

Exorbitant Privilege and Exorbitant Duty

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Three Important Facts on US External Accounts

- A World Banker's Balance Sheet
- “Exorbitant Privilege” in normal times
- “Exorbitant Duty” in crisis times

Exorbitant Privilege

- Term attributed to Valéry Giscard d'Estaing, French finance minister in 1965;
- Jacques Rueff (economic advisor to de Gaulle):
 - *“The country with a key currency is in the deceptively euphoric position of never having to pay off its international debts. [...] This situation is the result of a collective error of historic proportions.”*
- Modern meaning: (Gourinchas and Rey (2007))
 - Excess return of US external assets over US external liabilities.
 - Important for long run sustainability. Stable external position despite persistent trade deficits.
 - Asymmetric external balance sheet: World Banker;
- *First contribution*: We update and revise earlier estimates. We reaffirm the existence of positive excess returns in good times.

Exorbitant Duty

- *Second contribution*: document a **new** stylized fact:
 - large US **valuation losses** in crisis times
 - Transfers wealth **from** the US **to** the rest of the world.
 - Precisely at times when the **marginal utility of consumption is high**.
- 'Exorbitant Duty'

A Theoretical Framework

- *Third contribution:* Model to make sense of these facts;
 - ‘Exorbitant Privilege’ and ‘Exorbitant Duty’ are two sides of the same coin;

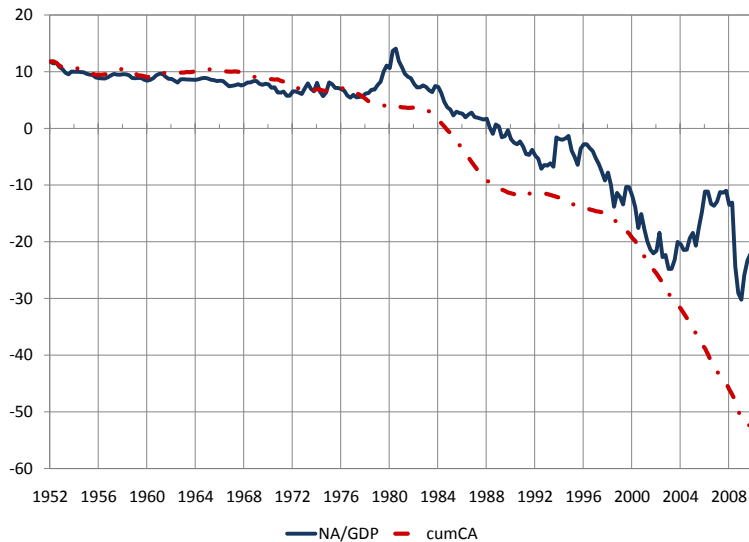
*“great power involves great responsibility,” FDR,
April 1945*

- Leads to an **alternative interpretation** of the role of the center country in the International Financial System:
 - global shocks
 - risk appetite
 - fiscal capacity

External Balance Sheet

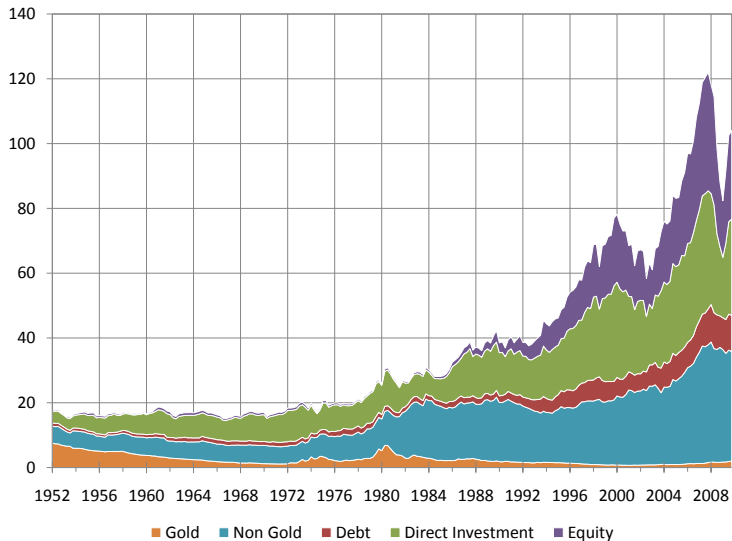
- **Updated and improved data set** of “From World Banker to World Venture Capitalist” , 1952Q1 to 2009Q4
 - Use historical data on positions (annual), flows (quarterly) and asset and asset price series for valuations.
 - More detailed decomposition on liability side (**corporate and government debt estimated separately**)
 - Use detailed **wartime Treasury Surveys** of cross border holdings (1941, 1943) to cross check our initial positions. Surveys of strategic importance (reparations, and identification of foreign agents)

