Corporate Saving and Trade Imbalances: The Role of Investment Goods Exports

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     $\Rightarrow$ trade of surplus countries is intensive in investment goods (Mutreja, P., 2018)
  3. Decline in investment prices relative to consumption prices, e.g., Greenwood (1997, 2000)
- According to the literature, trend 1 and 2 are interconnected more details

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- Model replicates the rise in corporate saving and investment goods exports for the case of Germany

Literature review

- Corporate saving

  Macro-level: e.g., **Chen et al. (2017)**, Klug et al. (2018), Dao and Maggi (2018), Armenter and Hnatkovska (2017), Behringer (2019), Gruber and Kamin (2016), Andrè et al. (2007), Sandri (2014)

  Micro-level: e.g., Bates et al., 2009, Falato et al. (2014), Begenau and Palazzo (2016), Dao and Maggi (2018), Chen et al. (2017)

- German trade surplus

  e.g., Kollmann et al. (2015), Klug et al. (2018), Behringer and van Treeck (2019)

- Relative price of investment

  e.g., Greenwood (1997, 2000), Fischer (2006), Justiniano (2010, 2011), Schmitt-Grohe (2011), Dogan (2019)

Model: General setup I

- Two-country open economy model
- Home country = Germany, foreign country = Poland
- Economies are symmetric, except of the size, trade shares and of the decline in relative investment price
- Two goods (x_t): consumption, c_t, and investment goods, i_t
- Home bias in preferences
- Law of one price holds

Model: General setup II

- Economy consists of households and firms
- Firms own capital stock and conduct investment and trade home and foreign non-contingent bonds
- Portfolio- and investment adjustment costs
- Constant elasticity of substitution (CES) production function
- Perfect competition

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- Domestically produced goods are absorbed either by the home or the foreign economy

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  - transition period: $\epsilon_{H,t}$ linearly declines more details III

Calibration

Parameter	Description	Value
β	Discount factor	0.95
δ	Depreciation rate	0.1
ρ	Elasticity of substitution (Karabarbounis and Neiman, 2014)	1.25
α	Distribution parameter (Chen et al., 2017)	0.2982
ψ	Investment adjustment cost (Christiano et al., 2005)	3
κ	Dividend payment share (Chen et al., 2017)	0.17
κ_r	Dividend elasticity of revenues (Chen et al., 2017)	0.63
κ_k	Dividend elasticity of fixed capital (Chen et al., 2017)	0.05
n	Steady State work labor	0.3
η	Relative country size (GDP p.c. 1995-2018)	0.82
σ	Import demand elasticity (Feenstra et al., 2008)	2.4
ϕ	Portfolio adjustment cost (Schmitt-Grohe and Uribe, 2003)	0.000742
$\omega^{H,c}$	Home bias Germany consumption goods	0.993
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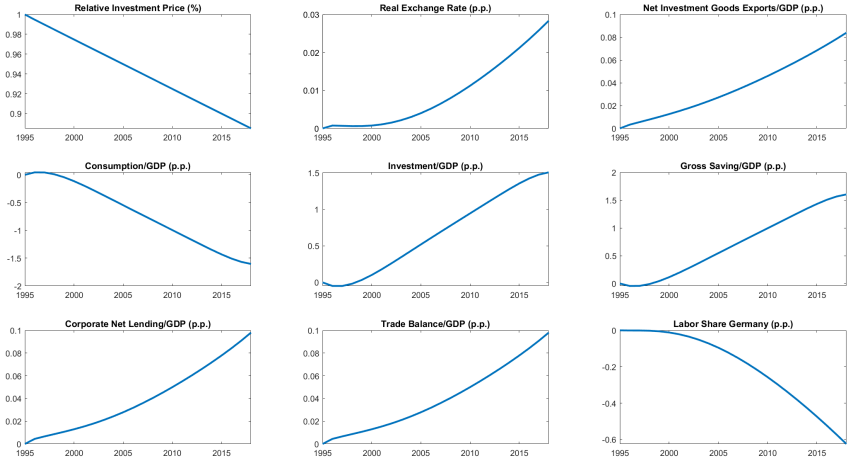
- i_t = Corporate investment are net of investment into construction
- There is no empirical counterpart for the bilateral real exchange rate
- Since I am interested in long-run trends, I remove short-term fluctuation with HP-Filter

Results: Fall in Relative Investment Price



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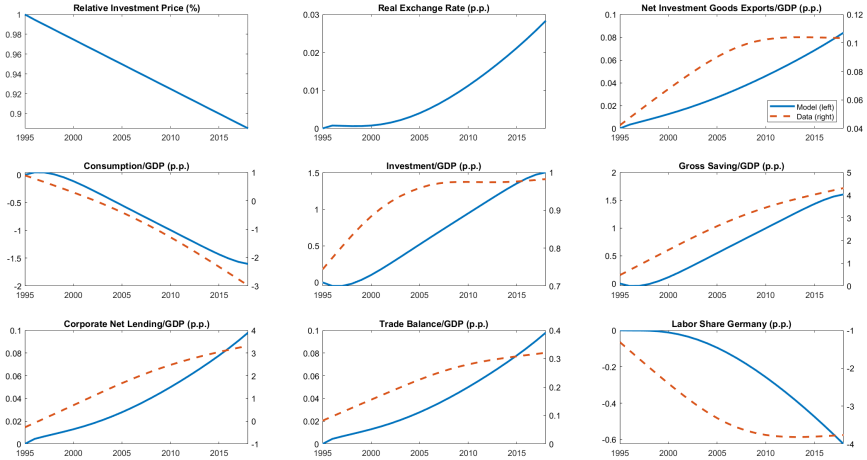

