The End of Privilege: a reexamination of the Net Foreign Asset Position of the United States

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UCLA
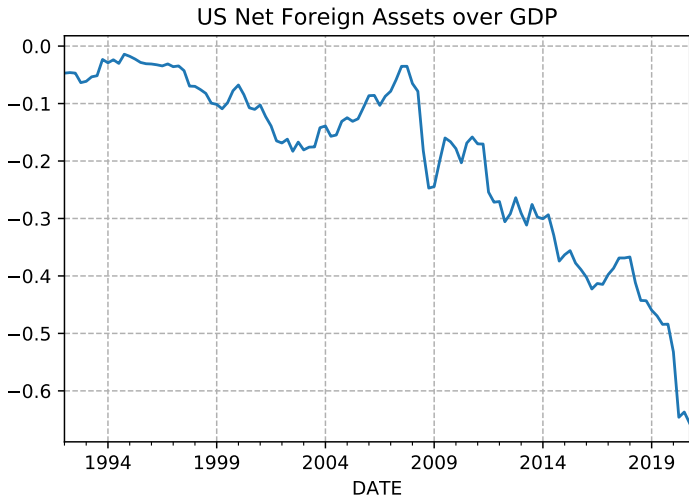Jonathan Heathcote and Fabrizio Perri
FRB Minneapolis

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Over last decade unprecedented decline in US Net Foreign Asset Position


US Net Foreign Assets over GDP

Part 1: Accounting for the Decline in US NFA

- Big Boom in U.S. Stock Market (relative to foreign) is key

  - Value of US Corporations up by 150% of GDP
  - Foreigners hold $\approx 30\%$ of U.S. equity
  - implied they got capital gain of $\approx 45\%$ of US GDP

- *The End of Privilege* (ex-post)

  - US NFA position is now worse than cumulated current account deficits

Part 2: What Does this Mean For Americans?

- What drove the U.S. Stock Market boom?

  - discount factors and growth rates?
  - unexpected increase in U.S. profitability (markups)?
  - unexpected increase in importance of U.S. unmeasured capital?

- Open Economy: implications for NFA and welfare

  - Markups:
    - little impact on current account,
    - big valuation effect for foreigners,
    - big increase in share of US GDP paid to foreigners

  - Unmeasured Capital:
    - foreigners finance this boom in unmeasured investment
    - huge impact on NFA position,
    - foreign ownership irrelevant for US welfare,
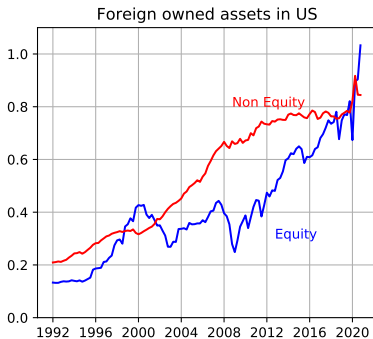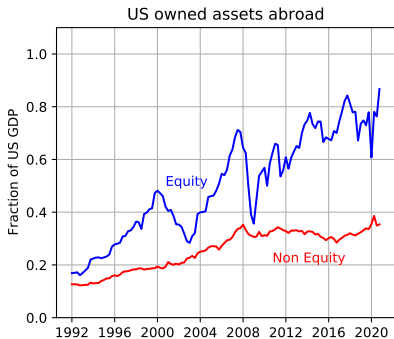
The Privilege and its End
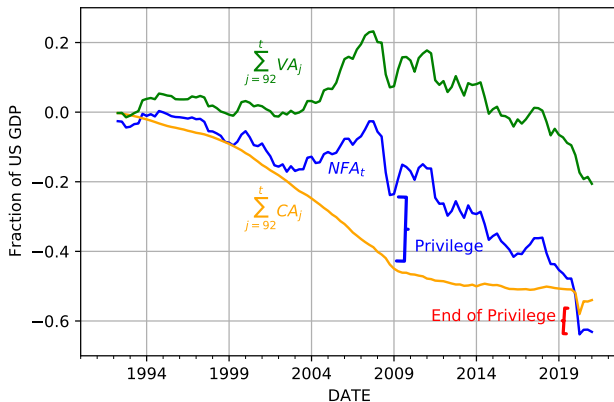
$$NFA_{t+1} - NFA_t = \underbrace{CA_t}_{\text{Net lending abroad}} + \underbrace{VA_t}_{\text{Valuation Effects}}$$

