Problem 6.2

dom. €

$$i = 3.6\% \qquad i_a = 4.8\%$$

a) $\quad \ln(w_{+1}) - \ln(w) = i - i_a = -1.2\%$

$$UIP : \quad w \downarrow \text{ by } \approx 1.2\%$$

b) [empirical] w will go down less $(\beta < 1)$
   UIP even wi $(\beta < 0)$

raise debt in € $\Rightarrow$ invest in $

Spec. on
· i + i_a
· w ≠ w_{+1}
· f_{+1} ≠ w_{+1}
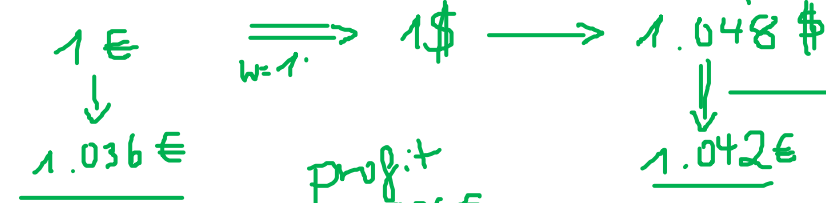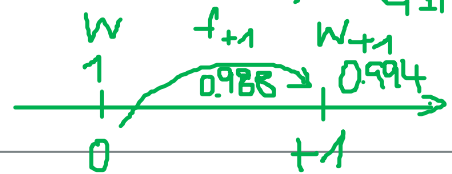
$1 €$ $\underset{w=1}{\Longrightarrow}$ $1\$ \longrightarrow 1.048\$$

$\downarrow$

$1.036 €$

profit
0.006 €

$1.042 €$

w_{+1}
UIP: 0.988 (-1.2%)
DHR: 0.994 (-0.6%)

UIP: $w_{+1}^e \downarrow -0.6\% \; (\beta < 1)$

c) CIP: $f_{+1} \downarrow -1.2\%$

w	f_{+1}	w_{+1}
1	0.988	0.994
0		+1

buy forward $ now ; sell spot $ in period +1
0.988   0.994

International Monetary Economics   4

Problem 6.2

UIP

d) $W\downarrow$ ⟶ $i\downarrow$

endogeneity
managed floating
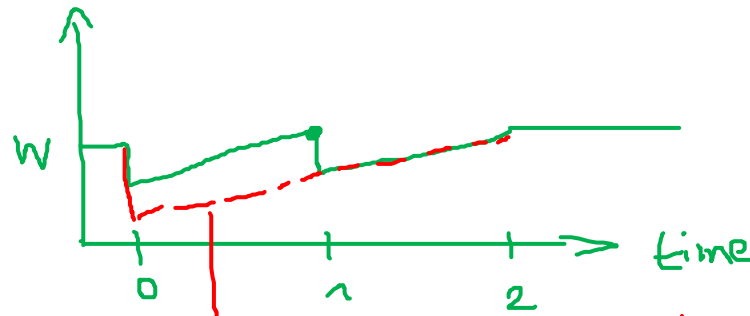
e₁   subjects do not know how long policy persists

$i - i_a = -1.2\%$

e.g.: valid for one period
       expect.

$W\downarrow$ too low $(\beta=0)$
⟹ more excess
profits

actually policy for two periods!

■ **Problem 6.3**

UIP

$$i > i_a \qquad \beta < 1$$

UIP↗

w_{+1}⟲↑

f_{+1}↑ CIP

a. Debt in \$, invest in €

profit from interest rate difference

no exchange rate risk

b. $ln(w_{+1}) - ln(w) \overset{>}{<} 0$ but $ln(f_{+1}) - ln(w) \gg 0$

Sell forward-\$ for f_{+1}

Refinance with cheap spot \$ at w_{+1}

Problem 6.5

dom: Turkey

for: €

$$\ln(w_{+1}) - \ln(w) = i - i_a$$

over the equation: 24% 0%

a) $w = 7.5 \xrightarrow[\text{years}]{0.5} w_{+1} = 6.5$

$$\underbrace{\ln(6.5) - \ln(7.5)}_{-14\%} = \underbrace{12\% - 0\%}_{+12\%}$$

UIP does not hold

$\beta < 1$

b) invest in Lira, debt in € ⟹ no exchange rate risk
($w\downarrow$ ⟹ extra profits)

c) $\underset{+12\%}{f_{+1}} > \underset{-14\%}{w_{+1}}$ Sell forward \$, cheaply refinance at spot market

