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 Valery 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’

  - 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 \( t \);
- \( F_t^i \): gross financial flows during period \( t \);
- \( V_t^i \): 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

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>$(r^a - r^l)$</td>
<td>2.69%</td>
<td>1.30%</td>
<td>3.47%</td>
</tr>
<tr>
<td>$r^a$</td>
<td>5.84%</td>
<td>5.04%</td>
<td>6.30%</td>
</tr>
<tr>
<td>$r^l$</td>
<td>3.16%</td>
<td>3.74%</td>
<td>2.83%</td>
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(a) : Valuations

| $(r^a - r^l)$   | 1.49%        | 1.25%        | 1.62%        |
| $r^a$           | 4.91%        | 4.71%        | 5.02%        |
| $r^l$           | 3.42%        | 3.46%        | 3.40%        |

(b) : Financial Flows

| $(r^a - r^l)$   | 2.44%        | 1.28%        | 3.11%        |
| $r^a$           | 5.76%        | 4.96%        | 6.21%        |
| $r^l$           | 3.31%        | 3.68%        | 3.11%        |

(c) : Mixed

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.
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

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<tbody>
<tr>
<td><strong>VIX</strong></td>
<td>-0.60** (.11)</td>
<td>-0.05** (.02)</td>
<td>-0.50** (.09)</td>
<td>-0.09** (.03)</td>
</tr>
<tr>
<td><strong>c</strong></td>
<td>-1.75 (2.1)</td>
<td>1.28** (.36)</td>
<td>-1.75 (2.1)</td>
<td>2.52 (.70)</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>190</td>
<td>190</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td><strong>Adj. R²</strong></td>
<td>0.14</td>
<td>0.04</td>
<td>0.26</td>
<td>0.11</td>
</tr>
</tbody>
</table>

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

- 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 \(\sigma^2_{\epsilon}\), autarky riskfree rate is

\[
E \ln R_{t}^{aut} = -\ln \beta - \frac{\sigma^2_{\epsilon}}{2} \sigma^2_{\epsilon}.
\]

- 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: $E\tilde{y} = 1$, $\sigma = 2$, $\sigma^* = 5$. 
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 $\alpha$.
- 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:
  $E_t \sum_{s=t}^{\infty} \beta^t c_t^{1-\sigma} / (1 - \sigma)$, with $\sigma < \sigma^*$
- CES preferences over $T$ and $N$ consumption:
  $$c = \left[ \gamma^{1/\theta} \left( c^T \right)^{\theta-1/\theta} + (1 - \gamma)^{1/\theta} \left( c^N \right)^{\theta-1/\theta} \right]^{\theta/(\theta-1)}$$
- Markets are complete.
- Global disasters: $\ln y_t^i = \ln Ey^i + \epsilon_t^i + \nu_t$
  - $\epsilon_t^i$ iid log-normal, good & country specific
  - $\nu_t$ 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 highs 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

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<th>Parameters</th>
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<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
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<td>1</td>
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<tr>
<td>σ*</td>
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<td>3</td>
<td>4</td>
<td>4</td>
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<tr>
<td>b</td>
<td>0.42</td>
<td>0.42</td>
<td></td>
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<tr>
<td>r*</td>
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<td>1</td>
<td></td>
<td>0.75</td>
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<table>
<thead>
<tr>
<th>Equity Premium (n.)</th>
<th>(percent)</th>
<th>(d.)</th>
<th>0.13</th>
<th>4.08</th>
<th>4.52</th>
<th>4.52</th>
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<tbody>
<tr>
<td>T-bill excess return</td>
<td>(n.)</td>
<td>(percent)</td>
<td>0.03</td>
<td>0.04</td>
<td>-1.87</td>
<td>0.34</td>
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<tr>
<td>NA excess return</td>
<td>(n.)</td>
<td>(percent)</td>
<td>0.00</td>
<td>0.00</td>
<td>0.15</td>
<td>0.15</td>
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<tr>
<td>Trade Balance (%)</td>
<td>(d.)</td>
<td>0.00</td>
<td>0.00</td>
<td>1.38</td>
<td>1.38</td>
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<tr>
<td>Net Foreign Assets</td>
<td>(n.)</td>
<td>(percent)</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Net Debt Liabilities</td>
<td>(n.)</td>
<td>(percent)</td>
<td>7.54</td>
<td>0.17</td>
<td>55.09</td>
<td>55.09</td>
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<tr>
<td>(d.)</td>
<td>0.28</td>
<td>86.33</td>
<td>86.33</td>
<td>86.33</td>
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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.