US Net Foreign Asset Position (percent of output)



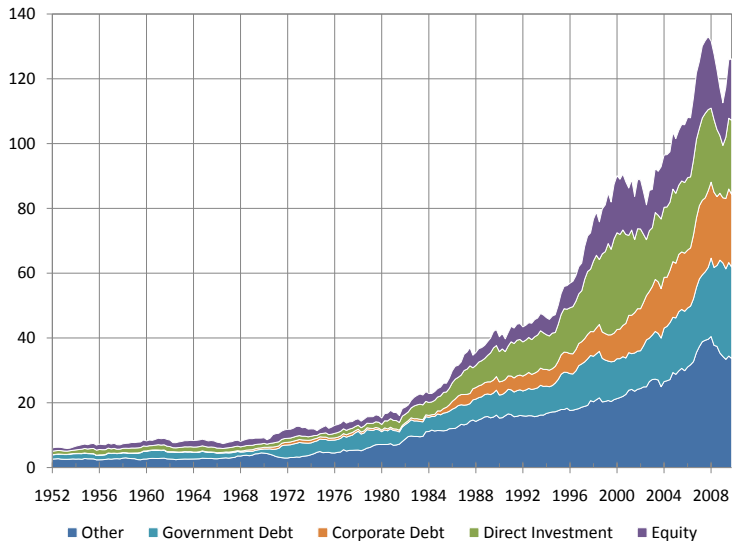
Source: BEA, SCB, 1941-43 Treasury Surveys, and authors' calculations

US Gross Asset Position (percent of output)



Source: BEA, SCB, 1941-43 Treasury Surveys, and authors' calculations

US Gross Liabilities Position (percent of output)



Source: BEA, SCB, 1941-43 Treasury Surveys, and authors' calculations

'Exorbitant Privilege'

- Gourinchas & Rey (2007) found excess returns on US external assets of 3.32% for 1973-2004.
 - consistent with most estimates (Obstfeld & Rogoff (2005), Lane & Milesi Ferretti (2007))
 - Curcuru et al (2008) find smaller estimate (0.72%) for 1994-05; yet Forbes (2008) finds 6.9% for 2002-06 with the same methodology

- Issue?

$$P_{t+1}^i = P_t^i + F_{t+1}^i + V_{t+1}^i + OC_{t+1}^i$$

where

- P_t^i : Positions for assets i at the end of period t ;
 - F_t : gross financial flows during period t ;
 - V_t : Valuation gains or losses attributed to currency and local asset price movements;
 - OC_t : 'Other Changes': Reconciliation item.
- How to treat OC_t ? mismeasured capital gain, financial flows, or initial position?

US Gross External Returns

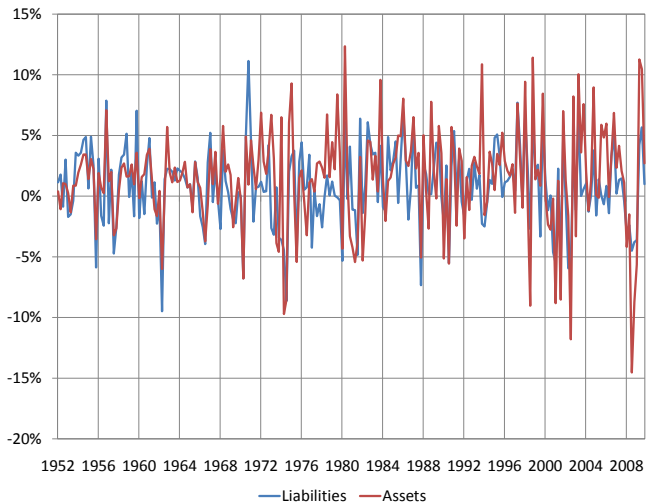
average returns	1952:1-2009:4	1952:1-1972:4	1973:1-2009:4
	(a) : Valuations		
$r^a - r^l$	2.69%	1.30%	3.47%
r^a	5.84%	5.04%	6.30%
r^l	3.16%	3.74%	2.83%
	(b) : Financial Flows		
$r^a - r^l$	1.49%	1.25%	1.62%
r^a	4.91%	4.71%	5.02%
r^l	3.42%	3.46%	3.40%
	(c) : Mixed		
$r^a - r^l$	2.44%	1.28%	3.11%
r^a	5.76%	4.96%	6.21%
r^l	3.31%	3.68%	3.11%

Table: Panel (a): “Other changes” allocated to valuations; Panel (b): to financial flows; Panel (c): to valuations, except for debt assets and liabilities. r^a refers to gross assets, r^l to gross liabilities. Annualized quarterly real returns.