Problem 6.4

γ bubble prob.

$$W_{+1}^{e} = \begin{cases} \dfrac{W_{+1}^{B}} \quad \gamma = 0.9 \\[2mm] \overline{\;W^{F}\;} \quad \gamma = 0.1 \end{cases}$$

$i - i_{a} = 4 - 2 = 2\%$

$w \uparrow + 2\%$

Investors belief in a
return to W^{FV}
compensated for the risk!

Legend:
- Bubble path
- Riskless bubble
- Fundamental value

$$\ln(W_{+1}^{e}) - \ln(w) = \underset{0.9}{(1-\gamma)}\Big[\ln(W_{+1}^{B}) - \ln(w)\Big] + \underset{0.1}{\gamma}\Big[\ln(W^{F}) - \ln(w)\Big]$$
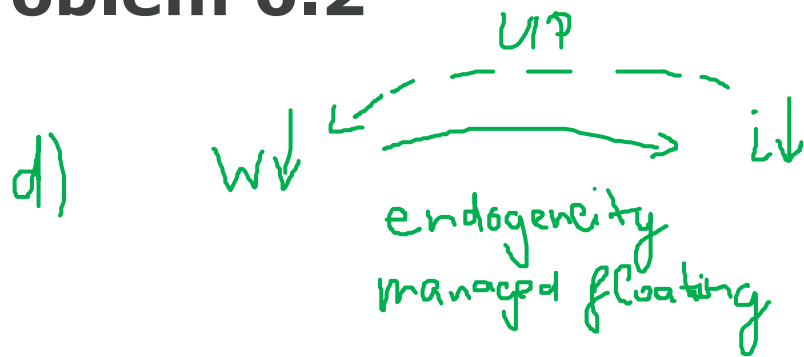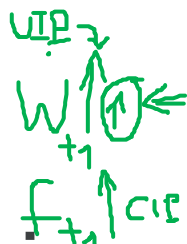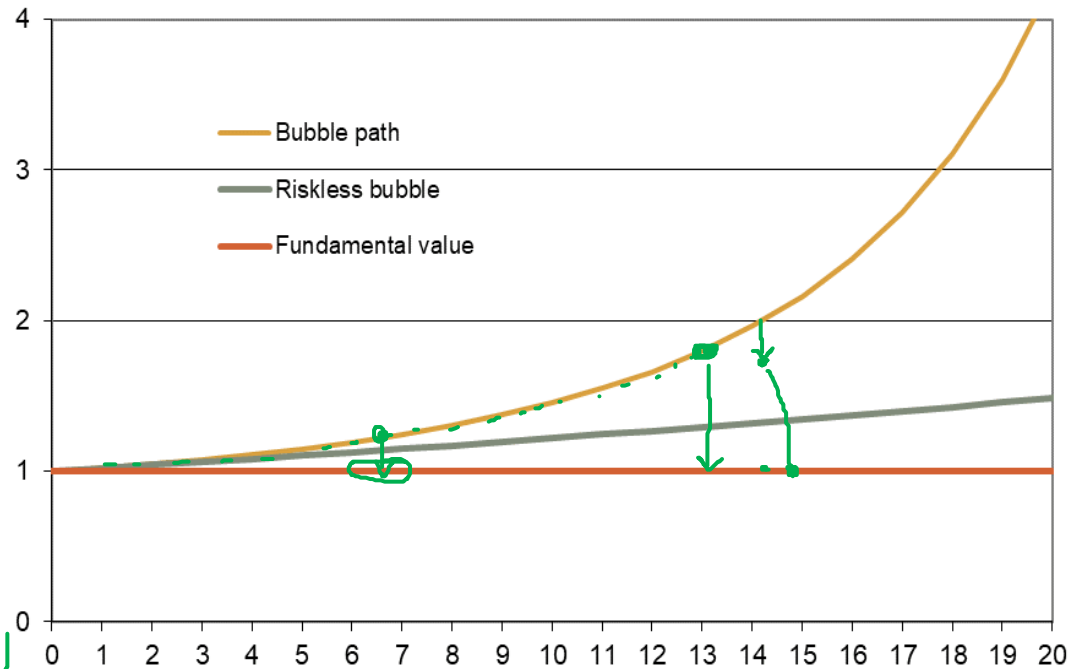
on bubble path: $\underline{\underline{W_{+1}^{B}}} > W_{+1}^{e}$ systematic bias ex-post