Valuation Effects Only in Equity
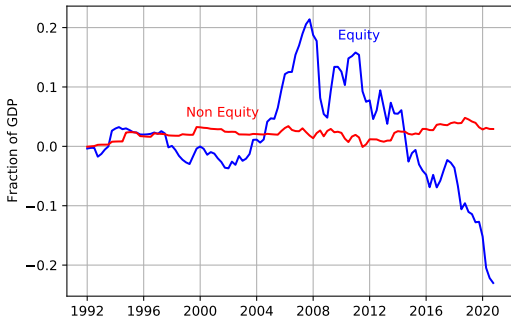
- Large international variation in prices of outstanding equity portfolios, little variation in valuation of non-equity (bonds, currency, etc)

Large and Balanced Gross Equity Positions

US owned assets abroad — Foreign owned assets in US

- Equity is both portfolio and direct investment equity
- Large Equity positions give large revaluation effects
- Over last 10 years growth in US equity value much larger than for foreign equity

Simple quantitative macro finance model

- Farhi and Gourio 2018 in an international setting

- Changes in standard valuation metrics across BGPs to identify roles of alternative drivers of rising asset values

- (i) P/Y, (ii) P/K', (iii) P/D & (iv) P/E

- Reconcile valuation and NIPA data

- What are the corresponding implications for the NFA position?

- and for US welfare?

Key Model Parameters

- US and ROW, common trend growth g

- ROW preferences linear — pins down r^* for world

- Equity portfolios are held fixed. Trade in a risk free bond finances current acounts

- Markups — Bertrand competition between leader and follower firms implies markup is gap in marginal costs $\mu = \frac{z_H}{z_L}$

- Production share of capital α and depreciation rate δ

- GHH preferences for leisure — production and valuation do not depend on portfolios. Labor elasticity of 1/2

Valuation Ratios on a Balanced Growth Path

1. Buffett Ratio: $\frac{P}{Y} = \left[\frac{K'}{Y} + \frac{1}{r^*-g}\frac{\mu-1}{\mu} \right]$ ⇑

2. Capital-Output Ratio: $\frac{K'}{Y_{corp}} = \frac{1+g}{r^*+\delta}\frac{\alpha}{\mu}$ *flat*

    - Tobin's $Q = P/K'$ implied by these two ratios ⇑

3. Earnings-Price Ratio: $\frac{E'}{P} = r^* + g\left(\frac{K'}{P} - 1\right)$ ⇓

4. Dividend-Price Ratio: $\frac{D'}{P} = r^* - g$ *flat*

5. Labor Share: $\frac{WL}{Y} = \frac{1-\alpha}{\mu}$ ⇓

- Five parameters and five moments

$$g, r^*, \alpha, \delta, \mu = \frac{z_H}{z_L}$$

- z_H so that ratio of US GDP to ROW GDP constant

Calibrated values

Parameters			Moments		
	pre 2009	post 2009		pre 2009	post 2009
g	3.4%	1.75%	PE Ratio	17.5	27
r^*	6.4%	4.75%	D/P Ratio	3%	3%
μ	1.0155	1.102	Buffett Ratio	1.5	3
α	0.34	same	Tobin's Q	1.25	2.48
δ	0.10	same	Labor Share	0.65	0.60