'Exorbitant Privilege'

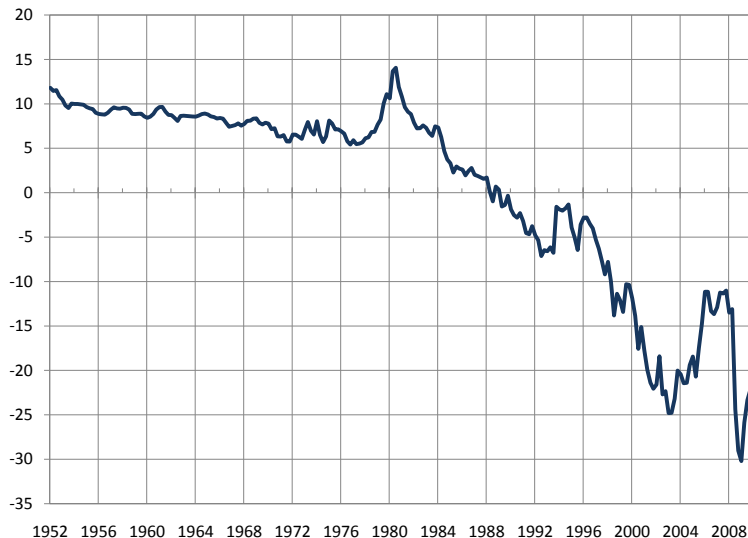
- Excess returns between 1.62% and 3.4% p.a.
- After 1973, flexible exchange rate system. Higher return and higher volatility.
- Even with the Curcuru et al correction, we find large excess returns since 1973.
- Why? Important to look at long periods.

Real Quarterly Returns on US Gross Assets and Liabilities



Quarterly returns deflated by US Personal Consumption Expenditure deflator. Source: BEA, SCB, 1941-43 Treasury Surveys, and authors' calculations.

US Net Foreign Asset Position (percent of output)

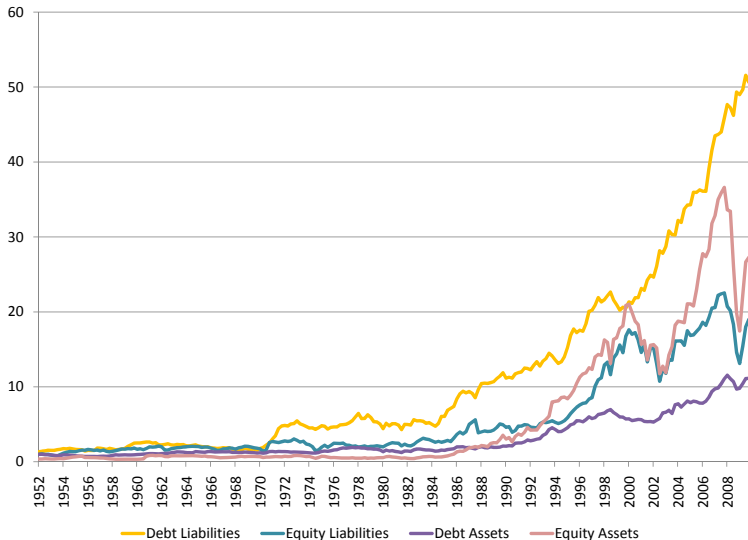


Source: BEA, SCB, 1941-43 Treasury Surveys, and authors' calculations

'Exorbitant Duty'

- During latest crisis, US net foreign asset position deteriorated massively
 - Between 2007:4 and 2009:1, NA drops from USD -1.6tr to USD -4.29tr, a decline of USD 2.7tr
 - Over same period, cumulated current account represents -809bn,
 - Valuation loss of USD 1.9tr, or about 13.4% of US GDP,