Problem 7.1

[handwritten: default risk] *[handwritten: => NIP (−), not total amount => usage for investment (−) => Currency (+) foreign]*

Rating	Country			Rating	Country		Rating	Country		Rating	Country	
AAA	Australia		**A+**	Chile	2↑↓	**BBB-**	Croatia	3↓2↑	**B+**	Honduras	
	Canada			China	2↑↓		Cyprus	12↓8↑		Jamaica	↓3↑
	Denmark			Japan	2↓		India			Kenya	
	Germany			Latvia	3↑		Kazakhstan	2↓		Papua NG	↑
	Luxembourg			Lithuania	2↓3↑		Morocco	↑		Senegal	
	Netherlands	↑		Slovakia	↑		Romania			Sri Lanka	
	Norway		**A**	Iceland	5↓4↑		Russia	↓↑		Turkey	↑2↓
	Singapore			Spain	7↓4↑	**BB+**	Bahamas	4↓	**B**	Argentina	5↓5↑
	Sweden		**A-**	Botswana	↓		Serbia	↓2↑		Belarus	2↓↑
	Switzerland			Malaysia			South Africa	3↓		Bosnia and H.	
AA+	Austria	↓		Malta	2↓↑	**BB**	Bolivia	4↑		Cameroon	
	Finland			Poland	↓↑		Guatemala			Egypt	↑
	Hong Kong	2↑↓		Saudi Arabia	2↓		Paraguay	3↑		Nigeria	↓
	USA	↓		Trinidad and T.	↑↓		Vietnam	↓2↑		Ukraine	3↑5↓4↑
AA	Belgium	↓	**BBB+**	Bulgaria	↓3↑	**BB-**	Bangladesh		**B-**	Belize	↓
	France	2↓		Mexico			Brazil	2↑4↓		Burkina Faso	↓
	Korea	3↑		Panama	3↑		Costa Rica	2↓		Ecuador	3↑3↓
	Kuwait	2↑		Peru	3↑		Dom. Rep.	2↑		Ghana	↓
	New Zealand	↓		Philippines	4↑		El Salvador	2↓4↑		Pakistan	
	UK	2↓		Thailand			Georgia	↑	**CCC+**	Barbados	8↓
AA-	Czech Rep.	3↑	**BBB**	Colombia	2↑		Greece	11↓4↑	**CCC**		
	Estonia	2↑		Hungary	2↓3↑		Jordan	↓	**CCC-**		
	Israel	3↑		Indonesia	3↑		Macedonia	4↓	**SD**	Venezuela	7↓
	Slovenia	4↓3↑		Italy	6↓↑				**D**	Mozambique	
	Taiwan			Portugal	9↓3↑						
	Ireland	7↓4↑		Uruguay	5↑	"↓" Deterioration since 2007			"↑" Improvement since 2007		

Standard & Poors, Sovereign Rating, Foreign Currency, April 2020

Net investment position   = stock

prices of current year

flow BoP USA 2011	
FDI Portfolio Loans (sent, KX)	FDI Portfolio Loans (received; KI)

BoP USA 2010	
…	…

BoP USA 2009	
…	…

net investment position USA (NIP)	
foreign assets $\sum KX$	foreign liabilities $\sum KI$

Problem 7.2a

Price-related changes?

net investment position USA (NIP)	
foreign <u>assets</u> $\sum KX$ € ¥ £	foreign liabilities $\sum KI$ $

- **Shares and properties**
  - yields dividends and rent (registered in primary income balance)
  - is subject to fluctuations in prices and values