- Require a large increase in μ to match Buffett Ratio

- Need parallel drop in r^* and g by 1.65% to match DP and PE ratios

- Implications for NFA and welfare depend on ROW share of US Equity

Impact of Markup Shock on NFA
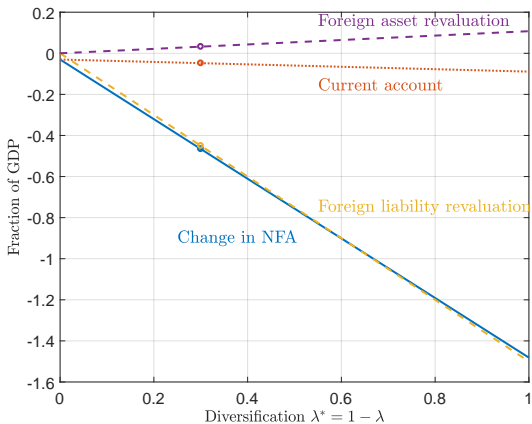
- Shock consistent with NFA, CA patterns

Unmeasured Investment and Asset Values

- Production required measured and unmeasured capital

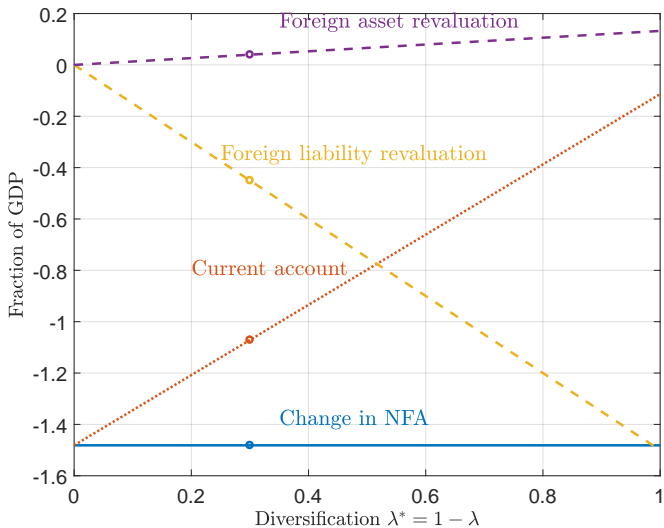$$Y = K_U^{(1-\nu)} \left(K_M^\alpha L^{1-\alpha} \right)^\nu$$

$$Y_M = Y - I_U$$

- Valuation of Firms

$$P = K_U' + K_M'$$

- Increase in Asset Values driven by shock to share of unmeasured capital $(1 - \nu)$?
- Isomorphic to markup increase in closed economy
- But to raise P/Y by a 150% of GDP requires a huge increase in total investment

Impact of Unmeasured Capital Shock on NFA

Conclusions

- Large decline in US NFA due to relative high performance of US v/s foreign stocks (end of privilege)

- Unanticipated Shocks to US Markups can explain, at the same time, post 2010 macro, financial and international trends

- Imply large transfer of resources from US to RoW. (Efficient?)

- Shocks to investment opportunities, can also explain financial trends

  - but imply huge deterioration in NFA to fund unmeasured investment

Backup Slides

- Statistical Discrepancy `go`
- Portfolio and FDI revaluations `go`
- Measurement of Value and Flows `go`
- Valuation metrics `go`
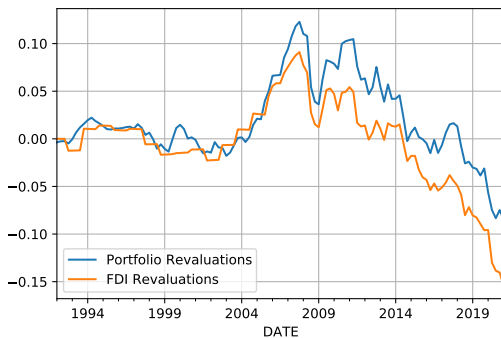- Ex-ante and ex-post privilege `go`
- Implicit income yields `go`

