting out of control
Erdogan had reacted to the unwelcome news as he often does: he fires the staff. Since 2019, he has replaced 3 central bank governors, 2 finance ministers...

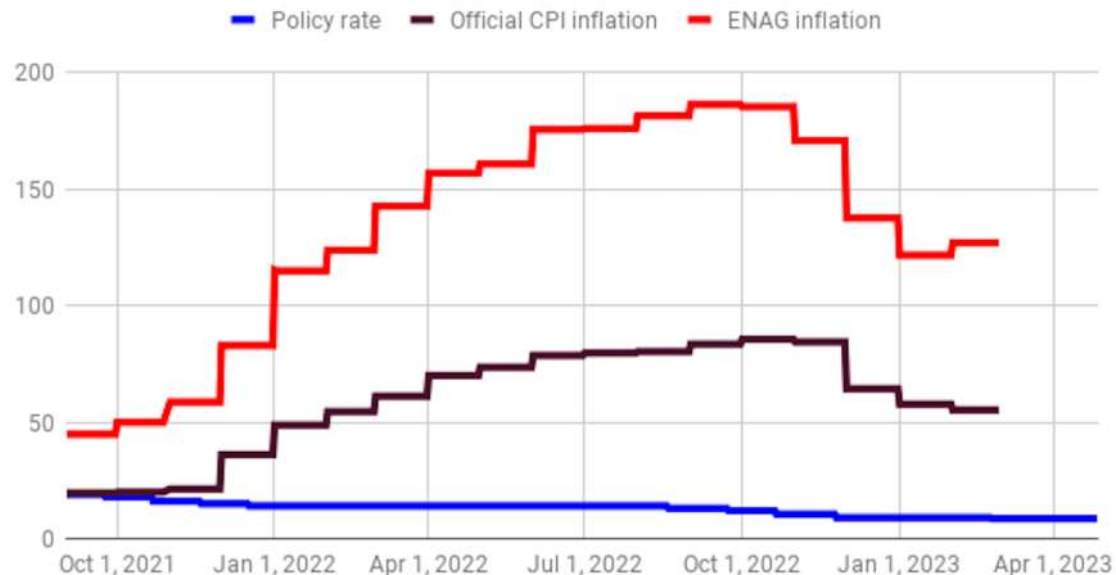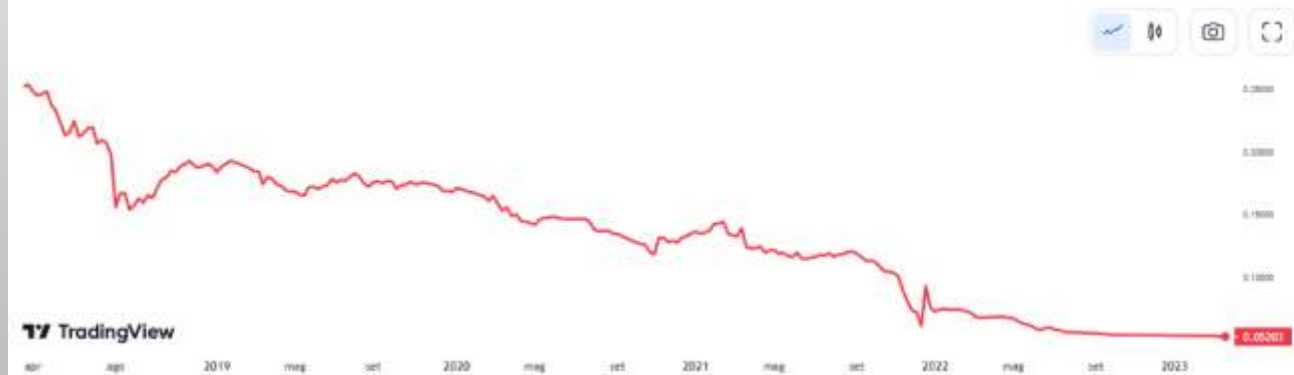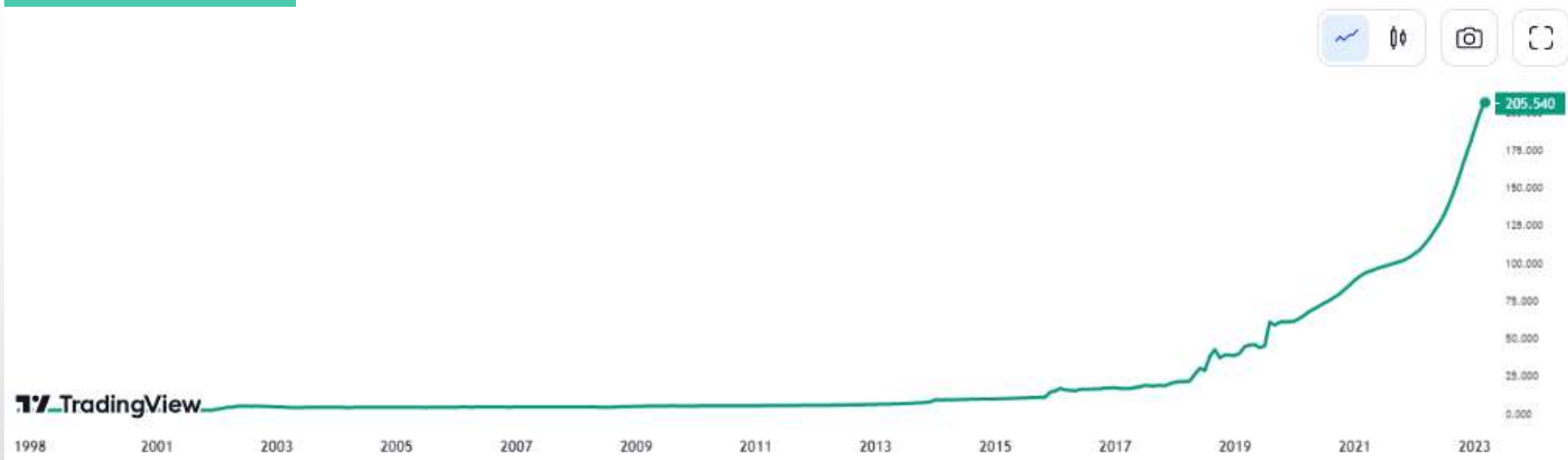

Turkish Central Bank Policy Rate vs Inflation

Policy rate — Official CPI inflation — ENAG inflation

Grafico TRYUSD

EXAMPLES

3. CURRENCY AND SOLVENCY

EXAMPLES