- Price-related changes not registered in the <u>BoP</u>
  - Assume price increase of foreign assets
  - NIP improves   (liabilities constant)

Problem 7.2b+c

- **assets und liabilities denominated in different currencies**
  - assets in foreign currencies (€, Yen, CHF)
  - liabilities in $

- here: 10% deprectiaton of the the $ ($w \uparrow$)

net investment position USA (NIP)	
foreign assets $\sum KX$ €, ¥	foreign liabilities $\sum KI$ $

USA IV 2019 in Bill. $			
	Assets	Liabilities	
Portfolio	13500	21500	
Direct inv.	8800	10600	
Other inv.	4700	6500	
Reserves	500		

←10% 27500$ → 30250$ 38600$ -11100$ NIP
                              -8350$

Problem 7.2d

$r \downarrow$

$w \uparrow$

Interest rate channel

$I \uparrow$

Wealth channel

$C \uparrow$

Exchange rate channel

$X' \uparrow J' \downarrow$

Exchange rate induced Wealth channel

$foreign\ assets \uparrow \text{NIP} \uparrow$

„US becomes richer"

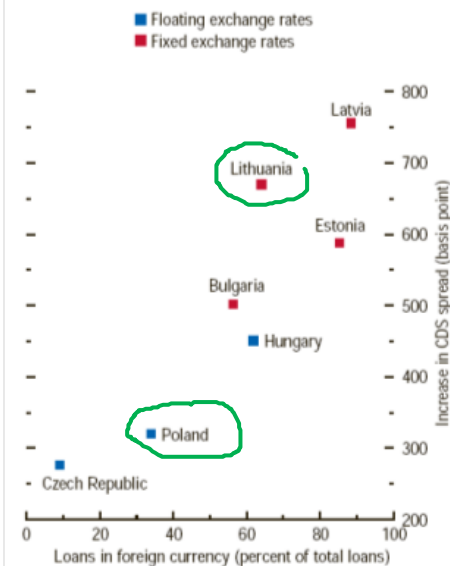$C \uparrow I \uparrow$

Intensification of the transmission
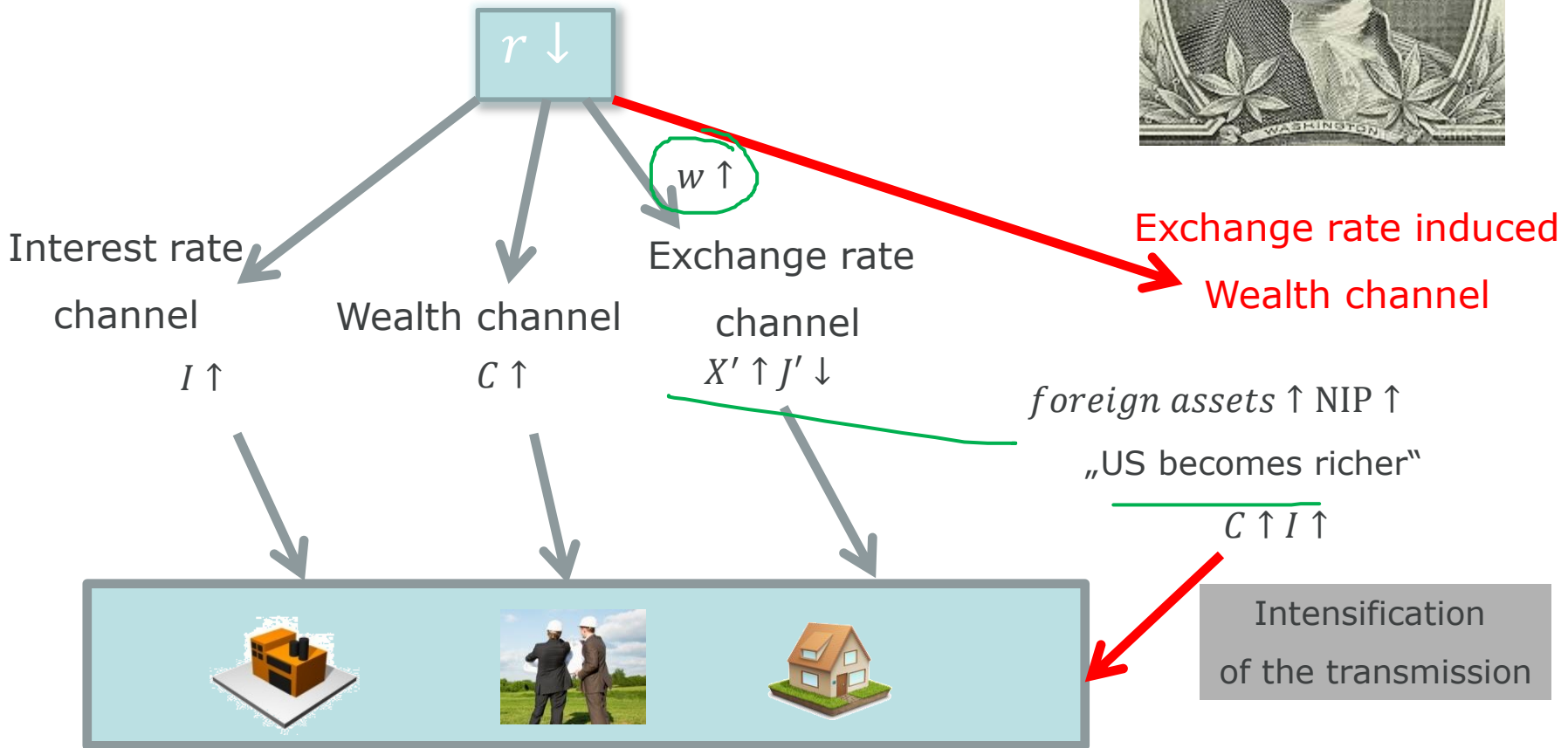
Problem 7.3a