Statistical Discrepancy
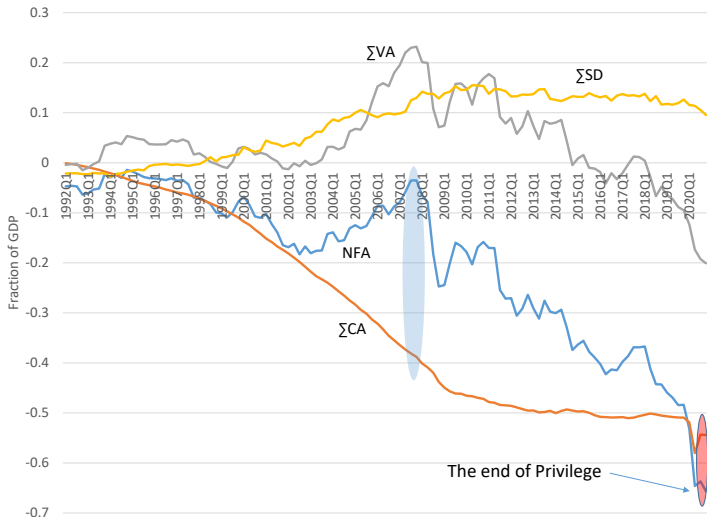
- Statistical Discrepancy plays almost no role in NFA dynamics over past 10 years (back)

Cumulated Net Valuations in FDI and Portfolio positions

- Large valuations changes both in FDI and portfolio investments back

Asset Values

- Flow of Funds reports market value and replacement cost of non-financial assets in US

- Tobin's Q = market value / replacement cost

- Focus on corporate sector: this is what foreigners can buy

Corporate Sector Balance Sheet

Assets	Liabilities
Market value of non-financial assets $=$ Enterprise value	Market value of equity
Financial assets	Financial liabilities (debt, bank loans etc)

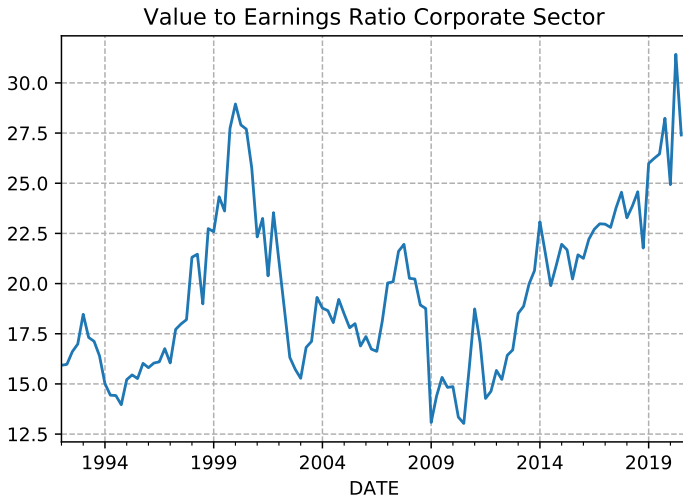- Dividends = Output - Wages - Investment - Corp. Taxes - IBT

back

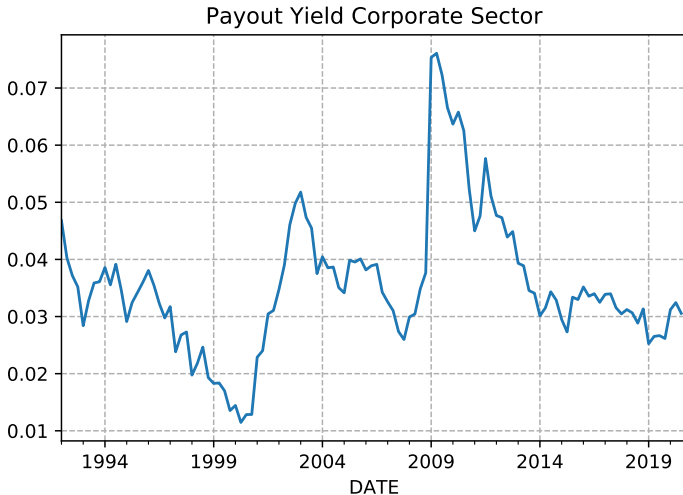# Market Valuations of US Corporations Have Boomed