U.S. External Debt and Equity, percent of US GDP



Source: BEA, SCB, 1941-43 Treasury Surveys, and authors' calculations

VIX and NA/GDP

	<i>nagdp</i>	<i>vagdp</i>	<i>nagdp</i>	<i>vagdp</i>
	1962:2-2009:4		1990:1-2009:4	
<i>VIX</i>	-0.60**	-0.05**	-0.50**	-0.09**
	(.11)	(.02)	(.09)	(.03)
<i>c</i>	-1.75	1.28**	-1.75	2.52
	(2.1)	(.36)	(2.1)	(.70)
<i>N</i>	190	190	80	80
Adj. R^2	0.14	0.04	0.26	0.11

Table: Exorbitant Duty over Time. The table reports the results from an OLS regression of the U.S. net foreign asset position relative to GDP (*nagdp*) on the VIX index extended before 1986 with the volatility of the MSCI-ex US index. *vagdp* refers to the valuation component (relative to GDP) defined as $V_t = NA_t - NA_{t-1} - F_t$ where F_t represents net financial flows in period t .

'Exorbitant Duty'

- Deterioration also present to a smaller degree in earlier episodes
- Worsening of US net foreign asset position occurs largely through a **valuation loss**: risky assets collapse, while US government debt increases in value.
- This valuation loss transfers wealth from the US to the rest of the world.
- US provides a transfer at times when the **marginal utility of consumption is high**.
- We interpret the 'exorbitant duty' as an **insurance payment** and the 'exorbitant privilege' as the corresponding **insurance premium**.

A Simple Model of Insurance Provision

- 2 countries, Home (US) and Foreign (*), equal size 1/2.
- Endowment economy: y_t, y_t^* . Global output \bar{y}_t iid.
- Representative household with CRRA preferences:
$$E_t \sum_{s=t}^{\infty} \beta^s c_t^{1-\sigma} / (1 - \sigma),$$
- **US has more tolerance for risk:** $\sigma < \sigma^*$ (interpreted broadly as access to technology to reduce risk)
- Markets are complete.

A Simple Model

- Ex-ante symmetric equilibrium:

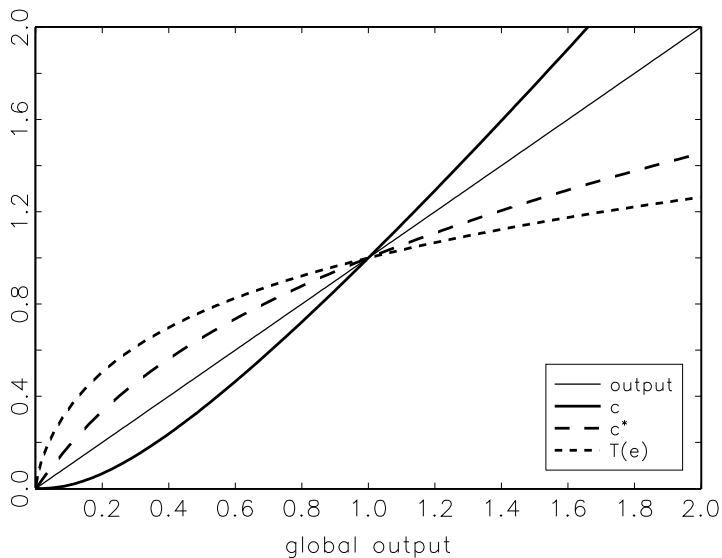
$$\frac{1}{2} \frac{c}{E\bar{y}} + \frac{1}{2} \left(\frac{c}{E\bar{y}} \right)^{\sigma/\sigma^*} = \frac{\bar{y}}{E\bar{y}}.$$

- US 'insures' foreign against bad times.
- US implements allocation with equity holdings of $\sigma^*/(\sigma + \sigma^*) > 1/2$: leveraged external portfolio
- if output is log-linearly distributed with variance σ_ϵ^2 , autarky riskfree rate is

$$E \ln R_t^{aut} = -\ln \beta - \frac{\sigma^2}{2} \sigma_\epsilon^2.$$

- lower autarky interest rate abroad since $\sigma^* > \sigma$ due to precautionary saving (similar to Mendoza et al (2009) and Caballero, Farhi & Gourinchas (2008))
- US runs trade deficit

Risk Sharing with Heterogenous Risk Aversion



The figure is drawn under the following assumptions: $E\bar{y} = 1$, $\sigma = 2$, $\sigma^* = 5$.