- Correlation
  - The more loans are denominated in foreign currency, the higher the default risk.

- Justification
  - Higher default risk

  - In addition, exchange rate risk
  - If the $ appreciates, debt and interest rate payments become more expensive (measured in local currency)
  - Harder to sustain debt

Foreign Exchange Exposure is Strongly Linked to Market Perceived Default Risk, Regardless of the ER Regime

- Floating exchange rates
- Fixed exchange rates

Increase in CDS spread (basis point)

Latvia — 800
Lithuania — 700
Estonia — 600
Bulgaria — 500
Hungary — 400
Poland — 300
Czech Republic — 200

Loans in foreign currency (percent of total loans)
0   20   40   60   80   100

Quelle: World Economic Outlook 2009, S. 79;

Problem 7.3b

- Original Sin

- Poor countries cannot issue debt in domestic currency
  - Inflation risk
  - Additional: IMF/World Bank Special drawing rights in $/€/Yen/Pfund
- Poor countries issue debt in foreign currency ($).

- Original Sin = Share of loans in foreign currency

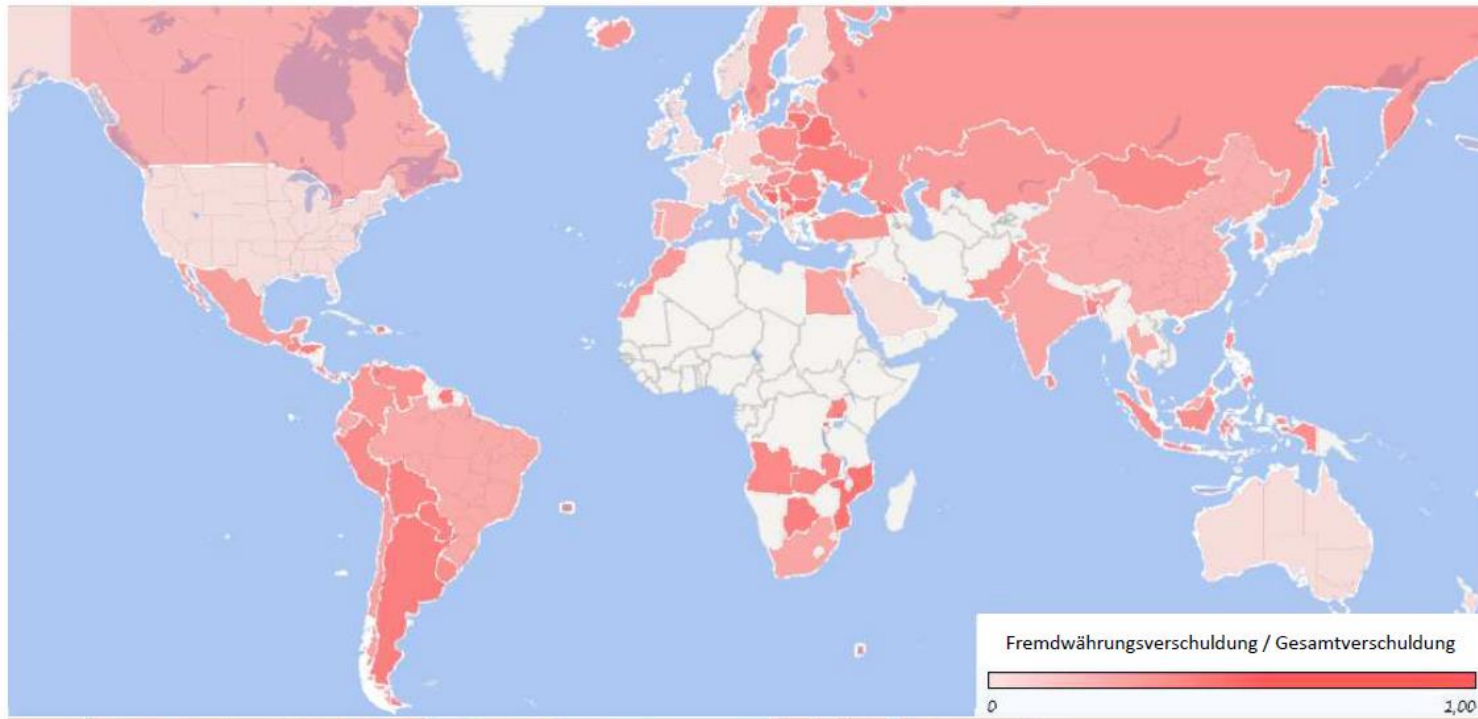Abbildung 6: Anteile der weltweiten (grenzüberschreitenden) Schulden nach Währung (in %)

Schw. Franc 2%
Yen 3%
Rest 5%
Euro 19%
Pound St. 8%
USD 63%
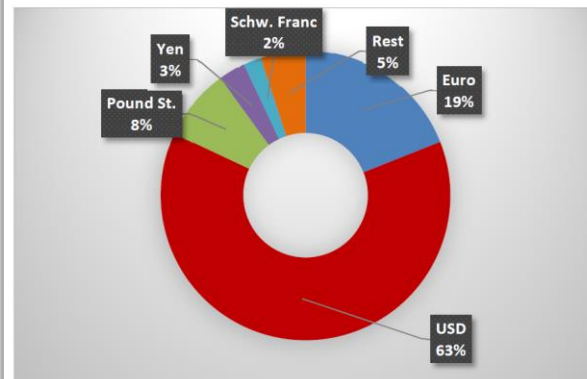
Quelle: (Eckert & Zschäpitz, 2014), Morgan Stanley, eigene Darstellung