Corporate Market and Replacement Value of Assets over GDP
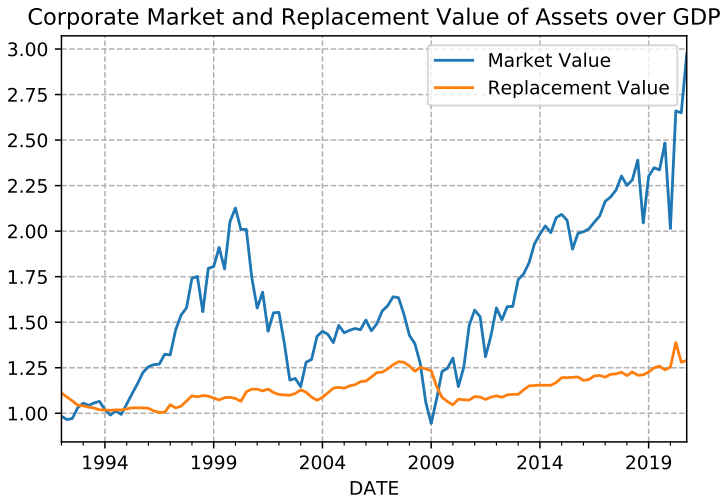
Corporate Sector Tobin's Q has risen

US Corporate Sector Tobins Q

Price-Earnings Ratio Corporate Sector
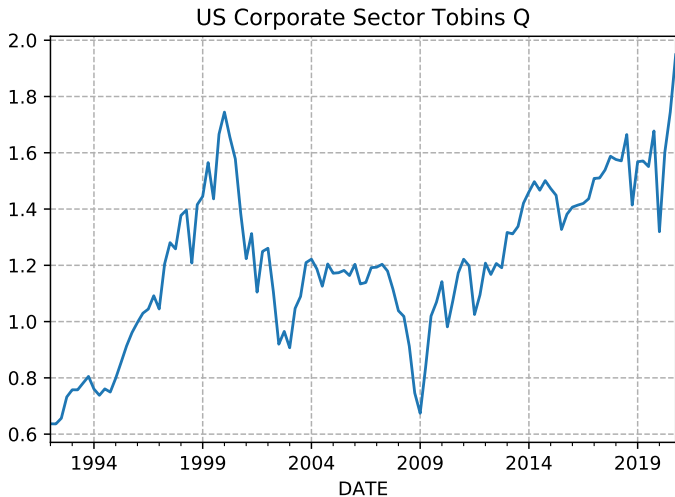
Value to Earnings Ratio Corporate Sector

Dividend-Price Ratio Corporate Sector

Payout Yield Corporate Sector

# Falling labor share, corporate taxes, and weak investment implies bigger payouts

Corporate Payouts over Output
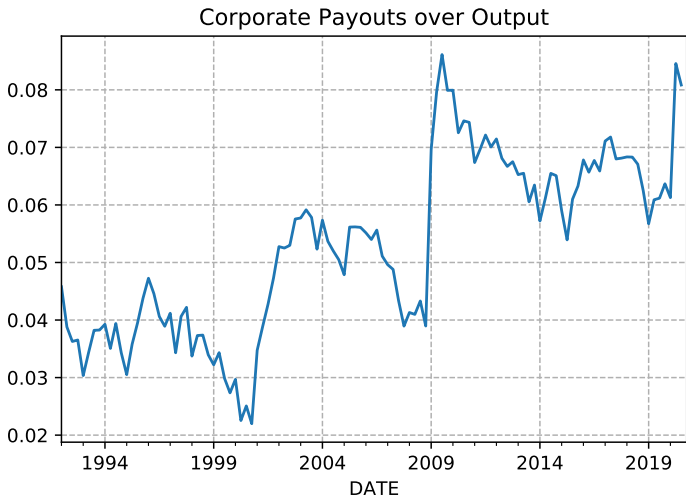
Unexpected and Expected Privilege