A Model of Global Disasters and Insurance

- Simple model is too stylized
 - single good, so no difference in risk-free returns
 - symmetric size
 - no episodes of global stress
- Richer model includes:
 - multiple goods (traded and non-traded) (Hassan (2009))
 - differences in size (Hassan (2009))
 - global disaster risk (Barro (2006) and Rietz (1988))
 - differences in 'fiscal capacity' (size)

A Model of Global Disasters and Insurance

- 2 countries, Home (US) and Foreign (*), home size α .
- Endowment economy: y_t^T, y_t^{*T} **traded**, y_t^N, y_t^{*N} **non traded**.
Global output of traded good $\bar{y}_t^T = \alpha y_t^T + (1 - \alpha)y_t^{*T}$.

- Representative household with CRRA preferences:

$$E_t \sum_{s=t}^{\infty} \beta^s c_t^{1-\sigma} / (1 - \sigma), \text{ with } \sigma < \sigma^*$$

- CES preferences over T and N consumption:

$$c = \left[\gamma^{1/\theta} (c^T)^{\frac{\theta-1}{\theta}} + (1 - \gamma)^{1/\theta} (c^N)^{\frac{\theta-1}{\theta}} \right]^{\frac{\theta}{\theta-1}}$$

- Markets are complete.
- **Global disasters**: $\ln y_t^i = \ln E y^i + \epsilon_t^i + v_t$
 - ϵ^i iid log-normal, good & country specific
 - v_t is a **Barro-Rietz** process: with probability p_d output falls by $(1 - b)$ across sectors and countries.
- **Fiscal capacity**: recovery rate r on government bonds may differ across countries during disasters: $r > r^*$.

Equilibrium Allocations and Expected Returns

- Allocations
 - reallocation of traded goods towards foreign when disaster strikes
 - US runs trade deficit in normal times, yet NA position is stable. Small excess return on assets over liabilities (but leveraged). ('exorbitant privilege')
 - implements allocation with leveraged portfolio. Collapse in equity values during disaster implies a decline in valuation (NA drops). ('exorbitant duty')
- Excess returns on debt
 - relative price of nontraded good q : $q_t/q_t^* = (x_t y_t^N / y_t^{*N})^{-1/\theta}$
 - domestic real bond delivers high payoff when q is high
 - fall in \bar{y}^T or y^{*N} : transfer to foreign, decrease in q/q^* ; US real bond not a good hedge
 - fall in y^N : increase in q/q^* ; transfer to home, US bond is a good hedge
 - Overall, foreign bonds has lower yield. No within class excess return
 - Result is reversed if foreign has a lower fiscal capacity.

Model Simulation

Parameters		(1)	(2)	(3)	(4)
α		0.75	0.75	0.75	0.75
θ		1	1	1	1
σ^*		4	3	4	4
b			0.42	0.42	0.42
r^*			1	1	0.75
Equity Premium	(n.)	0.13	4.08	4.52	4.52
(percent)	(d.)				
T-bill excess return	(n.)	0.03	0.04	-1.87	0.34
(percent)	(d.)		0.04	-0.36	0.10
NA excess return	(n.)	0.00	0.00	0.15	0.15
(percent)	(d.)		0.00	0.17	0.17
Trade Balance	(n.)	0.00	0.00	-0.72	-0.72
(% of output)	(d.)		0.00	1.38	1.38
Net Foreign Assets	(n.)	0.00	0.00	0.00	0.00
(% of output)	(d.)		0.00	-14.48	-14.48
Net Debt Liabilities	(n.)	7.54	0.17	55.09	55.09
(% of output)	(d.)		0.28	86.33	86.33

Conclusion

- Three stylized facts:
 - World Banker
 - 'Exorbitant privilege'
 - 'Exorbitant duty'
- Our simple model accounts broadly for these facts. Interprets the US as provider of insurance against global shocks. Model emphasizes the role of:
 - greater risk appetite in US (capacity to handle risk)
 - disaster risk (important for wealth transfers)
 - fiscal capacity (important for risk free debt return)
- Model does **not** account for large net borrower position of the US in good times.
 - One interesting possibility: the role of pecuniary externalities in incomplete market models: foreign countries accumulate too much reserves, and the US accumulates too much debt;
 - Suggests that the US may face a Triffin-like problem as the demand for insurance may eventually exceed it's fiscal capacity.