Problem 7.3b
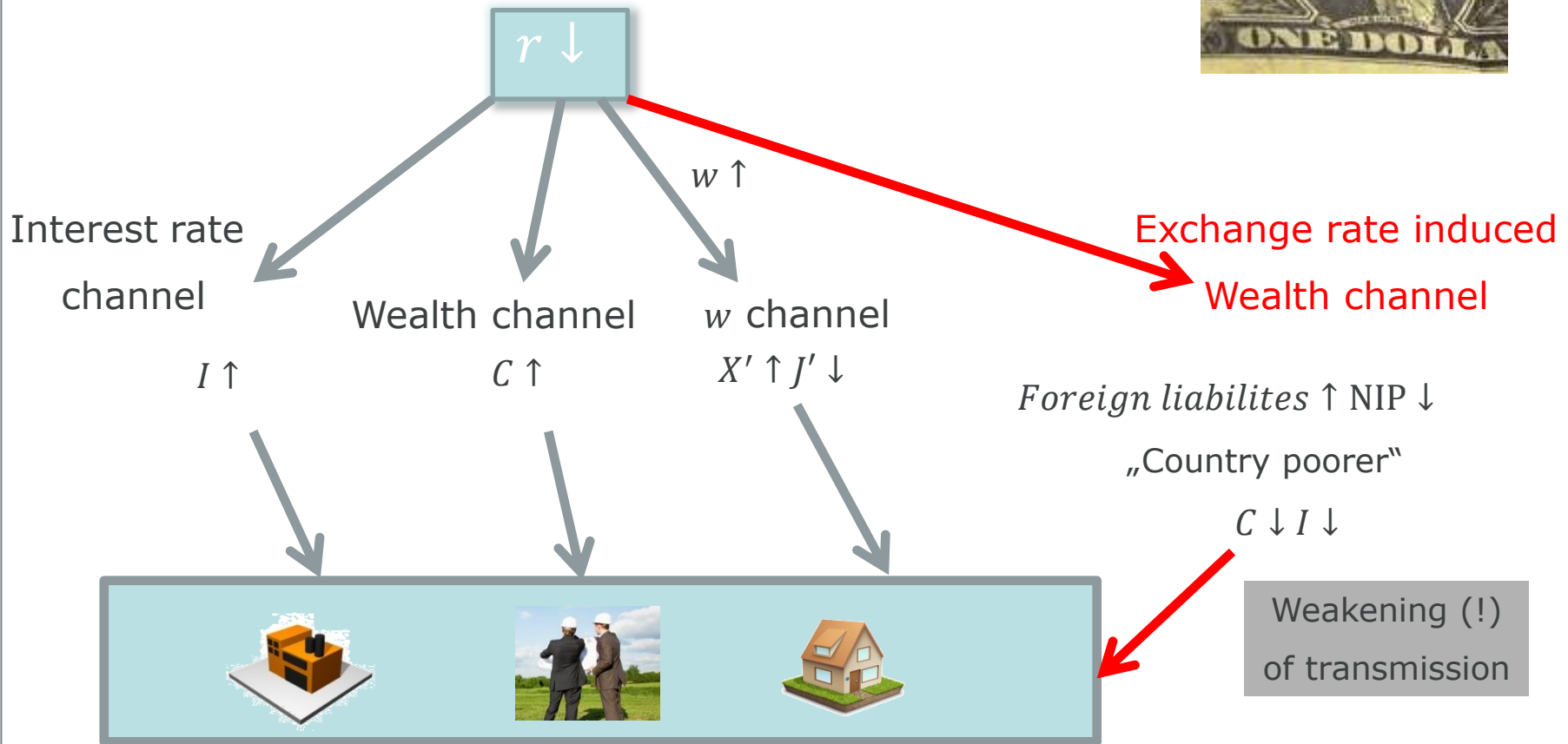
Share of total debt

- Developed countries 7.5% in foreign currency
- Developing countries 45,3% in foreign currency

Fremdwährungsverschuldung / Gesamtverschuldung

0   1,00

Problem 7.3b

- Transmission weaker

$r \downarrow$

Interest rate channel

$w \uparrow$

Wealth channel

w channel

$I \uparrow$

$C \uparrow$

$X' \uparrow J' \downarrow$

Exchange rate induced Wealth channel

Foreign liabilites $\uparrow$ NIP $\downarrow$

„Country poorer"