$$
\begin{aligned}
NFA_T - NFA_{T-1} \;=\; & NX_T \\[4pt]
& + \underbrace{r^*}_{\substack{\text{expected return from } T-1 \text{ to } T}} \times \underbrace{NFA_{T-1}}_{\text{wealth at } T} \\[4pt]
& - \underbrace{\left[\frac{D_T + V_T}{V_{T-1}} - (1 + r^*)\right]}_{\text{excess return on domestic equity}} \times \underbrace{(1 - \lambda)V_{T-1}}_{\text{ROW holdings of US equity}} \\[4pt]
& + \underbrace{\left[\frac{D_T^* + V_T^*}{V_{T-1}^*} - (1 + r^*)\right]}_{\text{excess return on foreign equity}} \times \underbrace{\lambda^* V_{T-1}^*}_{\text{US holdings of ROW equity}} \\[4pt]
& - \left[\underbrace{r^{safe} - r^*}_{\text{interest gap on US "safe" assets}}\right] \times \underbrace{B_t^{safe}}_{\text{stock of "safe" assets}}
\end{aligned}
$$

# Implicit Income Yields on Non-Equity External Assets and Liabilities

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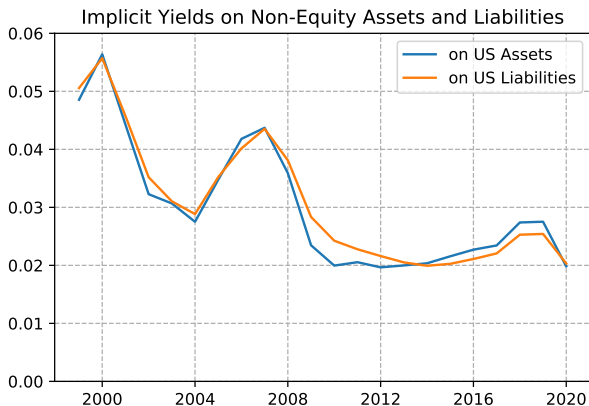
- little privilege on average

Implicit Income Yields on DI Equity External Assets and Liabilities

Implicit Income Yields on DI Equity Assets and Liabilities

- on US DI Equity Assets
- on US DI Equity Liabilities
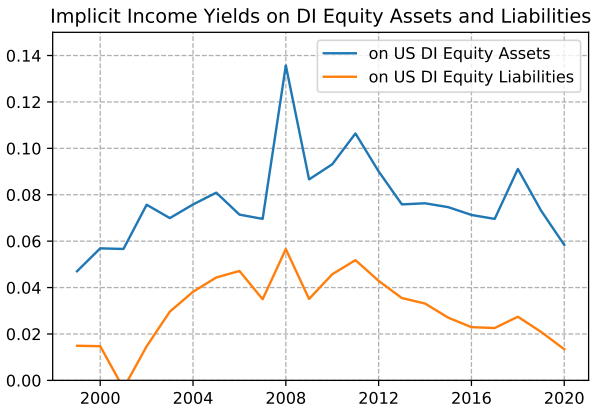
• Tax motivated profit shifting or dark matter?

Implicit Income Yields on Portfolio Equity External Assets and Liabilities

Implicit Income Yields on Portfolio Equity Assets and Liabilities
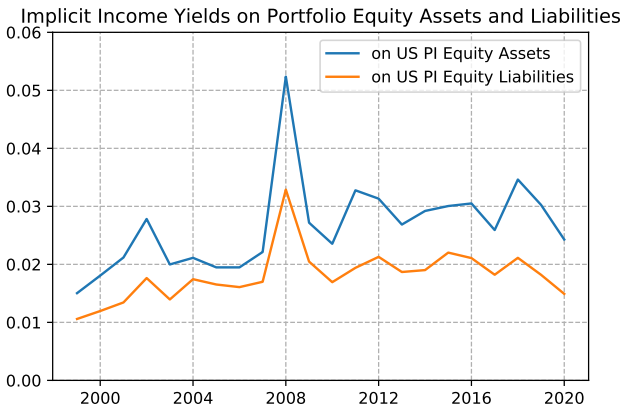
- Income yield on US portfolio equities lower than for ROW