Results: Fall in Relative Investment Price III

1995-2018 Δ	Data	Model
Net Investment Goods Exports / GDP	0.1	0.1
Investment Expenditures / GDP	0.9	0.9
Consumption / GDP	-3.8	-1.0
Labor Share	-2.0	-1.1
Gross Saving / GDP	2.8	1.0
Corporate Net Lending / GDP	1.9	0.1

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Corporate Net Lending / GDP	1.9	0.1
Extrap. Gross Saving / GDP	2.8	1.7
Extrap. Corporate Net Lending / GDP	1.9	0.9

Conclusion

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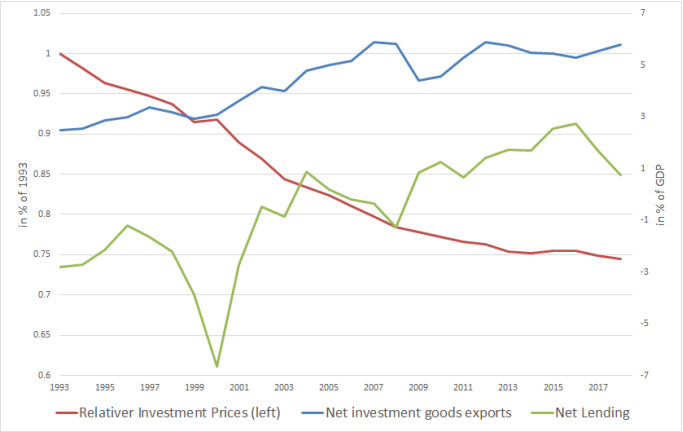
- I show that the fall in relative investment prices can explain both trends by amplifying investment goods exports

Thank You!

Relative Investment Prices, Net Investment Goods Exports, Net Lending



- Own figure. Source: Federal Statistical Office of Germany, World Integrated Trade Solution (WITS).

more details

Further definitions

- The final investment good, i_t, consists of:

$$i_t = \left[\omega^{H,i}\tfrac{1}{\sigma} i_{H,t}^{\frac{\sigma-1}{\sigma}} + (1-\omega^{H,i})^{\frac{1}{\sigma}} i_{F,t}^{\frac{\sigma-1}{\sigma}}\right]^{\frac{\sigma}{(\sigma-1)}},$$

- The corresponding investment-price index is given by

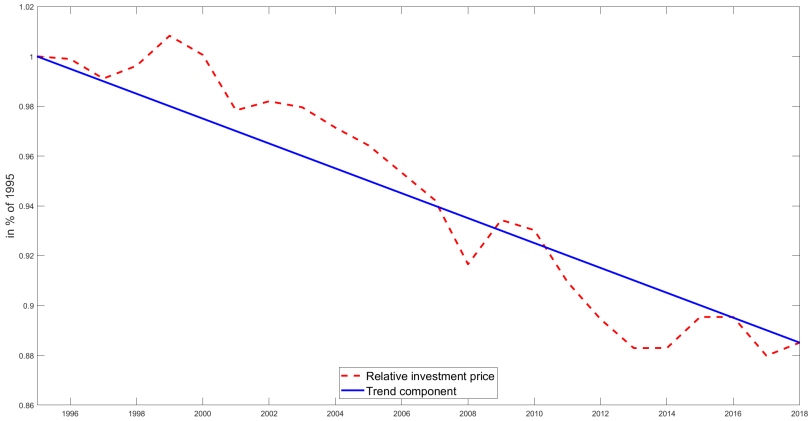
$$\epsilon_t = \left[\omega^{H,i}\epsilon_{H,t}^{1-\sigma} + (1-\omega^{H,i})\epsilon_{F,t}^{1-\sigma}\right]^{\frac{1}{1-\sigma}}$$

- The firm's budget constraint is given by:

$$y_t - w_t n_t - \epsilon_t(k_t - (1-\delta)k_{t-1}) - d_t - b_{Ht} + (1+r_{t-1})b_{Ht-1} - rer_t b_{Ft}$$
$$+ rer_t(1+r^*_{t-1})b_{Ft-1} - \frac{\phi}{2} rer_t \left(b_{Ft} - \overline{b}_F\right)^2 = 0$$

more details II

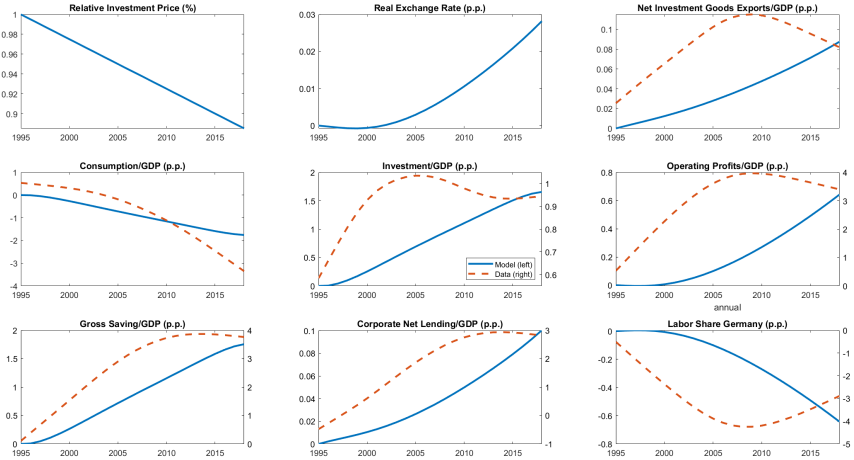
Relative investment price and its trend component



Own figure. Source: Federal Statistical Office of Germany.

more details III

The fall in reltive investment prices ($\lambda = 400$)



more details IV