$C \downarrow I \downarrow$

Weakening (!) of transmission

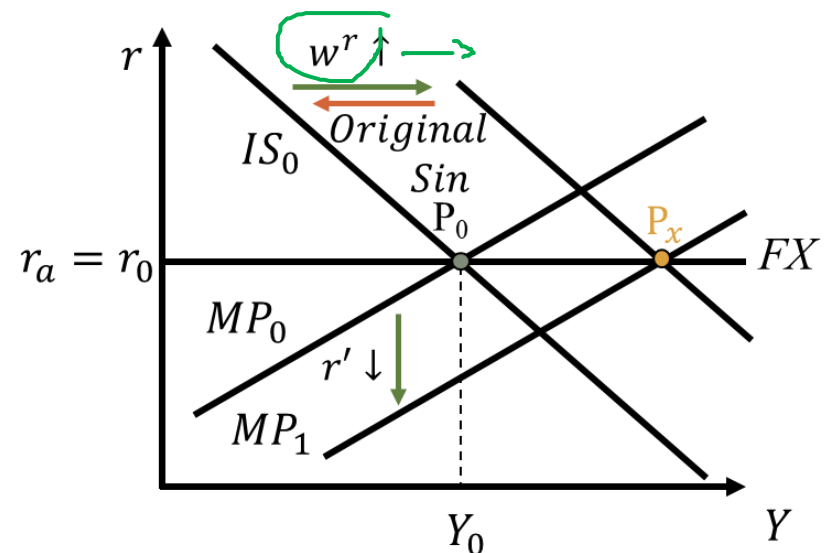# **Problem 7.3c**

greater volatility of production

Low creditworthiness restricts scope for countercyclical fiscal policy

Government may find it difficult to borrow to finance increased government spending

E.g. cannot act as a lender of last resort, as loans are not denominated in domestic currency

Transmission channel weaker

(see previous slide)

Two sides of the same coin
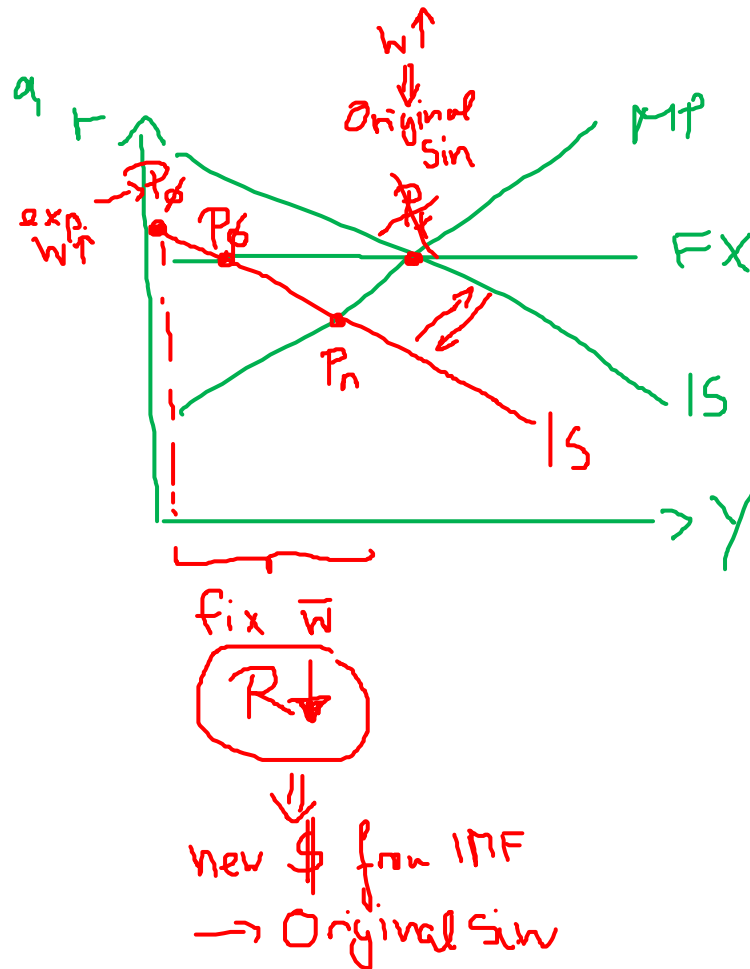

NIP USA	
foreign assets in foreign currency	foreign liabilities in domestic currency ($)

NIP developing country	
foreign assets in foreign currency	foreign liabilities in **foreign currency ($)**

Problem 7.4

In 1997 Thailand was hit by a slump in aggregate demand. Paul Krugman (2019: 117) remarks about the International Monetary Fund (IMF): „Here's what the IMF did: …it did not tell countries to defend the values of their currencies at all cost. But it did tell them to raise interest rates, initially to very high levels, in an attempt to persuade investors to keep their money in place."